

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CATSKILL/DELAWARE UV FACILITY

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4.14. NATURAL RESOURCES

4.14.1. Introduction

Natural resource parameters such as upland vegetation; wetlands, waterways, and floodplains; fish and benthic invertebrates; birds; herpetiles; mammals; and endangered, threatened, or rare plant and animal species were assessed at the Eastview Site and the appropriate study area to determine the potential effects resulting from the construction and operation of the proposed Catskill/Delaware Ultraviolet Light (UV) Facility at the Eastview Site. For the methodology of this analysis, refer to the [Section 3.14, Data Collection and Impact Methodologies, Natural Resources](#).

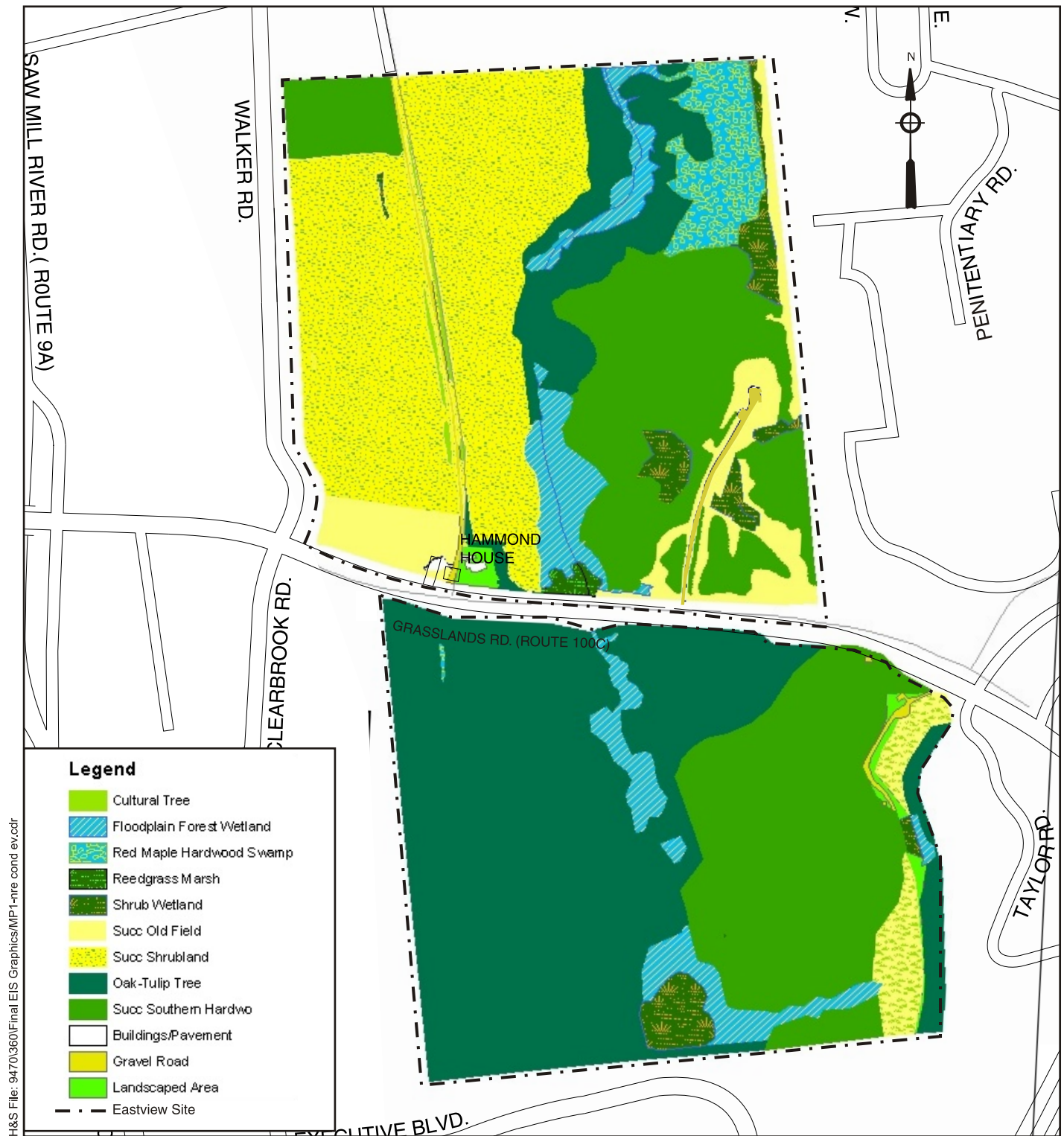
4.14.2. Baseline Conditions

The Eastview Site contains approximately 149 acres of largely undeveloped land that is bisected by Grasslands Road (Route 100C). The north parcel, consisting of 83 acres and is located in the Town of Mount Pleasant, while the south parcel consists of 66 acres and is located in the Town of Greenburgh ([Figure 4.14-1](#)). The 83 acres in Mount Pleasant does not include the parcel that was used for a four-acre easement for the Walker Road Extension, along the western side of the site. An additional eight-acre City-owned parcel, located along the Catskill Aqueduct in Greenburgh, is included in this analysis. The Eastview Site is largely undeveloped with the exception of: (1) Delaware Shaft No. 19, situated on the eastern side of the north parcel with an access road off Route 100C; (2) the Catskill Aqueduct Connection Chamber (CCC), situated on the eastern side of the south parcel with an access road off Route 100C; (3) an electrical substation (owned and maintained by Con Edison), situated on the south parcel along Route 100C; (4) Con Edison's electrical transmission lines that run alongside the eastern edge of the south parcel; (5) a small NYCDEP laboratory building on the south parcel; and (6) the historic Hammond House, a private residence listed on the State and National Register of Historic Places (S/NR) that is situated on the north parcel along Route 100C.

Successional fields and woodland communities, including mature upland woods and successional woods and fields, primarily characterize the Eastview Site. Mine Brook, a tributary to the Saw Mill River, flows through the central portion of the site, from north to south, creating various wetland communities on-site, including palustrine forested wetlands and palustrine scrub-shrub/emergent wetlands. [Tables 4.14-1](#) and [Table 4.14-2](#) provide a summary of the natural resources occurring on-site in the Towns of Mount Pleasant and Greenburgh, respectively, and includes a list of habitat type; habitat characterization; summary of herbaceous, understory and canopy vegetation; and summary of aquatic, terrestrial and avian wildlife.

4.14.2.1. Existing Conditions

The existing natural resources found at the Eastview Site are largely the same for both the Mount Pleasant (north) and Greenburgh (south) parcels. The north and south parcels contain similar vegetative communities; however, the species composition within the vegetative communities varies slightly between them. Therefore, the description of the vegetative



**Natural Resources Existing Conditions
at the Eastview Site**

TABLE 4.14-1. SUMMARY OF NATURAL RESOURCES FOUND AT MOUNT PLEASANT

MOUNT PLEASANT							
Habitat	Habitat Characterization	Vegetation			Wildlife		
Herbaceous	Shrub/Understory	Tree/Canopy	Aquatic	Terrestrial	Avian		
Floodplain Wetland and Red Maple Hardwood Swamp	The majority of forested wetlands are situated adjacent to Mine Brook and its tributaries. A mature wetland forest with large diameter trees occurs in the northeastern corner of the site. Vegetative structure and composition of the forested wetlands are similar. Understory varies from open in the mature forest to moderately dense in the second growth and along the stream.	Skunk cabbage is the dominant ground cover along the streams. Other herbaceous species include garlic mustard, field garlic, Virginia creeper, thyme-leaved speedwell, various goldenrod species, deer-tongue grass, agrimony, common winter cress, soft rush, common reed, swamp buttercup, manna grass, false hellebore, jewelweed, and sedge species	Common shrub species include multiflora rose, gray stem dogwood, pussy willow, and bush honeysuckle.	Pin oak, black willow, sycamore, white ash, red maple, and Norway maple dominate the canopy layer varying in species composition and dominance depending on location. In general, sycamore and black willow are limited to areas along Mine Brook.	Two-lined Salamander, Red-backed Salamander, Green Frog, Spring Peeper	Gray Squirrel, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	woodpeckers, Red-eyed Vireo, Eastern Phoebe, Black-and-white Warbler, Black-capped Chickadee, Wood Thrush, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Shrub Swamp	This wetland community is characterized primarily as areas of wet successional fields to the west of Delaware Aqueduct Shaft 19. There is also a shrub wetland in an isolated excavation within the successional fields on the northwest portion of the site.	A wide variety of common wetland species occur in the herb layer of this community including horsetail, soft rush, sensitive fern, spicebush, jewelweed, water horehound, cattail, arrow-leaved tearthumb, willow herb, skunk cabbage, goldenrods, New York ironweed, blue vervain, swamp milkweed, boneset, and joe-pye-weed.	The shrub layer is primarily dominated by silky or grey stem dogwood in association with green ash, pussy willow, multiflora rose and arrowwood.	Not applicable.	Common Garter Snake, Two-lined Salamander, Red-backed Salamander, Green Frog, Spring Peeper	Grey Squirrel, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	American Goldfinch, Yellow Warbler, Song Sparrow, Red-winged Blackbird, Northern Mockingbird, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Reedgrass/Purple Loosestrife Marsh	A common reed dominated area adjacent to Grasslands Road where water within Mine Brook collects in a ponded area prior to passing underneath the roadway.	Common reed grass	Not applicable	Not applicable.	Green Frog	Raccoon, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	American Goldfinch, Yellow Warbler, Song Sparrow, Red-winged Blackbird, Northern Mockingbird, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Riparian	Mine Brook flows through the central portion of the site, from north to south, creating the various wetland communities. Mine Brook is a Class D tributary of the Saw Mill River.	Not applicable	Not applicable	Not applicable	Two-lined Salamander, Red-backed Salamander, Green Frog, Spring Peeper	Raccoon, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	Woodpeckers, Red-eyed Vireo, Eastern Phoebe, Black-and-white Warbler, Black-capped Chickadee, Wood Thrush, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Oak Tulip Tree Forest	The mature forest community consists of many large diameter trees and occurs on slopes and areas adjacent to Mine Brook and small patches in the southeast portion of the site.	Commonly observed herbaceous species include Virginia creeper, trout lily, cut-leaved toothwort, white wood aster, false Solomon's seal, spring beauty, jewelweed, wood sedge, Canada mayflower and Japanese honeysuckle.	The understory is open consisting of sapling to pole size canopy tree species as well as ironwood, spicebush, blackhaw, chokecherry and basswood.	White oak, Tulip tree, American beech, black birch, black gum, black oak, and Norway maples dominate the canopy.	Not Applicable	Gray Squirrel, Groundhog, Striped Skunk, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	Woodpeckers, Red-eyed Vireo, Eastern Phoebe, Black-and-white Warbler, Black-capped Chickadee, Wood Thrush, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Successional Southern Hardwood Forest	The successional upland forest is characterized by successional tree species apparently colonizing abandoned farmland. Successional upland forest exists on the eastern portion of the site between the mature/wetland forest to the north and successional field/mature forest to the south.	Common ground cover species include Virginia creeper, poison ivy, garlic mustard, Japanese honeysuckle, wood sedge, and bramble.	The understory consist of saplings of the canopy tree species as well as multiflora rose, arrowwood, blackhaw, gray birch, flowering dogwood, bittersweet, grey stem and silky dogwood	Common tree species include American elm, black locust, black cherry, red maple, white ash, tulip poplar, black birch, bigtooth aspen, and apple.	Not Applicable	Gray Squirrel, Raccoon, Groundhog, Striped Skunk, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	Woodpeckers, Red-eyed Vireo, Eastern Phoebe, Black-and-white Warbler, Black-capped Chickadee, Wood Thrush, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal

TABLE 4.14-1. SUMMARY OF NATURAL RESOURCES FOUND AT MOUNT PLEASANT

MOUNT PLEASANT							
Habitat	Habitat Characterization	Vegetation			Wildlife		
		Herbaceous	Shrub/Understory	Tree/Canopy	Aquatic	Terrestrial	Avian
Successional Shrubland	This is the dominant vegetative community on the site and occurs mainly to the west of Mine Brook. This community results from the recent clearing of this portion of the project site.	Common herbaceous species include daisy fleabane, common wood cress, timothy grass, sweet vernal grass and other grasses, Queen Anne's lace, campion, mugwort, red clover, English plantain, thistle, Virginia creeper, poison ivy, goldenrod, oxeye daisy, and vetch.	Along either side of Hammond House Road this community consists of extremely dense thickets of multiflora rose. The remainder of this community consists of a wide variety of common successional field shrub species including grey stem and silky dogwood, white ash, bittersweet, blackhaw, bush honeysuckle and red maple.	Not applicable	Not Applicable	Eastern Cottontail, Groundhog, Striped Skunk, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	American Goldfinch, Yellow Warbler, Song Sparrow, Red-winged Blackbird, Northern Mockingbird, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Successional Old Field	This community type occurs in the southwest corner of the north parcel. It also occurs in the southeast corner of the north parcel east of the existing access road to Shaft 19. These areas are either frequently mowed or are cleared on a more frequent basis than the successional shrubland that occurs on-site		Not applicable	Not applicable	Not applicable	Eastern Cottontail, Groundhog, Striped Skunk, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	American Goldfinch, Yellow Warbler, Song Sparrow, Red-winged Blackbird, Northern Mockingbird, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal

TABLE 4.14-2. SUMMARY OF NATURAL RESOURCES FOUND AT GREENBURGH

GREENBURGH							
Habitat	Habitat Characterization	Vegetation			Wildlife		
		Herbaceous	Shrub/Understory	Tree/Canopy	Aquatic	Terrestrial	Avian
Floodplain Wetland and Red Maple Hardwood Swamp	The majority of forested wetlands are situated adjacent to Mine Brook and its tributaries. A small isolated wetland consisting almost entirely of red maple saplings is located south of Grasslands Road at the western border of the site.	The herbaceous layer is frequently dominated by skunk cabbage, particularly along the stream corridor, garlic mustard, Jack-in-the-pulpit, mannagrass, jewelweed, jumpseed, swamp buttercup, Virginai creeper, Japanes honeysuckle, field garlic, sensitive fern and Enchanter's nightshade.	The understory varies from open to very dense and is predominantly comprised of grey stem and silky dogwood, bush honeysuckle, multiflora rose, blackhaw, bittersweet and arrowwood	The canopy of this community is generally dominated by red maple in association with black willow and ash.	Two-lined Salamander, Red-backed Salamander, Green Frog, Spring Peeper	Gray Squirrel, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	woodpeckers, Red-eyed Vireo, Eastern Phoebe, Black-and-white Warbler, Black-capped Chickadee, Wood Thrush, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Shrub Swamp	This wetland community occurs in association with a poorly drained flood plain of Mine Brook where it exits the project site at its southern boundary. There is also a small patch of shrub wetland along the Catskill Aqueduct right-of-way.	A wide variety of common wetland species occur in the herb layer of this community including horsetail, soft rush, sensitive fern, spicebush, jewelweed, water horehound, cattail, arrow-leaved tearthumb, willow herb, skunk cabbage, goldenrods, New York ironweed, blue vervain, swamp milkweed, boneset, and joe-pye-weed.	The shrub layer is primarily dominated by silky or grey stem dogwood in association with green ash, pussy willow, multiflora rose and arrowwood.	Not applicable	Common Garter Snake, Two-lined Salamander, Red-backed Salamander, Green Frog, Spring Peeper	Grey Squirrel, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	American Goldfinch, Yellow Warbler, Song Sparrow, Red-winged Blackbird, Northern Mockingbird, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Riparian	Mine Brook flows through the central portion of the site, from north to south, creating the various wetland communities. Mine Brook is a Class D tributary of the Saw Mill River.	Not Applicable	Not Applicable	Not Applicable	Two-lined Salamander, Red-backed Salamander, Green Frog, Spring Peeper	Raccoon, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	Woodpeckers, Red-eyed Vireo, Eastern Phoebe, Black-and-white Warbler, Black-capped Chickadee, Wood Thrush, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Oak Tulip Tree Forest	The mature forest community is the dominant cover type on the site occurring on both sides of Mine Brook. This community consists of many large diameter trees with an open understory.	Virginia creeper, field garlic, dewberry, jumpseed, and Christmas fern are common in the herbaceous layer.	Gray birch, red maple, Norway maple, black cherry, and bittersweet are common in the understory.	White ash, Tulip tree, black cherry, northern red oak, red maple, bigtooth aspen, and black birch are common species found in the canopy.	Not Applicable	Gray Squirrel, Groundhog, Striped Skunk, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	Woodpeckers, Red-eyed Vireo, Eastern Phoebe, Black-and-white Warbler, Black-capped Chickadee, Wood Thrush, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal
Successional Southern Hardwood	There is a small area of successional upland field to the east of Mine Brook in the southern portion of the site. Also, some of the Catskill Aqueduct right-of-way contains successional upland field.	Common herbaceous species include daisy fleabane, common wood cress, timothy grass, sweet vernal grass and other grasses, Queen Anne's lace, campion, mugwort, red clover, English plantain, thistle, Virginia creeper, poison ivy, goldenrod, oxeye daisy, and vetch.	Common shrub species in this habitat include multiflora rose, grey stem and silky dogwood, white ash, bittersweet, blackhaw, bush honeysuckle, and red maple.	Common tree species include American elm, black locust, black cherry, red maple, white ash, tulip poplar, black birch, bigtooth aspen, and apple.	Not Applicable	Gray Squirrel, Raccoon, Groundhog, Striped Skunk, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	Woodpeckers, Red-eyed Vireo, Eastern Phoebe, Black-and-white Warbler, Black-capped Chickadee, Wood Thrush, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal

TABLE 4.14-2. SUMMARY OF NATURAL RESOURCES FOUND AT GREENBURGH

GREENBURGH							
Habitat	Habitat Characterization	Vegetation			Wildlife		
		Herbaceous	Shrub/Understory	Tree/Canopy	Aquatic	Terrestrial	Avian
Successional Shrubland	successional shrubland is limited to areas adjacent to the Catskill Aqueduct right-of-way.	Common herbaceous species include daisy fleabane, common wood cress, timothy grass, sweet vernal grass and other grasses, Queen Anne's lace, campion, mugwort, red clover, English plantain, thistle, Virginia creeper, poison ivy, goldenrod, oxeye daisy, and vetch.	This community consists of a wide variety of common successional field shrub species including multiflora rose, grey stem and silky dogwood, white ash, bittersweet, blackhaw, bush honeysuckle and red maple.	Not applicable	Not Applicable	Eastern Cottontail, Groundhog, Striped Skunk, Coyote, Red Fox, Chipmunk, Meadow Vole, Norway Rat, White-Footed Mouse, Flying Squirrel, White-tailed Deer	American Goldfinch, Yellow Warbler, Song Sparrow, Red-winged Blackbird, Northern Mockingbird, Blue Jay, Tufted Titmouse, American Robin, Gray Catbird, Common Yellowthroat, Northern Cardinal

communities on the Eastview Site would differentiate between the north and south parcels where applicable. The descriptions of the remaining natural resources (i.e., fish and benthic macroinvertebrates, reptiles and amphibians, avifauna, mammals, and rare species inventory) would be inclusive of both the north and south parcels of the Eastview Site.

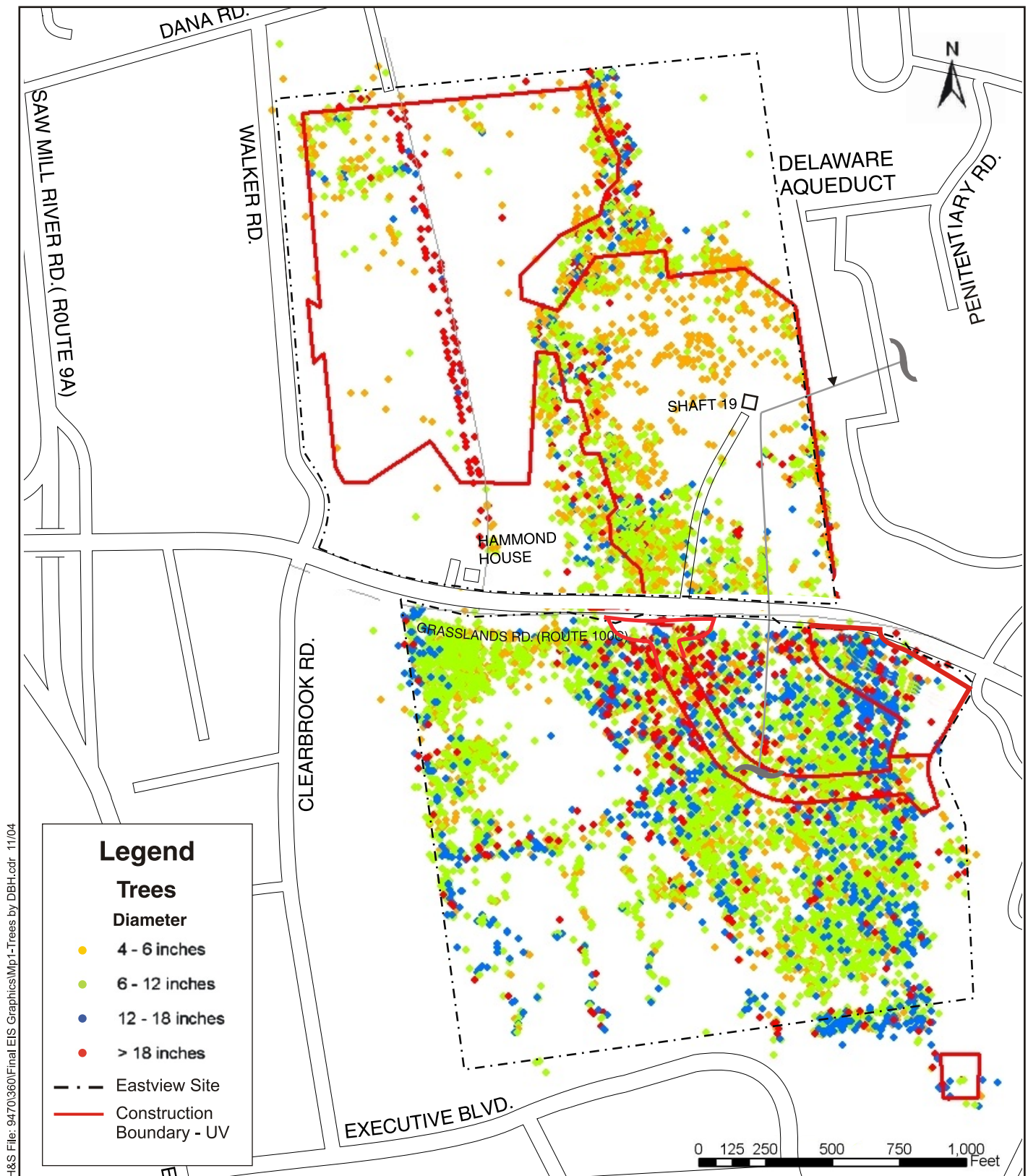
4.14.2.1.1. Terrestrial Vegetation

Vegetation consists of the plant life or total plant cover found in a specific area, whether indigenous or introduced by humans. The Highlands Physiographic Province of New York, which encompasses the Eastview Site, contains a diverse mixture of major terrestrial plant habitats, including freshwater marshes, bogs, swamps and floodplains, upland valleys and slopes, upland ridges, and rock outcrops. This diversity of plant communities occurring in relatively small areas is characteristic of habitat conditions and plant communities found in this physiographic province. [Table 4.14-3](#) presents a list of habitat communities and their associated dominant vegetation. [Table 4.14-4](#) provides a summary of all the trees that were identified within NYCDEP property. The majority of trees identified have a diameter at breast height (dbh) of 12 inches or less ([Figure 4.14-2](#)).

The past agricultural use of the Eastview Site has created a mosaic of vegetative communities within its boundaries. The abandoned agricultural fields vary from early successional species (primarily herbaceous) to shrub dominated openings, and successional woodlots. These communities are interspersed with mature or maturing forest and wetland communities. The general areas of forest and field are clearly visible in the aerial photograph shown in [Figure 4.14-3](#).

The vegetative communities found on site were classified according to the New York State Natural Heritage Program's (NYSNHP) Ecological Communities of New York State, Second Edition (Reschke, et. al., 2002). Eight primary vegetative communities were identified on the site. The upland communities consist of an oak-tulip tree forest, successional southern hardwoods, successional shrubland, and successional old field. The wetland communities consist of a floodplain forest, red maple hardwood swamp, shrub swamp, and reedgrass/purple loosestrife marsh. The on-site wetlands can also be described in terms of the United States Fish and Wildlife Service's (USFWS) wetland classification system as well and include palustrine forested wetlands (PFO1), palustrine shrub-scrub wetlands (PSS1), and palustrine emergent wetlands (PEM). The NYSNHP also provides global and state element ranks for each community type. These element ranks carry no regulatory weight but are believed to accurately reflect the relative rarity of the community type. The approximate location of these vegetative communities in the study area is shown above in [Figure 4.14-1](#).

Terrestrial Community Description – Oak-Tulip Tree Forest. As described by Reschke, this community type is a mesophytic hardwood forest that occurs on moist, well drained sites in southeastern New York State. The dominant trees in this community include a mix of five or more of the following: red oak, tulip tree, beech, black birch, red maple, scarlet oak, black oak, and white oak. The NYSNHP has given this community a global element rank of G4 (apparently secure globally) and a state element rank of S2 (typically 6 to 20 occurrences making it very vulnerable) and S3 (typically 21 to 100 occurrences indicating limited acreage).



**Trees Surveyed by
Diameter at Breast Height**



Eastview Site

Catskill/Delaware UV Facility

Figure 4.14-3

The species composition that most closely matched the Oak-Tulip Tree Forest classification is shown on [Figure 4.14-1](#). Previous disturbance of this site and surrounding areas (e.g., fires, filling, grading, alteration of surface drainage patterns, etc.) has affected the composition of species of this plant community from the published description, however, the fundamental aspects of the community are present. On the project site, this mature forest community consists of many large diameter trees and is limited to two primary areas: (1) slopes and areas adjacent to Mine Brook in the extreme northeastern portion of the north parcel, and (2) on the south parcel along both sides of Mine Brook just south of Route 100C.

On the north parcel, white oak, American beech, black birch and black gum dominate the canopy. In addition, Norway Maple is also a dominant part of the canopy. The understory is open, consisting of sapling to pole-size trees (9 to 11 inches in diameter at breast height [dbh] of the aforementioned species). Commonly observed herbaceous species include Virginia creeper, trout lily, white wood aster, jewelweed, Canada mayflower, and Japanese honeysuckle.

Within the south parcel, red maple, sugar maple, white ash, black cherry, northern red oak, and black birch are common canopy species. The dominant canopy trees in the eastern portion of the oak-tulip tree forest on the south site are red maple and red oak. Grey birch, red maple, Norway maple, and black cherry dominate the understory with garlic mustard, jewelweed, Virginia creeper, jumpseed, and Christmas fern common in the herbaceous layer.

Terrestrial Community Description - Successional Southern Hardwood. As described by Reschke, this community type is a hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed. Characteristic trees of this community include any of the following: American elm, slippery elm, white ash, red maple, box elder, silver maple, sassafras, gray birch, hawthorns, eastern red cedar, and choke cherry. Certain introduced species are commonly found as well: black locust, tree-of-heaven, and buckthorn. Any of these species may be dominant or co-dominant. This community is found primarily in the southern half of New York State, south of the Adirondacks. The NYSNHP has given this community a global element rank of G5 (demonstrably secure globally) and a state element rank of S5 (demonstrably secure in New York State).

The species composition that most closely matched the Successional Southern Hardwood classification, are shown on [Figure 4.14-1](#). On the project site, the largest extent of this forest community type occurs in the southeastern portion of the north parcel. Two other areas of this community occur on the northwest corner of the north parcel and in the eastern portion of the south parcel. Common tree species in this community that were found on the project site include; American elm, black locust, black cherry, red maple, white ash, and sassafras. A significant portion of this community type in the central eastern portion of the north parcel is dominated almost entirely by white and green ash (see [Figure 14.4-2](#)). On the south parcel, scattered pockets of black birch and pin oak occur within this community. The understory of this community type consists of saplings of the aforementioned trees, multiflora rose, arrowwood viburnum, dogwoods, and grey birch. Common ground cover species include; Virginia creeper, poison ivy, garlic mustard, Japanese honeysuckle, and bramble.

Terrestrial Community Description - Successional Shrubland. As described by Reschke this community occurs on sites that have been cleared or otherwise disturbed and have at least 50 percent cover of shrubs. Characteristic shrubs include gray dogwood, eastern red cedar, raspberry, hawthorn, serviceberry, choke cherry, wild plum, sumac, nanny-berry, arrowwood viburnum, and multiflora rose. This community occurs throughout New York State. The NYSNHP has given this community a global element rank of G4 (apparently secure globally) and a state element rank of S4 (apparently secure in New York State).

The species composition that most closely matched the Successional Shrubland classification, are shown on [Figure 4.14-1](#). On the project site, within the north parcel, this is the dominant vegetative community and occurs west of Mine Brook. It largely results from the more recent history of clearing in this portion of the site. On the south parcel, successional shrubland is limited to areas adjacent to the Catskill Aqueduct right-of-way, which is likely due to irregular clearing to maintain the right-of-way.

On the north parcel, along either side of Hammond House Road, this community consists primarily of extremely dense thickets of multiflora rose. On the south site, this community consists of multiflora rose and common successional field shrub and herb species such as; silky dogwood, white ash, bittersweet, bush honeysuckle and red maple. Common herbaceous species observed on the project site include the following; daisy fleabane, a variety of grasses, Queen Anne's lace, mugwort, Virginia creeper, poison ivy, and goldenrod.

Terrestrial Community Description – Successional Old Field. As described by Reschke, this community type is a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed and then abandoned. Characteristic herbaceous species associated with this classification include; goldenrods, bluegrasses, timothy, quackgrass, sweet vernal grass, orchard grass, common chickweed, common evening primrose, New England aster, wild strawberry, Queen Anne's lace, ragweed, hawkweed, and ox-tongue (Reschke, C., et. al., 2002). Shrubs would have less than 50 percent cover and could include gray and silky dogwood, arrowwood viburnum, and eastern red cedar. This community occurs throughout New York State. The NYSNHP has given this community a global element rank of G4 (apparently secure globally) and a state element rank of S4 (apparently secure in New York State).

The species composition that most closely matched the Successional Old Field classification, are shown on [Figure 4.14-1](#). On the project site, this community type occurs in the southwest corner of the north parcel. It also occurs in the southeast corner of the north parcel east of the existing access road to Shaft No. 19. These areas are either frequently mowed or are cleared on a more frequent basis than the successional shrubland plant community classification. Typical vegetation found in the successional old field habitats include; English plantain, aster, Queen Anne's lace, timothy, thistle, red clover, thyme leaved speedwell, daisy fleabane, ox-eye daisy, wintercress, common mugwort, field garlic, and garlic mustard.

TABLE 4.14-3. DOMINANT VEGETATION AT THE EASTVIEW SITE STUDY AREA

Vegetative Community	Stratum	Common Name	Scientific Name
Oak-Tulip Tree Forest	Tree	White oak	<i>Quercus alba</i>
		American beech	<i>Fagus grandifolia</i>
		Black birch	<i>Betula lenta</i>
		Black gum	<i>Nyssa sylvatica</i>
		Norway maple	<i>Acer platanoides</i>
		Tulip poplar	<i>Liriodendron tulipifera</i>
		Black oak	<i>Quercus velutina</i>
		Sugar maple	<i>Acer saccharum</i>
		Basswood	<i>Tilia americana</i>
		Ironwood	<i>Carpinus caroliniana</i>
	Shrub	Spicebush	<i>Lindera benzoin</i>
		Blackhaw Viburnum	<i>Viburnum prunifolium</i>
		Choke cherry	<i>Prunus virginiana</i>
	Vine	Japanese honeysuckle	<i>Lonicera japonica</i>
		Virginia creeper	<i>Parthenocissus quinquefolia</i>
	Herbaceous	Trout lily	<i>Erythronium americanum</i>
		Cutleaved toothwort	<i>Dentaria laciniata</i>
		White wood aster	<i>Aster divaricatus</i>
		False Solomon's seal	<i>Similacina racemosa</i>
		Spring beauty	<i>Claytonia virginica</i>
		Jewelweed	<i>Impatiens capensis</i>
		Wood sedge	<i>Carex pensylvanica</i>
		Canada mayflower	<i>Maianthemum canadense</i>
Successional Southern Hardwood Forest	Tree	American Elm	<i>Ulmus americana</i>
		Black locust	<i>Robinia pseudoacacia</i>
		Black cherry	<i>Prunus serotina</i>
		Red maple	<i>Acer rubrum</i>
		White ash	<i>Fraxinus americana</i>
		Green Ash	<i>Fraxinus pennsylvanica</i>
		Tulip poplar	<i>Liriodendron tulipifera</i>
		Black birch	<i>Betula lenta</i>
		Bigtooth aspen	<i>Populus grandidentata</i>
		Apple	<i>Malus sp.</i>
		Gray birch	<i>Betula populifolia</i>

TABLE 4.14-3. DOMINANT VEGETATION AT THE EASTVIEW SITE STUDY AREA

Vegetative Community	Stratum	Common Name	Scientific Name
		Flowering dogwood	<i>Cornus florida</i>
	Shrub	Multiflora rose	<i>Rosa multiflora</i>
		Arrowwood Viburnum	<i>Viburnum recognitum</i>
		Blackhaw Viburnum	<i>Viburnum prunifolium</i>
		Gray stem dogwood	<i>Cornus foemina</i>
		Bramble	<i>Rubus sp.</i>
		Silky dogwood	<i>Cornus amomum</i>
		Bittersweet nightshade	<i>Solanum dulcamara</i>
		Virginia creeper	<i>Parthenocissus quinquefolia</i>
	Vine	Japanese honeysuckle	<i>Lonicera japonica</i>
		Poison ivy	<i>Toxicodendron radicans</i>
	Herbaceous	Garlic mustard	<i>Alliaria petiolata</i>
		Woodsedge	<i>Carex pensylvanica</i>
Successional Shrubland	Tree	White ash	<i>Fraxinus americana</i>
		Red maple	<i>Acer rubrum</i>
	Shrub	Multiflora rose	<i>Rosa multiflora</i>
		Silky dogwood	<i>Cornus amomum</i>
		Blackhaw Viburnum	<i>Viburnum prunifolium</i>
		Bush honeysuckle	<i>Lonicera sp.</i>
		Gray stem dogwood	<i>Cornus foemina</i>
	Vine	Poison ivy	<i>Toxicodendron radicans</i>
		Bittersweet nightshade	<i>Solanum dulcamara</i>
		Virginia creeper	<i>Parthenocissus quinquefolia</i>
	Herbaceous	Sweet vernal grass	<i>Anthoxanthum odoratum</i>
		Queen Anne's lace	<i>Daucus carota</i>
		Daisy fleabane	<i>Erigeron annuus</i>
		Timothy grass	<i>Phleum pratense</i>
		Campion	<i>Lychnis sp.</i>
		Mugwort	<i>Artemisia vulgaris</i>

TABLE 4.14-3. DOMINANT VEGETATION AT THE EASTVIEW SITE STUDY AREA

Vegetative Community	Stratum	Common Name	Scientific Name
		Broad-leaved dock	<i>Rumex obtusifolius</i>
		Red clover	<i>Trifolium pratense</i>
		English plantain	<i>Plantago lanceolata</i>
		Thistle	<i>Cirsium sp.</i>
		Goldenrod	<i>Solidago sp.</i>
		Burdock	<i>Arctium minus</i>
		Ox-eye daisy	<i>Chrysanthemum leucanthemum</i>
		Curly-leaved dock	<i>Rumex crispus</i>
		Vetch	<i>Vicia sp.</i>
		English plantain	<i>Plantago lanceolata</i>
		Queen Anne's lace	<i>Daucus carota</i>
Successional Old Field	Herbaceous	Timothy grass	<i>Phleum pratense</i>
		Thistle	<i>Cirsium sp.</i>
		Red clover	<i>Trifolium pratense</i>
		Thyme leaved speedwell	<i>Veronica serpyllifolia</i>
		Daisy fleabane	<i>Erigeron annuus</i>
		Ox-eye daisy	<i>Chrysanthemum leucanthemum</i>
		Winter Cress	<i>Barbarea vulgaris</i>
		Common Mugwort	<i>Artemisia vulgaris</i>
		Field garlic	<i>Allium vineale</i>
		Garlic mustard	<i>Alliaria petiolata</i>
Floodplain Forest and Red Maple Hardwood Swamp	Tree	Sycamore	<i>Platanus occidentalis</i>
		White ash	<i>Fraxinus americana</i>
		Pin oak	<i>Quercus palustris</i>
		Black willow	<i>Salix nigra</i>
		Red maple	<i>Acer rubrum</i>
		Norway maple	<i>Acer platanoides</i>
	Shrub	Viburnum sp.	<i>Viburnum sp.</i>
		Pussy willow	<i>Salix discolor</i>
		Multiflora rose	<i>Rosa multiflora</i>
		Gray stem dogwood	<i>Cornus foemina</i>
		Bush honeysuckle	<i>Lonicera sp.</i>
	Vine	Virginia creeper	<i>Parthenocissus quinquefolia</i>
	Herbaceous	Field garlic	<i>Allium vineale</i>
		Thyme-leaved speedwell	<i>Veronica serpyllifolia</i>

TABLE 4.14-3. DOMINANT VEGETATION AT THE EASTVIEW SITE STUDY AREA

Vegetative Community	Stratum	Common Name	Scientific Name
		Garlic mustard	<i>Alliaria petiolata</i>
		Skunk cabbage	<i>Symplocarpus foetidus</i>
		Goldenrod	<i>Solidago sp.</i>
		Deer-tongue grass	<i>Panicum clandestinum</i>
		Agrimony	<i>Agrimonia sp.</i>
		Common winter cress	<i>Barbarea vulgaris</i>
		Soft rush	<i>Juncus effusus</i>
		Common reed	<i>Phragmites australis</i>
		Swamp buttercup	<i>Ranunculus septentrionalis</i>
		Manna grass	<i>Glyceria sp.</i>
		False hellabore	<i>Veratrum viride</i>
		Jewelweed	<i>Impatiens capensis</i>
		Cleavers	<i>Galium aparine</i>
		Sedge	<i>Carex sp.</i>
Shrub Swamp Wetland	Tree	Green ash	<i>Fraxinus pennsylvanica</i>
	Shrub	Pussy willow	<i>Salix discolor</i>
		Multiflora rose	<i>Rosa multiflora</i>
		Silky dogwood	<i>Cornus amomum</i>
		Gray stem dogwood	<i>Cornus foemina</i>
		Spicebush	<i>Lindera benzoin</i>
		Arrowwood Viburnum	<i>Viburnum recognitum</i>
	Herbaceous	Jewelweed	<i>Impatiens capensis</i>
		Water horehound	<i>Lycopus sp.</i>
		Broad-leaf cattail	<i>Typha latifolia</i>
		Horsetail*	<i>Equisetum sp.</i>
		Soft rush	<i>Juncus effusus</i>
		Sensitive fern	<i>Onoclea sensibilis</i>
		Arrow-leaved tearthumb	<i>Polygonum sagittatum</i>
		Willow herb	<i>Epilobium sp.</i>
		Skunk cabbage	<i>Symplocarpus foetidus</i>
		Grass-leaved goldenrod	<i>Euthamia graminifolia</i>
		Goldenrod	<i>Solidago sp.</i>
		New York ironweed	<i>Vernonia noveboracensis</i>
		Blue vervain	<i>Verbena hastata</i>
		Swamp milkweed	<i>Asclepias incarnata</i>

TABLE 4.14-3. DOMINANT VEGETATION AT THE EASTVIEW SITE STUDY AREA

Vegetative Community	Stratum	Common Name	Scientific Name
		Boneset	<i>Eupatorium perfoliatum</i>
		Common reed	<i>Phragmites australis</i>
		Avens	<i>Geum sp.</i>
		Common winter cress	<i>Barbarea vulgaris</i>
		Joe-pye-weed	<i>Eupatorium maculatum</i>
Reedgrass/Purple Loosestrife Marsh		Common reed	<i>Phragmites australis</i>

Notes: Based on surveys conducted between April and September, 2000.

* - A subsequent survey by NYCDEP personnel in May 2004 identified *Equisetum pretense* on site. This species has a State rank of S2 and State status of Threatened.

TABLE 4.14-4. SUMMARY OF TREES IDENTIFIED ON THE EASTVIEW SITE

Common Name	Scientific Name	North Parcel	% of Total Trees (counted)	South Parcel	% of Total Trees (counted)
Boxelder	<i>Acer negundo</i>	57	2.0	2	<0.1
Norway Maple	<i>Acer platanoides</i>	186	6.4	416	5.9
Planetree Maple	<i>Acer psuedoplatanus</i>	18	0.6	9	0.1
Red Maple	<i>Acer rubrum</i>	201	6.9	1,865	26.2
Silver Maple	<i>Acer saccharinum</i>	35	1.2	6	0.1
Sugar Maple	<i>Acer saccharum</i>	226	7.8	239	3.4
Horse Chestnut	<i>Aesculus hippocastanum</i>	1	<0.1	0	0
Tree of Heaven	<i>Ailanthus altissima</i>	21	0.7	16	0.2
Yellow Birch	<i>Betula alleghaniensis</i>	0	0	16	0.2
Black Birch	<i>Betula lenta</i>	61	2.1	121	1.7
Paper Birch	<i>Betula papyrifera</i>	1	<0.1	6	0.1
Grey Birch	<i>Betula populifolia</i>	4	0.1	9	0.1
Birch	<i>Betula sp.</i>	0	0	7	0.1
Ironwood	<i>Carpinus caroliniana</i>	7	0.2	14	0.2
Bitternut Hickory	<i>Carya cordiformis</i>	0	0	3	<0.1
Pignut Hickory	<i>Carya glabra</i>	2	0.1	30	0.4
Shellbark Hickory	<i>Carya laciniosa</i>	0	0	2	<0.1
Shagbark Hickory	<i>Carya ovata</i>	18	0.6	81	1.2
Mockernut Hickory	<i>Carya tomentosa</i>	6	0.2	11	0.2
Hickory	<i>Carya sp.</i>	2	0.1	10	0.1
Flowering Dogwood	<i>Cornus florida</i>	2	0.1	66	0.9
Hawthorn	<i>Crataegus sp.</i>	0	0	7	0.1
American Beech	<i>Fagus grandifolia</i>	115	4.0	24	0.3
White Ash	<i>Fraxinus americana</i>	493	16.9	374	5.3
Green Ash	<i>Fraxinus pennsylvanica</i>	494	16.9	60	0.8
Honey Locust	<i>Gleditsia triacanthos</i>	3	0.1	0	0
Black Walnut	<i>Juglans nigra</i>	9	0.3	12	0.2
Tulip Tree	<i>Liriodendron tulipifera</i>	18	0.6	88	1.2
Osage Orange	<i>Maclura pomifera</i>	1	<0.1	0	0
Apple	<i>Malus sp.</i>	67	2.4	92	1.3
White Mulberry	<i>Morus alba</i>	2	0.1	1	<0.1
Black Gum	<i>Nyssa sylvatica</i>	0	0	175	2.5

TABLE 4.14-4. SUMMARY OF TREES IDENTIFIED ON THE EASTVIEW SITE

Common Name	Scientific Name	North Parcel	% of Total Trees (counted)	South Parcel	% of Total Trees (counted)
Eastern Hophornbeam	<i>Ostrya virginiana</i>	2	0.1	12	0.2
Norway Spruce	<i>Picea abies</i>	30	1.0	0	0
Eastern White Pine	<i>Pinus strobus</i>	0	0	17	0.2
American Sycamore	<i>Platanus occidentalis</i>	15	0.5	7	0.1
Cottonwood	<i>Populus deltoides</i>	3	0.1	40	0.6
Bigtooth Aspen	<i>Populus grandidentata</i>	0	0	48	0.7
Quaking Aspen	<i>Populus tremuloides</i>	11	0.4	26	0.4
American Plum	<i>Prunus americana</i>	0	0	2	<0.1
Sweet Cherry	<i>Prunus avium</i>	1	0.0	0	0
Red Cherry	<i>Prunus pensylvanica</i>	0	0	4	0.1
Black Cherry	<i>Prunus serotina</i>	210	7.2	1,415	19.9
Plum	<i>Prunus sp.</i>	1	<0.1	8	0.1
White Oak	<i>Quercus alba</i>	23	.8	37	0.5
Pin Oak	<i>Quercus palustris</i>	157	5.4	256	3.6
Red Oak	<i>Quercus rubra</i>	36	1.2	250	3.5
Black Oak	<i>Quercus velutina</i>	10	0.3	32	0.5
Oak	<i>Quercus sp.</i>	1	<0.1	0	0
European Buckthorn	<i>Rhamnus cathartica</i>	1	<0.1	0	0
Black Locust	<i>Robinia pseudoacacia</i>	118	4.1	941	13.2
Bebb's Willow	<i>Salix bebbiana</i>	11	0.4	19	0.3
Black Willow	<i>Salix nigra</i>	35	1.2	13	0.2
Willow	<i>Salix sp.</i>	7	0.2	0	0
Sassafras	<i>Sassafras albidum</i>	0	0	106	1.5
Basswood	<i>Tilia americana</i>	8	0.3	5	0.1
American Elm	<i>Ulmus americana</i>	176	6.1	70	1.0
Slippery Elm	<i>Ulmus rubra</i>	0	0	29	0.4
Elm	<i>Ulmus sp.</i>	2	0.1	0	0
Blackhaw Viburnum	<i>Viburnum prunifolium</i>	1	<0.1	0	0
Unknown		1	<0.1	5	0.4
	TOTALS	2,910	100	7,104	100

4.14.2.1.2. Wetlands, Waterways, and Floodplains

Wetlands are areas where soil saturation is the dominant factor in determining the nature of soil development and the types of plants and animal communities capable of being supported. Wetlands are transitional areas between upland and aquatic systems, and are important biological habitats of ecological and socioeconomic value. Wetlands moderate extremes in water flow, aid in the natural purification of water, and are areas of groundwater recharge.

Mine Brook is a Class C tributary of the Saw Mill River and runs in a north-south direction through the center of the study area. Some of the wetlands found are associated with this particular surface water body and its adjacent tributaries. Some wetlands are also found at higher elevations, which ultimately drain into Mine Brook, while other wetlands appear isolated, having no apparent hydrological connection with Mine Brook. Below is a description of the wetland communities found on-site. In total, the study area contains approximately 17.9 acres of non-contiguous wetlands¹. These wetlands are regulated by the United States Army Corps of Engineers (USACOE), as certified by site inspection conducted on October 30, 2001. The approximate location of the wetland communities in the study area is shown in [Figure 4.14-1](#). The hydrologic regime of each of the wetland communities found on-site is depicted in [Figure 4.14-4](#). Refer to [Table 4.14-3](#) for a list of the vegetative species identified within the wetland communities located on the Eastview Site.

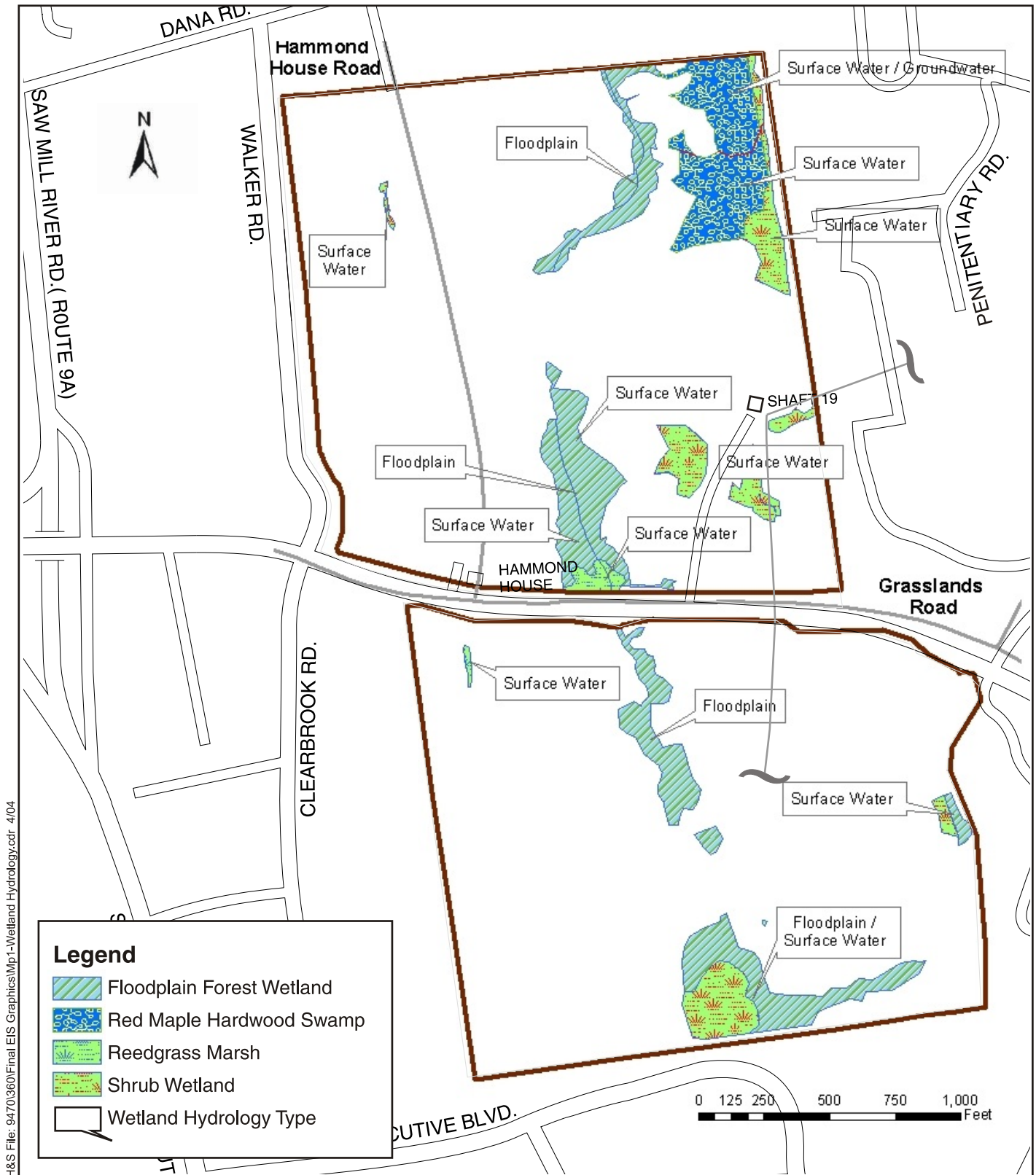
Palustrine Community Description - Floodplain Forest Wetland. As described in Reschke, this community consists of a hardwood forest that occurs on mineral soils on low terraces of river floodplains and river deltas. These sites are characterized by their flood regime: low areas are annually flooded in the spring and high areas are flooded irregularly. Some sites may be quite dry by late summer while other sites may be flooded with heavy precipitation associated with tropical storms. This is a broadly defined community that is quite variable and may be very diverse. Floodplain forests occur throughout New York State north of the Coastal Lowlands ecozone. The NYSNHP has given this community a global element rank of G3 (either rare and local throughout its range, or found locally in a restricted range, or vulnerable to extinction throughout its range due to other factors) and G4 (apparently secure globally) and a state element rank of S2 (demonstrably vulnerable in New York State) and S3 (limited acreage or miles of stream in New York State). The USFWS classification for these wetlands is Palustrine Forested (PFO1) Wetland.

The species composition that most closely matched the Floodplain Forest Wetland classification, are shown on [Figure 4.14-1](#). On the project site, the majority of forested wetlands identified within the study area are situated adjacent to Mine Brook, its tributaries and associated hillside seepages. In general, the vegetative composition and structure of the forested wetlands are similar across the study area. The understory of this community is moderately dense along the stream corridor.

¹ The NYSDEC regulates contiguous wetlands greater than 12.4 acres. While the project site contains 17.4 acres of wetlands they are not contiguous and so do not fall under NYSEDC jurisdiction (see NYSDEC letter dated August 26, 2002 in [Appendix G -Natural Resources](#)).

Within the north parcel, pin oak, black willow, sycamore, white ash, and red maple dominate the canopy layer, varying in species composition depending upon location. The invasive Norway Maple is also a canopy dominant species. Common shrub species include multiflora rose, dogwood, pussy willow, and bush honeysuckle. Skunk cabbage is the dominant groundcover along the streams. Other herbaceous species include garlic mustard, Virginia creeper, goldenrod, soft rush, common reed, jewelweed, and sedge species.

Within the south parcel, the canopy of this community is generally dominated by red maple, black willow and ash. The understory layer varies from open to very dense and is predominantly composed of dogwood, bush honeysuckle, multiflora rose, and arrowwood viburnum. The herbaceous layer is dominated by skunk cabbage, garlic mustard, Jack-in-the-pulpit, jewelweed, swamp buttercup, and sensitive fern.



H&S File: 9470\360\Final EIS Graphics\Mp1-Wetland Hydrology.cdr 4/04

Predominant Wetland Hydrology

Catskill/Delaware UV Facility

Figure 4.14-4

The hydrologic regimes of the floodplain wetlands are governed by the waters within Mine Brook. Low lying areas along the brook are flooded periodically during the spring and higher elevations are flooded less frequently usually after heavy rains in the spring or tropical storms in the fall. Overland runoff of surface water both from off-site and on-site sources also contributes to the hydrologic regime of the floodplain wetlands. The hydrology of the floodplain wetlands south of Route 100C also appears to have a groundwater component that support areas of skunk cabbage through groundwater fed seepages.

Palustrine Community Description - Red Maple Hardwood Swamp Wetland. As described by Reschke, this community consists of a hardwood swamp that occurs in poorly drained depressions, usually on inorganic soils. This is a broadly defined community with many regional variants. In any one stand, red maple is either the only canopy dominant, or is co-dominant with one or more hardwoods including ashes, elms, yellow birch, and swamp white oak. Other trees with low percent cover include butternut, bitternut hickory, black gum, ironwood, and white pine. This type of forested wetland is found throughout New York State. The NYSNHP has given this community a global element rank of G3 (either rare and local throughout its range, or found locally in a restricted range, or vulnerable to extinction throughout its range due to other factors) and G4 (apparently secure globally) and a state element rank of S2 (demonstrably vulnerable in New York State). The USFWS classification for these wetlands is also Palustrine Forested (PFO1) Wetland.

The species composition that most closely matched the Red Maple Hardwood Swamp Wetland classification, are shown on [Figure 4.14-1](#). On the project site, this community is composed of a mature forest in the extreme northeastern corner of the Eastview Site. Large diameter trees in this community, while similar in species composition to other forested wetlands in the study area, dominate this mature forest. Pin oak, black willow, sycamore, white ash, and red maple dominate the canopy layer varying in species composition depending upon location. In addition, the invasive Norway Maple is also a dominant part of the canopy. There is an open understory in this community and the herbaceous layer is dominated by skunk cabbage, garlic mustard, Jack-in-the-pulpit, jewelweed, swamp buttercup, and sensitive fern.

A small isolated wetland area consisting almost entirely of red maple saplings is located south of Route 100C at the western border of the south parcel and appears to result from succession in a poorly drained abandoned agricultural field swale. The sparse shrub layer is composed of silky dogwood and the ground cover stratum includes scattered ash, red maple, and arrowwood viburnum seedlings.

The northern half of the red maple hardwood swamp in the northeast corner of the project site is supported primarily by surface water runoff from offsite locations. Shallow groundwater at this location secondarily contributes to the hydrologic regime of this section of wetlands. The southern half of this wetland, however, is dependent primarily upon surface water runoff from off-site sources. The small red maple hardwood swamp in the south parcel is supported by surface water runoff from on-site sources.

Palustrine Community Description - Shrub Swamp Wetland. As described by Reschke, this community consists of inland wetlands dominated by tall shrubs that occur along the shores of a lake or river, in a wet depression or valley not associated with a lake, or as a transition zone between a marsh, fen, or bog and a swamp or upland community. The substrate is usually mineral soil or muck. This is a very broadly defined community type and is very common and quite variable. Characteristic shrubs that are common include meadow-sweet, steeple-bush, gray dogwood, swamp azalea, highbush blueberry, maleberry, smooth alder, spicebush, willow, and arrowwood viburnum. This type of wetland is found throughout New York State. The NYSNHP has given this community a global element rank of G5 (demonstrably secure globally) and a state element rank of S5 (demonstrably secure in New York State). The USFWS classification for these wetlands is Palustrine Shrub-Scrub (PSS1) Wetland.

The species composition that most closely matched the Shrub Swamp Wetland classification, are shown on [Figure 4.14-1](#). On the project site, this wetland community is best characterized on the north parcel as areas of wet successional fields. Such wetlands are found west of Delaware Aqueduct Shaft No. 19 and in an isolated excavation within the successional fields on the northwest portion of the Eastview Site. Within the south parcel, this wetland type consists of a more classic community occurring in association with the poorly drained floodplain of Mine Brook where it exits the site at its southern boundary.

Despite differences in vegetative structure, the species composition of this community is generally similar across the study area. The shrub layer is primarily dominated by dogwoods, green ash, pussy willow, multiflora rose, and arrowwood viburnum ([Table 4.14-3](#)). A wide variety of common wetland species occur in the herb layer of this community including horsetail, soft rush, sensitive fern, spicebush, jewelweed, cattail, skunk cabbage, goldenrod, New York ironweed, blue vervain, boneset, and joe-pye-weed.

The shrub swamp wetlands in the north parcel are primarily supported hydrologically by surface water runoff from off-site sources to the east of the project site. However, the small shrub swamp wetland to the west of Hammond House Road is supported by surface water runoff from on-site sources. The hydrology of the shrub swamp wetland at the southern end of the south parcel is governed by both surface water runoff and the floodplain dynamics of Mine Brook. Water movement tends to be restricted at the culverts at the southern property boundary after a rainfall.

A subsequent field investigation conducted on May 24, 2004 identified approximately 0.4 acres of additional emergent wetlands east of the access road to Delaware Shaft No. 19. During the original site investigation conducted in 2000, this area was a maintained lawn with no signs of wetland hydrology or presence of hydrophytic vegetation. On December 19, 2001 wetland limits on the Eastview Site received a Jurisdictional Determination (JD) from the USACOE verifying wetland limits. Since that time, the area has been unmaintained. Vehicular traffic appears to have caused soil compaction with standing water observed in old tire ruts. Lack of regular maintenance and potential changes to hydrology in this area have led to the development of hydric soils and the establishment of an emergent wetland community dominated by hydrophytic vegetation.

Palustrine Community Description - Reedgrass/Purple Loosestrife Marsh Wetland. As described by Reschke, a marsh that has been disturbed by draining, filling, and/or road salts in which reedgrass or purple loosestrife has become dominant. This community is common along highways and railroads. This type of wetland is found throughout New York State. The NYSNHP has given this community a global element rank of G5 (demonstrably secure globally) and a state element rank of S5 (demonstrably secure in New York State). The USFWS classification for these wetlands is Palustrine Emergent (PEM) Wetland.

The species composition that most closely matched the Reedgrass/Purple Loosestrife Marsh Wetland classification, are shown on [Figure 4.14-1](#). On the project site, in the north parcel, a *Phragmites* dominated area adjacent to Route 100C occurs where water within Mine Brook collects in a ponded area prior to passing underneath the roadway. The ponded area is controlled by a weir that regulates the flow of Mine Brook under Route 100C.

4.14.2.1.3. Fish and Benthic Macroinvertebrates

Examination of the primary north-south flowing stream on-site, Mine Brook, revealed a moderate diversity of benthic macroinvertebrates, principally taxa characterized as tolerant or moderately intolerant of poor water quality. Field measurements of temperature, dissolved oxygen, and pH showed that the brook has generally favorable properties with respect to these parameters. The base flows of the intermittent drainage features which discharge surface water to Mine Brook were generally low to non-flowing except during rain events.

In May 2000, an inspection of Mine Brook was conducted. During this inspection, observations were made on the stream's physical characteristics, the general benthic macroinvertebrate community, and field measurements of water temperature, dissolved oxygen, and pH levels at several locations along the stream. The measured pH levels within the stream at the time of the survey were uniformly pH 7.2 and temperature was 13 to 14 degrees Celsius. Dissolved oxygen concentrations ranged from a low of 7.22 mg/l (70 percent saturation) at the northernmost sampling point, to a high of 10.65 mg/l (103 percent saturation) at a southerly sampling point, indicating a general improving trend in dissolved oxygen concentration as the stream flows southward through the City-owned property.

At the northern portion of the study area, the stream has a broad (15 to 30 foot wide) channel with a riverine substratum alternating with depositional areas of sand and silt. A brownish film of diatoms was evident over the silty sediments, while mosses and filamentous green algae were also evident on the rocks. Animal taxa observed included caddisflies, pulmonate snails (and their egg masses), and water striders.

As the stream flows south across the study area, the channel exhibits typical alternating sequences of pools and riffles. Examination of submerged rocky substrata revealed the continuing occurrence of the invertebrate taxa cited above, as well as web-spinning caddisflies, chironomid larvae, and black fly larvae. Submerged substrata continued to support growths of diatoms and filamentous green algae.

A weir structure north of Route 100C, reduces water velocity and as a result, the stream bottom takes on a more depositional appearance. Just north of the roadway, the stream becomes ponded and supports a large, dense stand of *Phragmites australis*. The stream is conveyed by a culvert under Route 100C, and discharges to a pool area south of this road. Benthic invertebrates noted in this pool area and the downstream riffles included chironomid larvae, black fly larvae, pulmonate snails, caddisfly larvae, and beetle larvae.

Farther downstream the stream bed continues to be mainly rocky with alternating pool and riffle morphology. Schools of blacknose dace were visible in small pool areas and a solitary larger chub-like fish was observed swimming through a shallow riffle between two pool areas. Near the southern end of the south parcel, cleared shrub areas occur within the floodplain of the stream. Before leaving the site, the stream again slows down and deepens through an area of dense riparian vegetation that exhibits a more sandy substratum.

4.14.2.1.4. Reptiles and Amphibians

Within the study area, one species of reptile and four species of amphibians were observed. The one reptile species observed within the study area was limited to three garter snakes located beneath debris within a scrub-shrub wetland area. Of the four amphibians observed, three were identified in water/wetland habitats as follows: (1) the Northern two-lined salamander and green frog were found within the stream corridor of Mine Brook, and (2) a solitary calling spring peeper was found within an open water area of a palustrine scrub-shrub/emergent wetland on the site. Numerous spring peepers were identified during the evening survey from off-site wetlands located west of the Eastview Site. The redback salamander was commonly encountered under decaying logs throughout the forested upland communities.

In addition to the species found on-site, the NYSDEC Amphibian and Reptile Atlas Project maintains lists of herpetiles (reptiles and amphibians) that have been identified within the White Plains Quadrangle (1998). The list includes nine amphibians and four reptiles. Most of these species are common, associated with streams, lakes, and wetland ecosystems and may occur within the Eastview Site, including American toad, bullfrog, green frog, snapping turtle, painted turtle, and Northern water snake. The two listed species associated with vernal pool wetlands, the spotted salamander and wood frog, are not anticipated to occur on-site due to the lack of suitable habitat. A listing of herpetiles species that potentially occur on-site is located on the next two pages in [Table 4.14-5](#) (species in bold type were observed on-site).

TABLE 4.14-5. HERPETILE SPECIES POTENTIALLY OCCURRING IN THE VICINITY OF THE EASTVIEW SITE STUDY AREA

Common Name	Scientific Name
Salamanders/Newts	
Dusky Salamander	<i>Desmognathus fuscus</i>
Eastern Newt	<i>Notophthalmus viridescens</i>
Four-toed Salamander	<i>Hemidactylium scutatum</i>
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>
Spotted Salamander	<i>Ambystoma maculatum</i>
Marbled Salamander	<i>Ambystoma opacum</i>

TABLE 4.14-5. HERPETILE SPECIES POTENTIALLY OCCURRING IN THE VICINITY OF THE EASTVIEW SITE STUDY AREA

Common Name	Scientific Name
Two-lined Salamander Red-backed Salamander Red Salamander Slimy Salamander	<i>Eurycea bislineata</i> <i>Plethodon cinereus</i> <i>Pseudotriton ruber</i> <i>Plethodon glutinosus</i>
Frogs/Toads American Toad Bullfrog Chorus Frog Common Gray Treefrog Eastern Spadefoot Green Frog Pickerel Frog Spring Peeper Woodhouse's Toad Wood Frog	<i>Bufo americanus</i> <i>Rana catesbeiana</i> <i>Pseudacris triseriata</i> <i>Hyla versicolor</i> <i>Scaphiopus holbrooki</i> <i>Rana clamitans melanota</i> <i>Rana palustris</i> <i>Hyla crucifer</i> <i>Bufo woodhousei</i> <i>Rana sylvatica</i>
Turtles Bog Turtle Eastern Bog Turtle Painted Turtle Snapping Turtle Spotted Turtle Stinkpot Wood Turtle	<i>Clemmys muhlenbergii</i> <i>Terrapene carolina</i> <i>Chrysemys picta</i> <i>Chelydra serpentina</i> <i>Clemmys guttata</i> <i>Sternotherus odoratus</i> <i>Clemmys insculpta</i>
Five-lined Skink	<i>Eumeces fasciatus</i>
Snakes Brown Snake Common Garter Snake Eastern Hognose Snake Eastern Ribbon Snake Milk Snake Northern Water Snake Racer Rat Snake Red-bellied Snake Ringneck Snake Worm Snake	<i>Storeria dekayi</i> <i>Thamnophis sirtalis</i> <i>Heterodon platyrhinos</i> <i>Thamnophis sauritus</i> <i>Lampropeltis triangulum</i> <i>Nerodia sipedon</i> <i>Coluber constrictor</i> <i>Elaphe obsoleta</i> <i>Storeria occipitomaculata</i> <i>Diadophis punctatus</i> <i>Carphophis amoenus</i>

Notes: Species in **bold** were observed on site.

Source: Based on ecological surveys conducted for the former Croton Water Treatment Plant Final EIS (1999) – at the Mount Pleasant Site Alternative, Mount Pleasant, NY in October 14, 1997 and April 14, 1998. The Mount Pleasant Site is located less than a half mile from the Eastview Site. Additional surveys were conducted at the Eastview Site from May through September 2000 for the Eastview study area.

Behler, J.L. and W. King. 1997. Audubon Society Field Guide to North American Reptiles & Amphibians. Alfred A. Knopf. New York.

4.14.2.1.5. Avifauna

During the field surveys conducted in May and June 1998 and April, May and September 2000, 66 species of birds were identified, all of which are common to the region (Table 4.14-6). Of the species identified, 40 were confirmed to breed on-site. Fifty-nine species were observed during the spring and likely represent migrants, although many remain to breed. Of the identified species, 20 likely breed in the region, but were not confirmed breeding within the study area. All of the confirmed breeding species are commonly found in successional fields and second-growth forest habitats and none of the habitats on-site serve as critical breeding or nesting areas for any of these species.

The migrant species observed during the April-May and September 2000 field surveys are all common and anticipated in the region. With the exception of cedar waxwing, which occurred in a large flock of more than 20 individuals, migrating species were generally limited to no more than one or two individuals.

Most of the study area is best characterized as successional field and woodland with abundant edge habitat and indistinct boundaries between habitat types. As a result, there is great overlap in the habitats where woodland and field species were observed. Species typical of fields within the study area included American goldfinch, yellow-warbler, song sparrow, red-winged blackbird, and Northern mockingbird. Species typical of the Eastview Site's woodlands included woodpeckers, red-eyed vireo, Eastern phoebe, black and white warbler, black-capped chickadee, and wood thrush. A number of species displayed frequent overlap between field and woodland communities including blue jay, tufted titmouse, American robin, gray catbird, common yellowthroat, and Northern cardinal. Only one species was limited to the area of mature forest on the Eastview Site, a migrating Swainson's thrush. The remainder of species observed in the successional field habitat were common in other habitats on the study area as well.

It should be noted that the timing of the field investigations allowed for the characterization of spring and fall migrants and summer breeding populations, but not for winter resident avian populations.

TABLE 4.14-6. AVIAN SPECIES OBSERVED OR ANTICIPATED TO OCCUR AT THE STUDY AREA

Common Name	Scientific Name	Migratory (Y/N)
Double-crested Cormorant	<i>Phalacrocorax axauritus</i>	N
Great Blue Heron	<i>Ardea herodias</i>	N
Green Heron	<i>Butorides virescens (striatus)</i>	N
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	N
Turkey Vulture	<i>Cathartes aura</i>	N
Canada Goose	<i>Branta canadensis</i>	N
Mute Swan	<i>Cygnus olor</i>	N
Wood Duck	<i>Aix sponsa</i>	N
American Black Duck	<i>Anas rubripes</i>	N

TABLE 4.14-6. AVIAN SPECIES OBSERVED OR ANTICIPATED TO OCCUR AT THE STUDY AREA

Common Name	Scientific Name	Migratory (Y/N)
Mallard	<i>Anas platyrhynchos</i>	N
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Y
Broad-winged Hawk	<i>Buteo platypterus</i>	Y
Red-tailed Hawk	<i>Buteo jamaicensis</i>	N
American Kestrel	<i>Falco sparverius</i>	Y
Ring-necked Pheasant	<i>Phasianus colchicus</i>	N
Wild Turkey	<i>Meleagris gallopavo</i>	N
Killdeer	<i>Charadrius vociferus</i>	Y
Spotted Sandpiper	<i>Actitis macularia</i>	Y
American Woodcock	<i>Scolopax minor</i>	Y
Ring-billed Gull	<i>Larus delawarensis</i>	N
Rock Dove	<i>Columba livia</i>	N
Mourning Dove	<i>Zenaida macroura</i>	N
Black-billed Cuckoo	<i>Coccyzuserythrophthalmus</i>	Y
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Y
Eastern Screech-Owl	<i>Otus asio</i>	N
Great Horned Owl	<i>Bubo virginianus</i>	N
Barred Owl	<i>Strix varia</i>	N
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Y
Chimney Swift	<i>Chaetura pelagica</i>	N
Belted Kingfisher	<i>Ceryle alcyon</i>	N
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	N
Downy Woodpecker	<i>Picoides pubescens</i>	N
Hairy Woodpecker	<i>Picoides villosus</i>	N
Northern Flicker	<i>Colaptes auratus</i>	N
Eastern Wood-Pewee	<i>Contopus virens</i>	Y
Willow Flycatcher	<i>Empidonax traillii</i>	Y
Eastern Phoebe	<i>Sayornis phoebe</i>	Y
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	Y
Eastern Kingbird	<i>Tyrannus tyrannus</i>	N
White-eyed Vireo	<i>Vireo griseus</i>	Y
Yellow-throated Vireo	<i>Vireo flavifrons</i>	Y
Warbling Vireo	<i>Vireo gilvus</i>	N
Red-eyed Vireo	<i>Vireo olivaceus</i>	Y
Blue Jay	<i>Cyanocitta cristata</i>	N
American Crow	<i>Corvus brachyrhynchos</i>	N
Fish Crow	<i>Corvus ossifragus</i>	N
Tree Swallow	<i>Tachycineta bicolor</i>	Y
Northern Rough-winged	<i>Stelgidopteryx serripennis</i>	Y

TABLE 4.14-6. AVIAN SPECIES OBSERVED OR ANTICIPATED TO OCCUR AT THE STUDY AREA

Common Name	Scientific Name	Migratory (Y/N)
Swallow		
Bank Swallow	<i>Riparia riparia</i>	N
Barn Swallow	<i>Hirundo rustica</i>	N
Black-capped Chickadee	<i>Poecile (Parus) atricapillus</i>	N
Tufted Titmouse	<i>Baeolophus (Parus) bicolor</i>	N
White-breasted Nuthatch	<i>Sitta carolinensis</i>	N
Carolina Wren	<i>Thryothorus ludovicianus</i>	N
House Wren	<i>Troglodytes aedon</i>	N
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	Y
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Y
Eastern Bluebird	<i>Sialia sialis</i>	Y
Veery	<i>Catharus fuscescens</i>	Y
Wood Thrush	<i>Catharus mustelinus</i>	Y
American Robin	<i>Turdus migratorius</i>	N
Gray Catbird	<i>Dumetella carolinensis</i>	N
Northern Mockingbird	<i>Mimus polyglottos</i>	N
Brown Thrasher	<i>Toxostoma rufum</i>	Y
European Starling	<i>Sturnus vulgaris</i>	N
Cedar Waxwing	<i>Bombycilla cedrorum</i>	N
Blue-winged Warbler	<i>Vermivora pinus</i>	N
Tennessee Warbler	<i>Vermivora peregrina</i>	Y
Nashville Warbler	<i>Vermivora ruficapilla</i>	Y
Northern Parula	<i>Parula americana</i>	Y
Yellow Warbler	<i>Dendroica petechia</i>	N
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Y
Magnolia Warbler	<i>Dendroica magnolia</i>	Y
Cape May Warbler	<i>Dendroica tigrina</i>	Y
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	Y
Yellow-rumped (Myrtle) Warbler	<i>Dendroica coronata</i>	Y
Black-throated Green Warbler	<i>Dendroica virens</i>	Y
Blackburnian Warbler	<i>Dendroica fusca</i>	Y
Pine Warbler	<i>Dendroica pinus</i>	Y
Prairie Warbler	<i>Dendroica discolor</i>	Y
Palm Warbler	<i>Dendroica palmarum</i>	Y
Bay-breasted Warbler	<i>Dendroica castanea</i>	Y
Blackpoll Warbler	<i>Dendroica striata</i>	Y
Black-and-white Warbler	<i>Mniotilta varia</i>	Y

TABLE 4.14-6. AVIAN SPECIES OBSERVED OR ANTICIPATED TO OCCUR AT THE STUDY AREA

Common Name	Scientific Name	Migratory (Y/N)
American Redstart	<i>Setophaga ruticilla</i>	N
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	Y
Kentucky Warbler	<i>Oporornis formosus</i>	Y
Mourning Warbler	<i>Oporornis philadelphia</i>	Y
Ovenbird	<i>Seiurus aurocapillus</i>	Y
Northern Waterthrush	<i>Seiurus noveboracensis</i>	Y
Louisiana Waterthrush	<i>Seiurus motacilla</i>	Y
Common Yellowthroat	<i>Geothlypis trichas</i>	N
Hooded Warbler	<i>Wilsonia citrina</i>	N
Yellow-breasted Chat	<i>Icteria virens</i>	Y
Scarlet Tanager	<i>Piranga olivacea</i>	Y
Eastern (Rufous-sided)	<i>Pipilo erythrophthalmus</i>	N
Eastern Towhee		
Chipping Sparrow	<i>Spizella passerina</i>	N
Field Sparrow	<i>Spizella pusilla</i>	Y
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Y
Song Sparrow	<i>Melospiza melodia</i>	N
Lincoln's Sparrow	<i>Melospiza lincolnii</i>	Y
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Y
Northern Cardinal	<i>Cardinalis cardinalis</i>	N
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	N
Indigo Bunting	<i>Passerina cyanea</i>	N
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	N
Eastern Meadowlark	<i>Sturnella magna</i>	Y
Common Grackle	<i>Quiscalus quiscula</i>	N
Brown-headed Cowbird	<i>Molothrus ater</i>	N
Orchard Oriole	<i>Icterus spurius</i>	N
Baltimore Oriole	<i>Icterus galbula</i>	N

TABLE 4.14-6. AVIAN SPECIES OBSERVED OR ANTICIPATED TO OCCUR AT THE STUDY AREA

Common Name	Scientific Name	Migratory (Y/N)
House Finch	<i>Carpodacus mexicanus</i>	N
Coopers Hawk	<i>Accipiter cooperii</i>	N
Hermit Thrush	<i>Catharus guttatus</i>	Y
Red Breasted Nuthatch	<i>Sitta Canadensis</i>	N
Swainson's Thrush	<i>Catharus ustulatus</i>	Y
Swamp Sparrow	<i>Melospiza melodia</i>	N
American Goldfinch	<i>Carduelis tristis</i>	N
House Sparrow	<i>Passer domesticus</i>	N

Notes: Species in **bold** were observed on-site.

Source: Based on the ecological surveys conducted within the Eastview Site in May and June 1998; and April, May, and September 2000. A subsequent survey by NYCDEP in May 2004 found a female bobolink and two Savannah sparrows on site. These species are not State listed threatened or endangered species but may be rare in Westchester County. A follow-up breeding survey for these two species was conducted in June 2004; these species were not observed during the follow-up survey. The New York State Department of Environmental Conservation, New York Breeding Bird Atlas Program was also consulted.

4.14.2.1.6. Mammals

Within the study area, 14 species of mammals were observed. All of the mammals identified are commonly associated with human influenced environments. The relatively large size of the study area also allows the use of the property by larger predators, such as the coyote and red fox. The presence of large mammalian predators also attests to the study area's support of common small prey mammals such as the observed chipmunk, white-footed mouse, meadow vole, Norway rat and flying squirrel.

The presence of whitetail deer was common through the study area, with eastern cottontail being common in the field communities and grey squirrel observed within the forest areas. Raccoon tracks were abundant along the stream corridor. Groundhog burrows, as observed by sight, and striped skunk, as observed by olfactory sign, were identified within the upland areas.

The mammals listed in [Table 4.14-7](#) below includes species observed, directly or by sign, during the diurnal survey and species that potentially occur in the study area. No trapping programs were conducted which would have allowed an inventory of a small mammal/rodent population. The presence of predatory birds and mammals within the study area is a prime indicator that there is a small prey base present in the study area, as is anticipated based on the variety of successional habitats. Species such as red fox and coyote depend on small rodents as an important food source.

TABLE 4.14-7. MAMMALS POTENTIALLY OCCURRING IN THE VICINITY OF THE EASTVIEW SITE STUDY AREA

Common Name	Scientific Name
Coyote	<i>Canis latrans</i>
Virginia Opossum	<i>Didelphis virginiana</i>

**TABLE 4.14-7. MAMMALS POTENTIALLY OCCURRING IN THE VICINITY OF
THE EASTVIEW SITE STUDY AREA**

Common Name	Scientific Name
Shrews/Moles Northern Short-tailed Shrew Eastern Mole	<i>Blarina brevicauda</i> <i>Scalopus aquaticus</i>
Bats	Family Vespertilionidae (Evening Bats)
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Rodents Chipmunk Meadow Vole Norway Rat Groundhog Gray Squirrel Muskrat House Mouse White-Footed Mouse Flying Squirrel	<i>Tamias</i> <i>Microtus pennsylvanicus</i> <i>Rattus norvegicus</i> <i>Marmota monax</i> <i>Sciurus carolinensis</i> <i>Ondatra zibethicus</i> <i>Mus musculus</i> <i>Peromyscus leucopus</i> <i>Glaucomys sp</i>
Red Fox	<i>Vulpes vulpes</i>
Raccoon	<i>Procyon lotor</i>
Striped Skunk	<i>Mephitis mephitis</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

Notes: Species in **bold** observed on-site.

Sources:

Based on ecological surveys conducted at the Eastview Site between April 2000 and September 2000.

Illinois State Museum. 1998. FAUNMAP - An Electronic Database Documenting the Late Quaternary Distribution of Mammal Species in the United States.
<http://www.museum.state.il.us/research/faunmap/aboutfaunmap.html>

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Martin, A.C., H.S. Zim, and A.L. Nelson. 1951. American Wildlife and Plants, A Guide to Wildlife Food Habits. Dover Publications, Inc. NY.

Murie, O.J. 1974. A Field Guide to Animal Tracks, The Peterson Field Series. Houghton Mifflin Company. Boston, MA.

Whitaker, J.O. 1980. The Audobon Society Field Guide to North American Mammals. Alfred A. Knopf. White Plains, NY.

Wilson, D.E., and D.M. Reeder (eds). 1993. Mammal Species of the World. Smithsonian Institution Press. Washington, D.C.

4.14.2.1.7. Rare Species Inventory

Threatened or Endangered Species. The United States Fish and Wildlife Service (USFWS) has no records of Federally listed or proposed endangered or threatened species within the study area. However, USFWS noted that the New York State endangered peregrine falcon (*Falco peregrinus*) might be known in the study area. During the survey period, the peregrine falcon was not observed on, over, or in the vicinity of the study area. This was not unusual, since the study area does not provide the necessary habitat requirements, such as, lofty ledges, cliff faces, bridges or tall buildings. Based on subsequent information provided by a NYCDEP Wildlife Biologist, indicating the falcon's absence from this site and the lack of appropriate habitat, it was determined that a specific survey for this species was not required.

New York Natural Heritage Database. The New York Natural Heritage Program, in conjunction with the NYSDEC and the Nature Conservancy, provides an ongoing, systematic, scientific inventory of rare plants, animals, and significant ecological communities native to New York State. The New York Natural Heritage Program Database indicated that the Kentucky warbler (*Oporornis formosus*) might occur within the study area. The Kentucky warbler is identified by the Natural Heritage Program as a rare species in the State and has been assigned a Heritage State ranking of S2. An S2 ranking indicates that the species is currently rare in the State (6 to 20 occurrences), making it very vulnerable in New York State. The Kentucky warbler is a southern species with New York State being the northern limit of its range. It has been characterized as a very rare to rare migrant with several confirmed breeding sites in the State, from Long Island to the lower Hudson Valley. The species has a distinctive song and is a persistent singer, allowing for easy identification that the bird is breeding in an area.

Although the study area includes some structural elements of Kentucky warbler breeding habitat, such as moist forest in association with a stream corridor, the understory is generally open and the forested corridor is generally narrow along the stream. Based on the species-specific survey and other field investigations, this species was not observed within the study area.

Five State listed/regulated plant species were also identified by the New York State Natural Heritage Program as historically occurring in the vicinity of the study area: rattlebox (*Crotalaria sagittalis*), nuttall's tick-clover (*Desmodium nuttallii*), carolina cranesbill (*Geranium carolinianum*), shrubby St. John's wort (*Hypericum prolificum*), and Virginia false gromwell (*Onosmodum virginianum*). Rattlebox, nuttall's tick-clover, and Virginia false gromwell have been classified as endangered in New York State, whereas Carolina cranesbill and shrubby St. John's wort have been classified as threatened species in the State. It should be noted that the records of observation for these species date from the late 1890's and have been assigned the Natural Heritage Program's EO ranking of "F," indicating that the species have not been found recently but that habitat is still there and further field work is justified². All five species are primarily associated with dry, open, sandy barrens or fields. Therefore, the Timed Meander Search Procedure was extended through successional field communities on the Eastview Site

² EO Rank: a comparative evaluation summarizing the quality, condition, viability, and defensibility of the occurrence of the species.

during the month of July when these five species are known to be in flower. None of the targeted endangered or threatened vegetative species were identified.

Species of Special Concern. Two avian species that are listed, as New York State Species of Special Concern were observed on-site: a sharp-shinned hawk (*Accipiter striatus*) in April 2000 and a Coopers hawk (*Accipiter cooperii*) in May 2000. Both individuals were observed flying across the study area. The NYSDEC Breeding Bird Atlas Program has reported neither species as breeding in the region and it is most likely that the Sharp-shinned hawk was a migrant species passing through the area. This species is a very common spring migrant in the region. Whether the Coopers hawk was a migrant or a breeding individual is unknown, but Coopers hawk populations have been increasing significantly throughout the region during the past decade.

4.14.2.2. Future Without the Project

The Future Without the Project considers the anticipated peak year of construction (2008) and the first full year of operation (2010) for the proposed facility. The anticipated peak year of construction is based on the peak number of workers.

The Future Without the Project considers two scenarios: one in which the NYCDEP Croton Water Treatment Plant (WTP) project is not located on the Eastview Site and another in which the Croton project is located on the site, specifically in the northwest corner of the north parcel. By the peak construction year (2008), two additional NYCDEP projects could be located on the Eastview Site, namely a NYCDEP Police Precinct and possibly an Administration/Laboratory Building. The Police Precinct project has been approved by the Town of Mount Pleasant and would be located in the southwest corner of the north parcel. The location of the Administration/Laboratory Building is less certain, however, the Eastview Site is one of several properties currently being evaluated for use as a possible site for that particular building. In addition to these projects, NYCDEP's Kensico-City Tunnel may be under construction at the Eastview Site starting in 2009. Therefore, the 2010 analysis year (the first full year of operation for the proposed facility) considers the possibility of this project. All of these NYCDEP projects are analyzed in this Final EIS to the extent to which information is available. They are all separate actions, subject to independent decision-making from the proposed facility and would each undergo their own environmental reviews.

4.14.2.2.1. Without Croton Project at the Eastview Site

In the Future Without the Project, the natural resources on the Eastview Site would change over time through the process of forest succession to a more forested condition. This would occur within the successional forest community most significantly in the next several decades, producing a forest type with a more vertically stratified vegetative composition with well-defined herbaceous, shrub/understory and canopy layers. Increased habitat complexity through the process of forest succession may also increase the diversity of forest-dependent wildlife frequenting the site and would be an overall benefit to the local ecology due to the relative lack of contiguous forested lands. The Eastview Site's isolation within a primarily developed setting limits the types of wildlife that could migrate to the site in the future. Those species

which currently exist on-site and rely on forested conditions, including the flying squirrel, turkey, migratory thrushes and warblers, woodpeckers, owls and hawks, and others would benefit. The mature oak-tulip tree forest, floodplain forest wetland, and red maple swamp wetland areas of the site would change the least in the coming decades. However, the potential exists for species change with the differential regeneration of existing or associate plant community species, potential invasion of opportunistic and wind-disseminated vegetation that may occur after tree death or damage via natural occurrences (windthrow, etc.). The structure and function of the more mature upland and wetland forest types would change little in the Future Without the Project.

Should the successional shrubland habitats within the Eastview Site be maintained in the future as they have been in the past (through periodic clearing, etc.) this habitat type would persist on-site, providing foraging and nesting habitat for those species, especially birdlife, which rely on this community type. However, due to the dominance of multiflora rose within the successional field habitat, succession to a forested condition would increase overall floral diversity. A transition to a more forested condition would result in fewer habitats for species that rely on open or edge conditions, including such birds as killdeer, yellowthroat, catbird, cardinal and goldfinch. Generally speaking, Westchester County has a great deal of edge habitat due to development. Therefore, loss of the successional shrubland, and its associated edge habitat, caused by a transition to a more uniformly forested condition on the Eastview Site could be anticipated over time.

Water quality within Mine Brook is not anticipated to improve or worsen significantly in the Future Without the Project. Surface water runoff from lands east and north of the site, primarily Westchester County facilities, contribute to the somewhat degraded water quality and to high flow rates during storm events, which cause stream scour/erosion. Evidence of new culverts discharging stormwater to the Eastview Site from these developed areas was observed in the field. Should Westchester County and the other local office parks located adjacent to the site invest in retrofitting their drainage systems with stormwater control measures per State and County guidelines, improvements to Mine Brook water quality could be anticipated. It is anticipated that the current condition of the stream would continue to support a limited aquatic faunal population, consisting predominantly of insects, amphibians and fish tolerant of the existing water quality.

As previously mentioned, by the Operation Year of 2010, several projects could share the Eastview Site. These include the planned construction of a NYCDEP Police Precinct, an Administration/Laboratory Building, and the Kensico-City Tunnel (KCT) project. The police precinct site would consist of $\pm 20,500$ square-foot precinct building located in the southwest corner of the north parcel. The Administration/Laboratory Building is less certain, however, as the Eastview Site is one of several properties currently being evaluated for use as a possible site for that particular building and no siting decision has been made. The KCT shaft site could potentially occupy approximately one half acre on the Eastview Site. To limit disturbance, the staging areas for these projects could overlap with each other. The location and size of KCT project has not been determined. These projects may impact the vegetation and wetlands. The combined effects of these projects may restrict the use of the site for migratory birds. These

potential impacts would be assessed as part of this project and within their own environmental reviews.

4.14.2.2.2. With Croton Project at the Eastview Site

During the construction of the Croton project, up to 30 acres within the construction area would be cleared from the north parcel of the Eastview Site to accommodate materials storage and the daily activities of construction vehicles and equipment. The project was designed to minimize impacts on valuable uplands and wetland vegetative communities. However, unavoidable disturbance to some wetland areas and woodlands would occur. To minimize potential construction period impacts, Best Management Practices (BMPs) would be used be implemented to minimize noise, stream sedimentation, and soil erosion. For example, construction equipment and other site vehicles would be equipped with mufflers to minimize noise, straw bales and silt fencing would be placed near streams and the immediate establishment of a vegetative cover of disturbed areas.

Vegetation. The configuration of the Croton project was designed to minimize impacts to natural resources to the greatest extent possible while still allowing appropriate grades and reasonable access to the existing aqueducts. Permanent vegetative impacts to the northwestern portion of the site would be limited to the main treatment building for the Croton project, roadways, storage areas, wetland mitigation area, and the stormwater detention basin. The stormwater detention basin is proposed to be located south of the Croton project, which would improve stormwater quality and attenuate the anticipated stormwater flows to Mine Brook, maintaining drainage conditions similar to the existing conditions. This detention basin would require 1.0 acres of disturbance to the successional forest community that characterizes this portion of the site.

The northwest portion of the north parcel, where the Croton project would be sited, is primarily characterized as successional shrubland dominated by multiflora rose; the northeast quarter is characterized by floodplain forest and red maple swamp wetlands, mature oak-tulip tree forest and successional southern hardwoods; and the southwest and southeast areas are primarily characterized as successional shrublands and southern hardwoods, with wetlands mainly located along the Mine Brook stream corridor. The majority of development would be located in areas of extremely dense multiflora rose in the northwestern portion of the parcel. These areas feature the least vegetation and wildlife diversity on the site.

The vegetative species and communities found on the property are common in the region and do not constitute rare or exemplary stands of native vegetation. However, the NYSNHP has listed the oak-tulip tree forest, floodplain forest, and red maple hardwood swamp communities as vulnerable within New York State. The northeast corner of the parcel contains large mature trees and extensive wetlands occur from the northeast to the south central portion of the parcel.

There are 494 trees greater than four inches in diameter at breast height (dbh) that would be cut within the construction impact area of the Croton project. An additional 214 trees greater than 4-inch dbh are immediately adjacent to the construction impact area, although not proposed for removal, may be threatened by construction activity, for example from compacted soils, so their

survival is uncertain. Of the 494 trees to be cut, 254 trees are greater than six inches dbh (the size regulated by the Town of Mount Pleasant). Of the 214 trees potentially threatened, 124 trees are greater than 6-inch dbh.

Wetlands, Waterways, and Floodplains. The site plan for the Croton project has been carefully designed to concentrate the development within the upland portions of the Eastview Site in order to minimize disturbances to the Mine Brook stream corridor and associated wetland system. However, due to the nature of the Croton project and the location of on-site wetlands, temporary encroachment into wetlands would occur and one small shrub swamp wetland (0.1 acres) would be filled. This wetland is not under NYSDEC jurisdiction but it is under the jurisdiction of ACOE and the Town of Mount Pleasant. An additional 0.1 acres of floodplain forest wetland would be disturbed across a stream corridor during construction of a finished water pipeline. Concrete collars would be installed perpendicular to the groundwater flow direction and the original soil would be replaced around the conduit in an effort to minimize alteration of groundwater flow. Following construction, the area would be re-graded to the pre-existing contours over the conduits. It would be replanted with native shrubs and saplings to re-establish the existing forest and wetland community.

Fish and Benthic Macroinvertebrates. The Croton project would temporarily convey an approximately 50-foot section of Mine Brook through culverts during construction to allow for the installation of underground conduits resulting in temporary disturbances to flora and fauna that might utilize this section of the channel. Following construction, the affected stream channel would be re-engineered to create a natural stream morphology thereby attenuating stream velocities and improving water quality. It is anticipated that benthic flora and fauna would re-establish to current levels of density within one year.

Reptiles and Amphibians. Based on the lack of quality herpetile habitat in the Croton footprint, the loss of forest and wetland areas would not result in harm to the local herpetile community or on regional populations. The surrounding wetlands, mature upland forest, and running water through the remainder of the site could provide habitat to support viable communities of herpetile species. In addition, the planned creation of 0.3 acres of a shrub and forested wetland with a 50-foot wetland buffer would provide additional criteria needed for the herpetile community.

Avifauna. The location of the Eastview Site, near the Hudson and Saw Mill Rivers, may place the property on the fringe of a migratory corridor for migrating passerines (perching birds). All of the migrant species observed during the field surveys are common and anticipated in the region. Observations during the spring and fall of migrating bird populations do not indicate that the Eastview Site is significant in this respect. It is anticipated that the vegetative communities that would remain on the site during operation of the Croton project would continue to provide adequate habitat for migrating passerines that may use the site.

Mammals. The Eastview Site is likely inhabited by a variety of small mammals and is utilized by deer, as discussed in the Existing Conditions. The Croton project would require the clearing of 1.3 acres of oak-tulip tree forest, 21.2 acres of successional shrubland, 0.1 acres of floodplain forest wetland, 0.1 acres of isolated shrub wetland, and 4.9 acres of successional

southern hardwood forest. The change to these resources would decrease the amount of food and shelter for many species including white-tailed deer. Species requiring forested habitat would probably relocate to the east of the Croton footprint within the forested wetlands and successional fields and forests, and to the south of the footprint within the successional forests; therefore no long-term significant adverse impacts are anticipated. Edge species would utilize cleared areas and benefit from them. Regional extirpation would not occur as a result of this project because this forest is common in a regional context.

Rare, Threatened, and Endangered Species. As indicated above in the Existing Conditions section, no State or Federally listed threatened or endangered, or rare species, as defined by the New York Natural Heritage Program were observed on the Eastview Site, and none are anticipated to occur or be affected by the Croton project.

4.14.3. Potential Impacts

Two scenarios to assess the proposed project's potential impacts have been considered. Both include the proposed NYCDEP Police Precinct, Administration/Laboratory Building, and KCT projects³, but only one scenario includes the Croton project. In addition, NYCDEP could construct a pumping station adjacent to Route 100C (see [Section 7, Alternatives](#), for more information regarding this method of conveying treated water to the Town of Mount Pleasant). The NYCDEP could also install a water main from Shaft No. 18 of the Delaware Aqueduct to supply the Town via a separate UV Facility that could be constructed at the Town's Stevens Avenue Storage Tanks. See [Section 5.1, Kensico Reservoir Work Sites](#), for more information regarding this method of conveying treated water to the Town of Mount Pleasant. The Croton project could be developed in the Town of Mount Pleasant as well, depending upon the outcome of legal challenges to the preferred Mosholu Site. Should the Mosholu Site be determined not to be viable, the Croton project would move forward at the Eastview Site. If this occurs, both the Croton project and the proposed UV Facility would be under construction at the same time.

4.14.3.1. Potential Project Impacts

For the Natural Resources chapter, a discussion of the potential project impacts during construction and operating conditions has been combined. This was done because the impacts to natural resources associated with the proposed UV Facility would be the same under both conditions. For example, most of the natural resources affected by the proposed facility would be as a direct result of the clearing and activity that would be related to construction activity. Where there is an opportunity to replace natural resources in space available after construction activity has ceased, that is noted in the mitigation chapter.

The anticipated year of peak construction for the proposed UV Facility is 2008. The potential construction impacts have been assessed by comparing the Future With the Project conditions

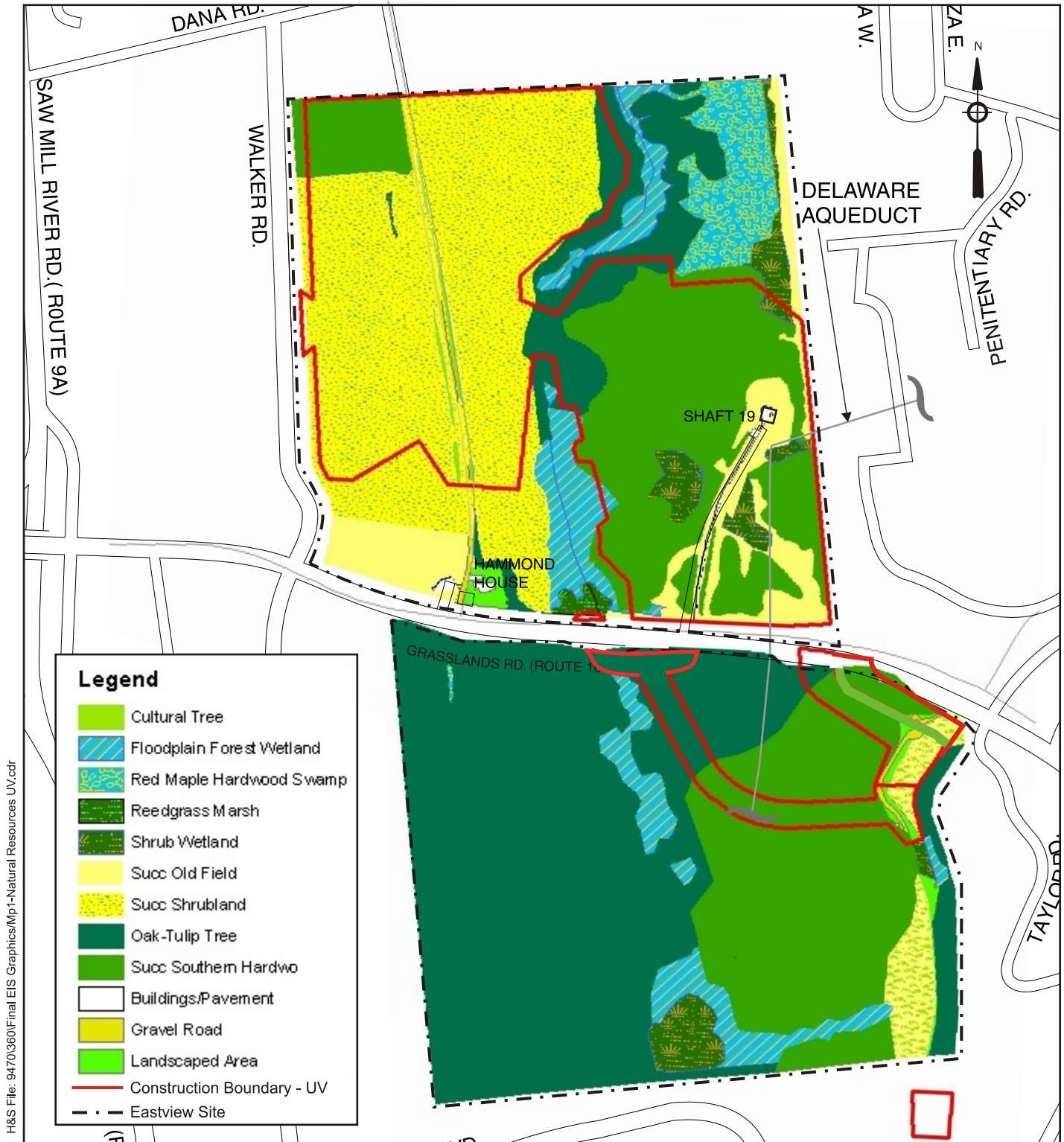
³ In addition, both scenarios would include a qualitative assessment of effects during construction and operation of the UV Facility if the proposed Administration/Laboratory Building is located on the Eastview Site. This project is separate from and independent of the proposed UV Facility and would be evaluated as part of an independent environmental review.

against the Future Without the Project conditions for the predicted maximum area that would be affected by the proposed facility, including the building footprints, roads and lay down and staging areas. See [Figure 4.14-5](#) for a depiction of the construction impacts to natural resources at the Eastview Site associated with the UV Facility. The anticipated year of operation for the proposed UV Facility is 2010. Therefore, potential project impacts have been assessed by comparing the Future With the Project conditions against the Future Without the Project conditions for the year 2010 for each of the scenarios. See [Figure 4.14-6](#) for a depiction of the natural resources during operating conditions for the UV Facility.

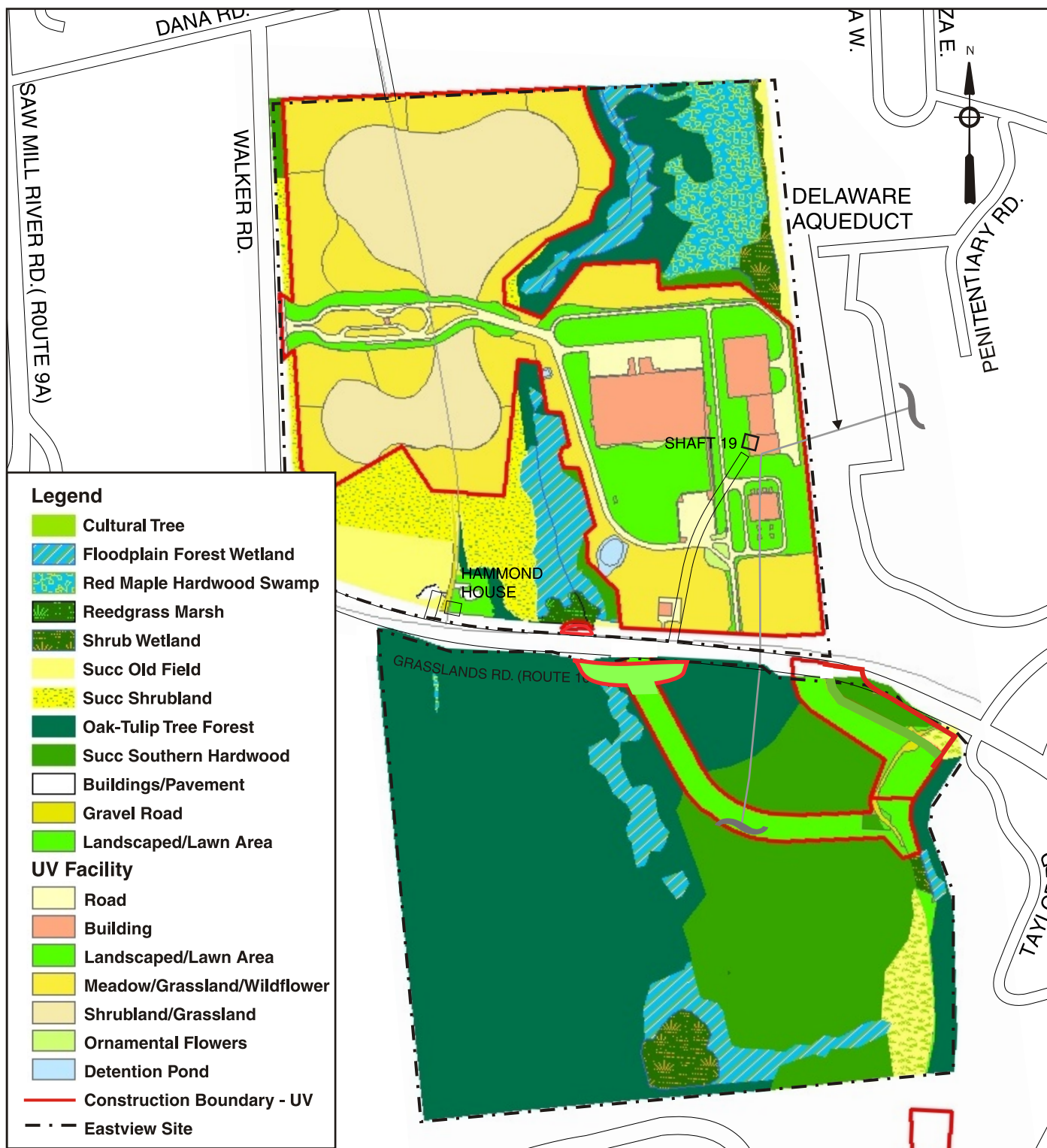
4.14.3.1.1. Without Croton Project at the Eastview Site

The configuration of the UV Facility was designed to minimize impacts to natural resources to the greatest extent possible while still allowing appropriate grades and reasonable access to the existing aqueducts and the placement of future structures at the site. The southeastern portion of the north parcel, where the UV Facility would be sited, is a mix of successional old field, successional southern hardwood forest, oak-tulip tree forest, and shrub swamp wetland; the northeast portion of the north parcel is characterized by floodplain and red maple hardwood swamp wetlands and oak-tulip tree forest; the areas to the west of Mine Brook are primarily characterized as successional shrubland that is dominated by multiflora rose. A small area of successional southern hardwood occurs in the northwest corner of the north parcel and a small area of successional old field occurs in the southwest corner of the north parcel. The western portion of the north parcel would be used for the proposed security station and parking areas during operation. These areas feature the least vegetation and wildlife diversity on the site.

The south parcel is dominated by oak-tulip tree forest. Floodplain and shrub swamp wetlands exist along the Mine Brook corridor and an area of successional southern hardwood forest occurs to the east of Mine Brook. A treated water conveyance connecting the proposed UV Facility to the Catskill Aqueduct would be constructed on the south parcel east of Mine Brook. A potential pressurized raw water conveyance may also be constructed on the south parcel. Impacts associated with the treated water conveyance and the potential pressurized raw water pressurization conveyance have been assessed separately. A bypass water line could also be installed adjacent to the possible pressurized raw water conveyance.



Natural Resources Impacted During Construction of the UV Facility



Natural Resources Impacted During Operation of the UV Facility

Catskill/Delaware UV Facility

Figure 4.14-6

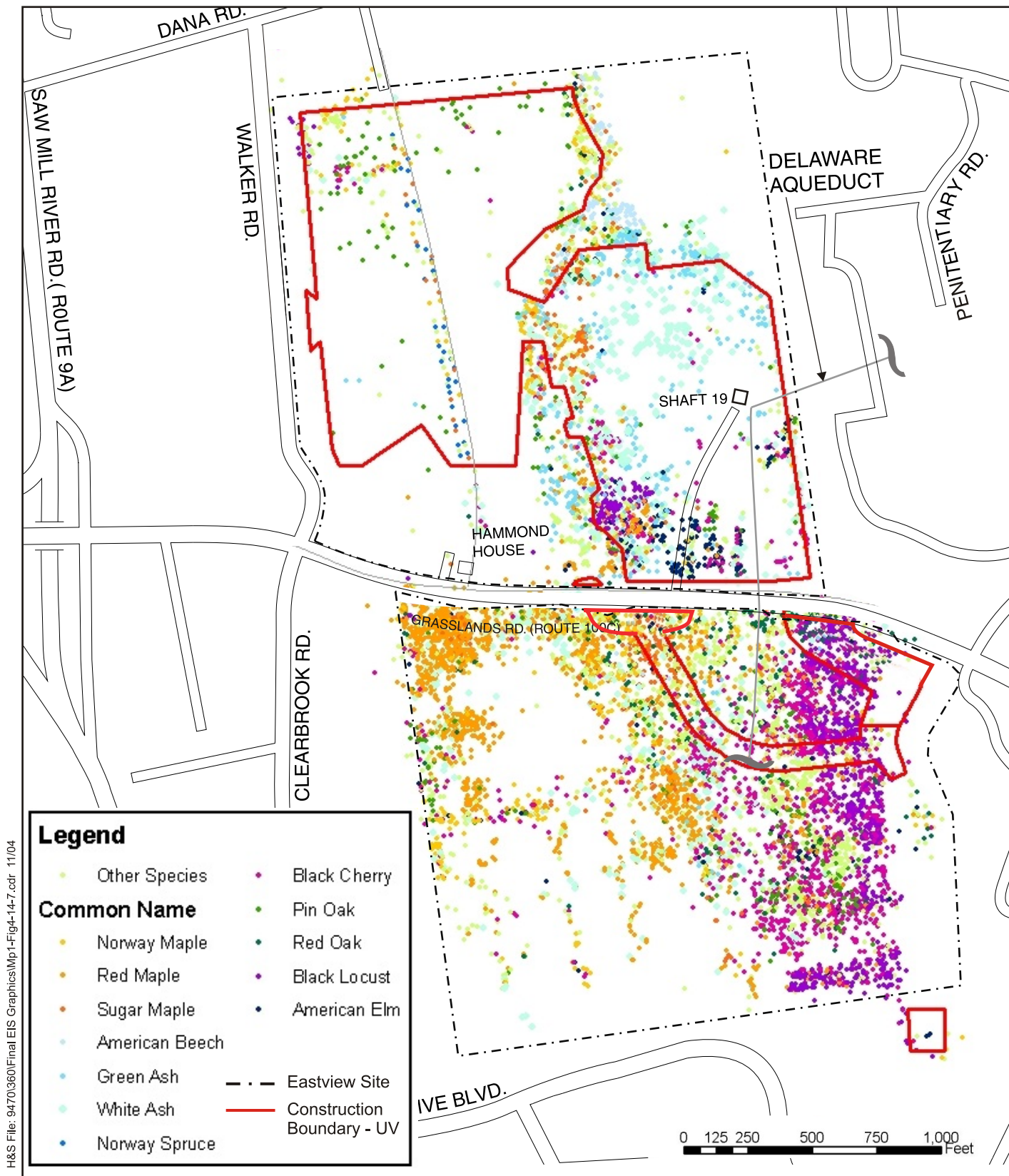
Vegetation. Approximately 3.8 acres of oak-tulip tree forest, 20.3 acres of successional southern hardwood forest, 0.1 acres of floodplain forest wetland, 1.9 acres of isolated shrub swamp wetland, 28.5 acres of successional shrubland, and 4.7 acres of successional old field on the north parcel would be lost as a result of the construction of the proposed UV Facility project (Table 4.14-8). On the south parcel, approximately 1.3 acres of oak-tulip tree forest, 2.7 acres of successional southern hardwood forest, 0.8 acres of successional shrubland would be cleared on the south parcel for treated water connection pipelines to the Catskill Aqueduct and the potential raw water pressurization pipeline. In addition, 0.01 acres of floodplain forest wetland would be lost due to the replacement of the culvert under Route 100C (Table 4.14-9).

Of the land cleared during construction activities in the north parcel, 9.9 acres would be utilized for buildings, roads, and parking with 10.9 acres of maintained lawn or low ground cover landscaped areas surrounding the proposed UV Facility buildings. These disturbances would constitute a permanent loss of the existing on-site vegetation. Table 4.14-8 quantifies cover change on the north parcel that would occur as part of the proposed facility. Table 4.14-9 quantifies cover change on the south parcel that would occur as part of the proposed facility resulting from the construction of the Catskill Aqueduct treated water pipeline and potential pressurized raw water pipeline.

Eighty-eight percent of the trees to be cut or threatened on the north parcel have a dbh of between 4 and 12 inches. There are a total of 1,918 trees greater than four inches in diameter at breast height (dbh) that would be cut within the construction impact area of the UV Facility in the north parcel (Table 4.14-10). Project design changes between issuance of the Draft EIS and Final EIS have resulted in an additional 177 trees greater than 4-inch dbh being cut on the north parcel. The Town of Mount Pleasant regulates trees with a dbh of 6 inches or greater. There are 1,199 trees with a dbh of six inches or greater that would be cut within the construction impact area. A total of 373 trees greater than 4-inch dbh adjacent to the construction impact area, although not proposed for removal, may be threatened by construction activity, for example from compacted soils, so their survival is uncertain (Table 4.14-11). There are 265 trees with a dbh of six inches or greater that would potentially be threatened. It should be noted that the threatened trees include 92 trees within the wetland enhancement area along Mine Brook north of the culvert at Route 100C.

The majority of trees cut or threatened on the north parcel occur within the UV Facility footprint (Table 4.14-10 and Figure 4.14-7). The dominant species impacted in this area include green and white ash, maples (Norway, red, and sugar), black cherry, and American elm. It should be noted that over 90 percent of the American elm identified within the north parcel could be cut. The clearing of the staging area to the west of Mine Brook could result in the loss of 20 specimen trees along Hammond House Road.

Eighty-three percent of the trees to be cut or threatened within the Catskill Aqueduct treated water pipeline footprint have a dbh of between four and 12 inches. A total of 456 trees greater than four inches at diameter at breast height (dbh) would be cut within the construction area of



Species of Trees Surveyed

Catskill/Delaware UV Facility

Figure 4.14-7

the pipeline in the south parcel (Table 4.14-12). The Town of Greenburgh also regulates trees with a dbh of six inches or greater. There are 306 trees with a dbh of six inches or greater that could be cut within the construction impact area. There are an additional 193 trees greater than 4-inch dbh adjacent to the construction impact area that may be threatened by construction activity, 127 of which have a dbh of six inches or greater (Table 4.14-13).

Red and sugar maples, black cherry, and black locust are the dominant species impacted along the route of the Catskill Aqueduct connection pipeline (Table 4.14-12 and Figure 4.14-7).

Seventy-six percent of the trees to be cut or threatened within the possible pressurized raw water pipeline have a dbh of between four and 12 inches. A total of 246 trees greater than four inches at diameter at breast height (dbh) would be cut within the construction area in the south parcel (Table 4.14-14). There are 202 trees with a dbh of six inches or greater that could be cut within the construction impact area for the possible pressurized raw water pipeline. An additional 98 trees greater than 4-inch dbh adjacent to the construction impact area may be threatened by construction activity, 82 of which have a dbh of six inches or greater (Table 4.14-15).

The dominant species impacted along the potential raw water pressurization pipeline are black cherry and black locust (Table 4.14-14 and Figure 4.14-7). Most of these trees are located in the northern portion of the pipeline route.

Six additional trees would be cut in the south parcel as a result of the replacement of the culvert that carries flow from Mine Brook under Route 100C. These trees include four Norway maples with a dbh of 9 inches or less and one flowering dogwood and red oak, both with a dbh of five inches. Six trees would be threatened in the culvert replacement work area. Three Norway maples with a dbh of nine inches or less, a sugar maple with a 7 inch dbh, and two red oaks with a dbh of 6 and 26 inches would potentially be lost due to construction activities.

No additional impacts are anticipated from the potential installation of the 36-inch bypass line.

In general, the vegetative species and communities found on both the north and south parcels are common in the region and do not constitute rare or exemplary stands of native vegetation. However, the NYSNHP has listed the oak-tulip tree forest, floodplain forest, and red maple hardwood swamp communities as vulnerable within New York State. Permanent vegetative impacts to the north parcel would be limited to the main disinfection building, roadways, storage areas, the storm water detention basin, and the security and parking areas. Most of the potential impacts on this area of the site would be located within successional old field, successional southern hardwood forest, shrub swamp wetlands (Table 4.14-8). A portion of the oak-tulip tree forest in the north parcel would be lost as well. The stormwater detention basin is proposed to be located south of the proposed facility, which would improve stormwater quality, attenuate the storm water flows to Mine Brook, maintaining drainage conditions similar to the existing conditions. The on-site wetland enhancement associated with the proposed stormwater best management practice system for the proposed UV Facility would replace an existing monoculture reed grass marsh with diverse, native emergent wetland plantings. This would improve vegetative habitat diversity and provide increased habitat value for aquatic fauna,

herptiles, and reptiles. Loss of shrub swamp and floodplain forest wetlands and their associated stormwater attenuation functions would be mitigated for with the proposed online storage and floodplain forest wetland creation in the south parcel, which would provide water quality treatment by way of removal of sediments, nutrients, and bacteria. The loss of trees and habitat that is anticipated with the development of the proposed facility would be a significant impact that would be mitigated for with on-site and off-site habitat replacement/creation. Approximately 33 acres of impacted successional shrubland dominated by multiflora rose and successional old field would be replaced with shrubland/grassland and indigenous meadow grass communities which would have a higher ecological and species diversity value (see [Section 6, Mitigation of Potential Significant or Temporary Adverse Impacts](#)).

TABLE 4.14-8. COVER TYPE CHANGE IN THE NORTH PARCEL WITH THE PROPOSED UV FACILITY

Cover Type (Acres)	Existing Area (acres)	Future Without the Project (1) (acres)	Future With the Project (acres)	UV Project Induced Impacts Acres (% change)	New York State Natural Heritage Program Cover Type Categories (2)		
					System	Subsystem	Community Type
Floodplain Forest Wetland	4.8	4.8	3.6	-1.2 (-25.0%)	Palustrine	Forested Mineral Soil Wetland	Floodplain Forest
Red Maple Hardwood Swamp	4.2	4.2	4.2	0.00	Palustrine	Forested Mineral Soil Wetland	Red Maple Hardwood Swamp
Shrub Swamp	2.7	2.7	0.8	-1.9 (-70.4%)	Palustrine	Open Mineral Soil Wetland	Shrub Swamp
Reedgrass/Purple Loosestrife Marsh (3)	0.4	0.4	0.0	-0.4 (100.0%)	Palustrine	Palustrine Cultural	Reedgrass Marsh
Oak-Tulip Tree Forest	8.3	8.3	4.5	-3.8 (-45.8%)	Terrestrial	Forested Upland	Oak-Tulip Tree Forest
Successional Southern Hardwood Forest	20.8	20.8	0.5	-20.3 (-97.6%)	Terrestrial	Forested Uplands	Successional Southern Hardwoods
Successional Shrubland	32.2	31.4	2.9	-28.5 (-88.5%)	Terrestrial	Open Uplands	Successional Shrubland
Successional Old Field	7.7	5.8	1.1	-4.7 (61.0%)	Terrestrial	Open Uplands	Successional Old Field
Cultural Trees	0.7	0.7	0.0	-0.7 (100%)	Terrestrial	Terrestrial Cultural	Planted Shade Trees
Pretreatment Forebay	0.00	0.00	0.3	0.3	Palustrine	Palustrine Cultural	Water Recharge Basin
Landscaped/Lawn Area	0.4	1.5	12.4	10.9	Terrestrial	Terrestrial Cultural	Mowed Lawn with Trees
Roads, Parking, Buildings	1.1	2.7	12.2	9.9	Terrestrial	Terrestrial Cultural	Mixed Community Types

TABLE 4.14-8. COVER TYPE CHANGE IN THE NORTH PARCEL WITH THE PROPOSED UV FACILITY

Cover Type (Acres)	Existing Area (acres)	Future Without the Project (1) (acres)	Future With the Project (acres)	UV Project Induced Impacts Acres (% change)	New York State Natural Heritage Program Cover Type Categories (2)		
					System	Subsystem	Community Type
TOTAL	83.3	83.3	42.9	-40.4	--	--	--
Stream Length (feet)	2,345	2,345	2,305	-40.0	Riverine	Natural	Perrenial Stream
50-foot Wetland Buffer	11.4	11.4	6.5	-4.9	NA	NA	NA

Notes:

1. Future Without the Project acreage includes cover type changes associated with the Police Precinct.
2. Reschke, Carol, et. al. 2002. Ecological Communities of New York State. New York Natural Heritage Program. NYS Dept. of Environmental Conservation, Latham, NY.
3. Loss of 0.4 acres of Reedgrass/Purple Loosetrife Marsh results from proposed Wetland Enhancement/Creation that would replace the existing low ecological value monoculture reedgrass marsh with diverse, native emergent wetland plantings thereby improving vegetative habitat diversity and providing increased habitat value for aquatic fauna, herpetiles, and reptiles (see [Section 6, Mitigation of Potential Impacts](#)).

TABLE 4.14-9. HABITAT COVER TYPE CHANGE IN THE SOUTH PARCEL WITH THE PROPOSED UV FACILITY

Cover Type (acres)	Existing Area (acres)	Future Without the Project (acres)	Future With the Project (acres)	UV Project Induced Impacts Acres (% Change)	New York State Natural Heritage Program Cover Type Categories (1)		
					System	Subsystem	Community Type
Floodplain Forest Wetland	4.5	4.5	4.5	0.0	Palustrine	Forested Mineral Soil Wetland	Floodplain Forest
Red Maple Hardwood Swamp	0.1	0.1	0.1	0.0	Palustrine	Forested Mineral Soil Wetland	Red Maple Hardwood Swamp
Shrub Swamp	1.6	1.6	1.6	0.0	Palustrine	Open Mineral Soil Wetland	Shrub Swamp
Oak-Tulip Tree Forest	42.2	42.2	40.9	-1.3 (-3.1%)	Terrestrial	Forested Upland	Oak-Tulip Tree Forest
Successional Southern Hardwood Forest	21.6	21.6	18.9	-2.7 (-12.5%)	Terrestrial	Forested Upland	Successional S. Hardwood Forest
Successional Shrubland	2.9	2.9	2.1	-0.8 (-27.6%)	Terrestrial	Open Uplands	Successional Shrubland
Landscaped/Lawn Area	0.7	0.7	5.4	4.7	Terrestrial	Terrestrial Cultural	Mowed Lawn With Trees
Roads, Parking, Buildings	0.3	0.3	0.4	0.1	Terrestrial	Terrestrial Cultural	Mixed Community Types
TOTAL	73.9	73.9	73.9	0.0	--	--	--
Stream Length (feet)	1,750	1,750	1,750	0.00	Riverine	Natural	<i>Intermittent Stream</i>
50-foot Wetland Buffer	9.7	9.7	9.2	-0.5	NA	NA	NA

Notes:

1. Reschke, Carol, et al. 2002. Ecological Communities of New York State. New York Natural Heritage Program. N.Y.S. Dept. of Environmental Conservation. Latham, NY.

TABLE 4.14-10. SUMMARY OF TREES CUT ON THE NORTH PARCEL

Common Name	Scientific Name	Diameter at Breast Height (inches)												Total By Species
		4-5	6-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	33-36	>36	
Boxelder	Acer negundo	11	9	1	2	--	--	--	--	--	--	--	--	23
Norway Maple	Acer platanoides	35	57	15	9	4	1	2	2	3	5	1	1	135
Planetree Maple	Acer pseudoplatanus	2	4	2	--	1	5	1	2	--	1	--	--	18
Red Maple	Acer rubrum	26	57	17	4	2	2	--	2	--	--	--	1	111
Silver Maple	Acer saccharinum	3	8	1	--	--	--	2	3	3	1	--	5	26
Sugar Maple	Acer saccharum	49	54	14	5	4	4	3	7	4	--	3	--	147
Tree of Heaven	Ailanthus altissima	6	6	--	5	1	--	--	--	--	--	--	--	18
Black Birch	Betula lenta	5	18	1	4	1	--	--	--	--	--	--	--	29
White Birch	Betula papyrifera	--	1	--	--	--	--	--	--	--	--	--	--	1
Grey Birch	Betula populifolia	2	2	--	--	--	--	--	--	--	--	--	--	4
Pignut Hickory	Carya glabra	1	1	--	--	--	--	--	--	--	--	--	--	2
Shagbark Hickory	Carya ovata	5	2	--	--	--	2	1	1	--	--	--	--	11
Mockernut Hickory	Carya tomentosa	1	--	1	1	--	--	1	--	--	--	--	--	4
Flowering Dogwood	Cornus florida	1	--	--	--	--	--	--	--	--	--	--	--	1
American Beech	Fagus grandifolia	1	3	--	--	--	1	--	--	--	--	--	--	5
White Ash	Fraxinus americana	208	118	26	8	4	2	--	1	1	2	--	3	373
Green Ash	Fraxinus pennsylvanica	138	113	17	1	2	--	--	--	--	--	--	--	271
Black Walnut	Juglans nigra	1	2	3	1	--	--	--	--	--	--	--	--	7
Tulip Tree	Liriodendron tulipifera	--	2	1	1	--	--	--	--	1	--	--	--	5
Osage orange	Maclura pomifera	--	1	--	--	--	--	--	--	--	--	--	--	1
Apple	Malus sp.	36	12	--	--	--	--	--	--	--	--	--	--	48
White Mulberry	Morus alba	--	1	1	--	--	--	--	--	--	--	--	--	2
Eastern Hophornbeam	Ostrya virginiana	--	--	--	1	--	--	--	--	--	--	--	--	1
Norway Spruce	Picea abies	--	--	--	4	5	12	6	1	1	1	--	--	30
American Sycamore	Platanus occidentalis	3	2	4	1	--	1	--	--	1	1	--	--	13
Quaking Aspen	Populus tremuloides	8	1	1	--	--	--	--	--	--	--	--	--	10
Sweet Cherry	Prunus avium	--	--	1	--	--	--	--	--	--	--	--	--	1
Black Cherry	Prunus serotina	56	105	18	3	2	--	--	1	--	--	--	--	185
White Oak	Quercus alba	--	1	1	--	--	--	2	--	--	2	1	4	11
Pin Oak	Quercus palustris	53	35	9	3	1	1	--	1	1	--	--	2	106
Red Oak	Quercus rubra	6	6	5	1	--	--	1	--	1	--	--	1	21
Black Oak	Quercus velutina	2	3	--	--	--	--	--	--	--	--	--	--	5
Oak	Quercus sp.	--	--	--	--	--	--	--	--	--	--	--	1	1
European Buckthorn	Rhamnus cathartica	1	--	--	--	--	--	--	--	--	--	--	--	1
Black Locust	Robinia pseudoacacia	3	44	36	8	6	2	1	1	--	--	1	1	103
Bebe Willow	Salix bebbiana	5	3	--	--	2	--	--	--	--	--	--	--	10
Black Willow	Salix nigra	1	1	--	--	--	--	--	--	--	--	--	--	2
Willow	Salix sp.	1	4	--	--	--	--	--	--	--	--	--	--	5
Basswood	Tilia americana	--	2	--	--	--	--	--	--	--	--	--	--	2
American Elm	Ulmus americana	46	87	19	8	4	--	2	--	--	--	--	--	166
Elm	Ulmus sp.	2	--	--	--	--	--	--	--	--	--	--	--	2
Unknown		1	--	--	--	--	--	--	--	--	--	--	--	1
	TOTAL BY DBH	719	765	194	70	39	33	22	22	16	13	6	19	1918

TABLE 4.14-11. SUMMARY OF TREES THREATENED ON THE NORTH PARCEL

Common Name	Scientific Name	Diameter at Breast Height (inches)												Total By Species
		4-5	6-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	33-36	>36	
Boxelder	Acer negundo	2	4	--	--	1	--	--	--	--	--	--	--	7
Norway Maple	Acer platanoides	14	31	8	--	--	--	--	--	--	--	--	--	53
Red Maple	Acer rubrum	3	9	7	--	--	--	1	--	--	--	--	1	21
Silver Maple	Acer saccharinum	1	2	--	--	--	--	--	--	--	--	--	2	5
Sugar Maple	Acer saccharum	6	11	4	3	--	--	--	--	--	--	--	--	24
Tree of Heaven	Ailanthus altissima	4	--	--	3	--	--	--	--	--	--	--	--	7
Black Birch	Betula lenta	1	4	--	--	--	--	--	--	--	--	--	--	5
Shagbark Hickory	Carya ovata	1	--	--	--	--	1	--	--	--	1	--	--	3
Mockernut Hickory	Carya tomentosa	--	1	--	--	--	--	--	--	--	--	--	--	1
Flowering Dogwood	Cornus florida	1	--	--	--	--	--	--	--	--	--	--	--	1
American Beech	Fagus grandifolia	--	1	2	--	1	--	1	--	--	--	1	--	6
White Ash	Fraxinus americana	12	37	6	1	1	--	--	--	--	--	--	--	57
Green Ash	Fraxinus pennsylvanica	34	33	3	--	--	1	--	1	1	--	--	--	73
Honeylocust	Gleditsia tricanthos	--	--	--	--	1	--	--	--	--	--	--	--	1
Tulip Tree	Liriodendron tulipifera	--	1	1	--	--	--	1	--	--	--	--	--	3
Apple	Malus sp.	10	1	--	--	--	--	--	--	--	--	--	--	11
American Sycamore	Platanus occidentalis	--	--	--	1	1	--	--	--	--	--	--	--	2
Quaking Aspen	Populus tremuloides	--	--	1	--	--	--	--	--	--	--	--	--	1
Black Cherry	Prunus serotina	3	5	--	--	1	--	--	--	--	--	--	--	9
White Oak	Quercus alba	--	1	--	--	--	--	--	--	--	--	--	1	2
Pin Oak	Quercus palustris	7	6	2	2	--	--	1	--	--	--	--	--	18
Red Oak	Quercus rubra	--	3	3	--	--	--	--	--	1	--	--	--	7
Black Oak	Quercus velutina	1	--	--	--	--	--	--	--	--	--	--	--	1
Oak	Quercus sp.	--	--	--	--	--	--	--	--	--	--	--	1	1
Black Locust	Robinia pseudoacacia	2	2	2	--	--	--	3	--	--	--	--	--	9
Black Willow	Salix nigra	1	18	10	4	2	--	--	--	--	--	--	--	35
Basswood	Tilia americana	--	--	1	1	--	--	--	--	--	--	--	--	2
American Elm	Ulmus americana	4	2	1	--	--	--	--	--	--	--	--	--	7
Smooth Blackhaw	Viburnum Prunifolium	1	--	--	--	--	--	--	--	--	--	--	--	1
TOTAL BY DBH		108	172	51	15	8	2	7	1	2	1	1	5	373

Notes: Threatened trees include trees within the wetland enhancement area along Mine Brook north of the cuvert at Route 100C

**TABLE 4.14-12. SUMMARY OF TREES CUT ON THE SOUTH PARCEL
CATSKILL AQUEDUCT PIPELINE**

Common Name	Scientific Name	Diameter at Breast Height (inches)												Total By Species
		4-6	6-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	33-36	>36	
Norway Maple	Acer platanoides	5	4	3	2	1	--	--	--	1	--	--	--	16
Planetree Maple	Acer pseudoplatanus	--	1	--	--	--	--	--	--	--	--	--	--	1
Red Maple	Acer rubrum	19	22	6	1	1	1	2	1	--	1	1	--	55
Sugar Maple	Acer saccharum	25	22	5	--	--	--	3	--	--	--	--	--	55
Tree of Heaven	Ailanthus altissima	2	2	--	--	--	--	--	--	--	--	--	--	4
Yellow Birch	Betula alleghaniensis	--	--	--	--	1	--	--	--	--	--	--	--	1
Black Birch	Betula lenta	6	10	3	1	1	--	1	--	--	--	--	--	22
Ironwood	Carpinus caroliniana	1	2	--	--	--	--	--	--	--	--	--	--	3
Pignut Hickory	Carya glabra	1	2	--	--	--	--	--	--	--	--	--	--	3
Shellbark Hickory	Carya lacinosa	1	--	1	--	--	--	--	--	--	--	--	--	2
Shagbark Hickory	Carya ovata	4	4	1	--	1	--	1	--	1	--	--	--	12
Flowering Dogwood	Cornus florida	5	2	--	--	--	--	--	--	--	--	--	--	7
American Beech	Fagus grandifolia	2	4	--	--	1	--	--	--	--	--	--	--	7
White Ash	Fraxinus americana	8	7	1	1	--	2	1	--	1	--	--	--	21
Green Ash	Fraxinus pennsylvanica	4	2	--	--	1	--	--	--	--	--	--	--	7
Tulip Tree	Liriodendron tulipifera	1	--	--	2	--	--	1	--	--	--	--	--	4
Apple	Malus sp.	4	1	--	--	--	--	--	--	--	--	--	--	5
Black Gum	Nyssa sylvatica	4	7	--	--	--	--	--	--	--	--	--	--	11
Eastern White Pine	Pinus Strobus	--	--	1	--	--	--	--	--	--	--	--	--	1
American Sycamore	Platanus occidentalis	--	--	--	1	--	--	--	--	--	--	--	--	1
Bigtooth Aspen	Populus grandidentata	7	4	--	--	--	--	--	--	--	--	--	--	11
Black Cherry	Prunus serotina	38	40	8	10	1	1	--	1	--	--	--	--	99
White Oak	Quercus alba	--	--	2	--	2	1	--	--	--	3	1	--	9
Pin Oak	Quercus palustris	--	1	1	1	--	1	--	--	--	--	--	--	4
Red Oak	Quercus rubra	4	5	3	1	1	--	1	--	--	--	--	1	16
Black Oak	Quercus velutina	1	6	--	--	--	--	1	--	--	--	--	--	8
Black Locust	Robinia pseudoacacia	4	22	18	8	4	--	--	--	--	--	--	--	56
Black Willow	Salix nigra	2	--	--	--	--	--	--	--	--	--	--	--	2
Sassafras	Sassafras albidum	1	1	--	--	--	--	--	--	--	--	--	--	2
American Elm	Ulmus americana	1	2	--	2	--	1	1	--	1	--	--	--	8
Unknown		--	2	1	--	--	--	--	--	--	--	--	--	3
	TOTAL BY DBH	150	175	54	30	15	7	12	2	4	4	2	1	456

**TABLE 4.14-13. SUMMARY OF TREES THREATENED ON THE SOUTH PARCEL
CATSKILL AQUEDUCT PIPELINE**

Common Name	Scientific Name	Diameter at Breast Height (inches)												Total By Species
		4-6	6-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	33-36	>36	
Boxelder	Acer negundo	1	--	--	--	--	--	--	--	--	--	--	--	1
Norway Maple	Acer platanoides	3	1	--	1	--	1	--	--	--	--	--	--	6
Sycamore Maple	Acer psuedoplatanus	--	1	--	--	--	--	--	--	--	--	--	--	1
Red Maple	Acer rubrum	13	4	1	2	--	1	1	--	1	3	--	--	26
Sugar Maple	Acer saccharum	7	9	1	1	--	--	1	--	--	--	--	--	19
Black Birch	Betula lenta	1	1	2	--	1	--	--	--	--	--	--	--	5
Ironwood	Carpinus caroliniana	1	--	1	--	--	--	--	--	--	--	--	--	2
Pignut Hickory	Carya glabra	1	--	--	--	--	--	--	--	--	--	--	--	1
Shagbark Hickory	Carya ovata	2	3	3	--	1	--	--	--	--	--	--	--	9
Flowering Dogwood	Cornus florida	3	1	--	--	--	--	--	--	--	--	--	--	4
White Ash	Fraxinus americana	6	5	1	--	--	--	--	--	--	--	--	--	12
Green Ash	Fraxinus pennsylvanica	--	--	--	--	--	--	--	--	--	--	--	1	1
Tulip Tree	Liriodendrun tuliperifera	--	--	--	--	--	--	--	1	--	--	--	1	2
Apple	Malus sp.	2	--	--	--	--	--	--	--	--	--	--	--	2
Blackgum	Nyssa silvatica	--	1	1	--	--	--	--	--	--	--	--	--	2
Black Cherry	Prunus serotina	16	14	3	2	1	--	--	--	--	--	--	--	36
White Oak	Quercus alba	--	--	1	1	--	--	--	--	--	--	--	--	2
Pin Oak	Quercus palustris	1	3	--	--	1	--	--	--	--	--	--	--	5
Red Oak	Quercus rubra	--	3	3	--	--	2	--	--	--	--	--	--	8
Black Oak	Quercus velutina	--	2	--	1	--	--	--	--	--	--	--	--	3
Black Locust	Robinia pseudoacacia	6	13	10	5	1	--	--	--	--	--	--	--	35
Saasafras	Sassafras albidum	2	4	--	--	--	--	--	--	--	--	--	--	6
American Elm	Ulmus americana	1	3	--	1	--	--	--	--	--	--	--	--	5
	TOTAL BY DBH	66	68	27	14	5	4	2	1	1	3	0	2	193

**TABLE 4.14-14. SUMMARY OF TREES CUT ON THE SOUTH PARCEL
RAW WATER PRESSURIZATION PIPELINE**

Common Name	Scientific Name	Diameter at Breast Height (inches)												Total By Species
		4-5	6-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	33-36	>36	
Norway Maple	Acer platanoides	--	2	1	--	--	--	--	--	--	--	--	--	3
Red Maple	Acer rubrum	3	3	--	1	--	--	--	--	--	--	--	--	7
Black Birch	Betula lenta	3	3	--	--	--	--	--	--	--	--	--	--	6
Shagbark Hickory	Carya ovata	1	3	--	--	--	--	--	--	--	--	--	--	4
Hickory	Carya sp.	--	--	--	1	1	--	--	--	--	--	--	--	2
Flowering Dogwood	Cornus florida	1	--	--	--	--	--	--	--	--	--	--	--	1
White Ash	Fraxinus americana	--	1	--	1	--	--	--	--	--	--	--	--	2
Green Ash	Fraxinus pennsylvanica	2	--	--	--	--	--	--	--	--	--	--	--	2
Apple	Malus sp.	1	--	--	--	--	--	--	--	--	--	--	--	1
Eastern White Pine	Pinus Strobus	--	1	--	1	1	--	1	--	--	--	--	--	4
Bigtooth Aspen	Populus grandidentata	1	1	--	--	--	--	--	--	--	--	--	--	2
Black Cherry	Prunus serotina	25	27	2	--	2	1	--	--	--	--	--	--	57
Red Oak	Quercus rubra	2	16	3	3	4	--	--	1	1	--	--	2	32
Black Oak	Quercus velutina	--	1	--	--	--	--	--	--	--	--	--	--	1
Black Locust	Robinia pseudoacacia	4	35	44	23	12	1	--	--	--	--	--	--	119
Black Willow	Salix nigra	1	--	--	--	--	--	--	--	--	--	--	--	1
American Elm	Ulmus americana	--	1	--	--	--	--	--	--	--	--	--	--	1
Slippery Elm	Ulmus rubra	--	1	--	--	--	--	--	--	--	--	--	--	1
	TOTAL BY DBH	44	95	50	30	20	2	1	1	1	0	0	2	246

**TABLE 4.14-15. SUMMARY OF TREES THREATENED ON THE SOUTH PARCEL
RAW WATER PRESSURIZATION PIPELINE**

Common Name	Scientific Name	Diameter at Breast Height (inches)												Total By Species
		4-6	6-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	33-36	>36	
Norway Maple	Acer platanoides	--	2	1	--	--	--	--	--	--	--	--	--	3
Red Maple	Acer rubrum	2	2	--	--	--	--	--	--	--	--	--	--	4
Tree of Heaven	Ailanthus altissima	1	--	--	--	--	--	--	--	--	--	--	--	1
Black Birch	Betula lenta	1	--	--	--	--	--	--	--	--	--	--	--	1
Mockernut Hickory	Carya tomentosa	1	--	--	--	--	--	--	--	--	--	--	--	1
Green Ash	Fraxinus pennsylvanica	--	--	--	1	--	--	--	--	--	--	--	--	1
Apple	Malus sp.	1	--	--	--	--	--	--	--	--	--	--	--	1
Eastern Hophornbeam	Ostrya virginiana	--	--	1	--	--	--	--	--	--	--	--	--	1
Black Cherry	Prunus serotina	6	9	1	--	1	--	--	--	--	--	--	--	17
Red Oak	Quercus rubra	2	4	1	1	--	1	1	--	--	--	--	--	10
Black Locust	Robinia pseudoacacia	1	19	18	13	5	--	--	--	--	--	--	--	56
American Elm	Ulmus americana	--	--	--	--	--	--	--	--	--	--	1	--	1
Slippery Elm	Ulmus rubra	1	--	--	--	--	--	--	--	--	--	--	--	1
	TOTAL BY DBH	16	36	22	15	6	1	1	0	0	0	1	0	98

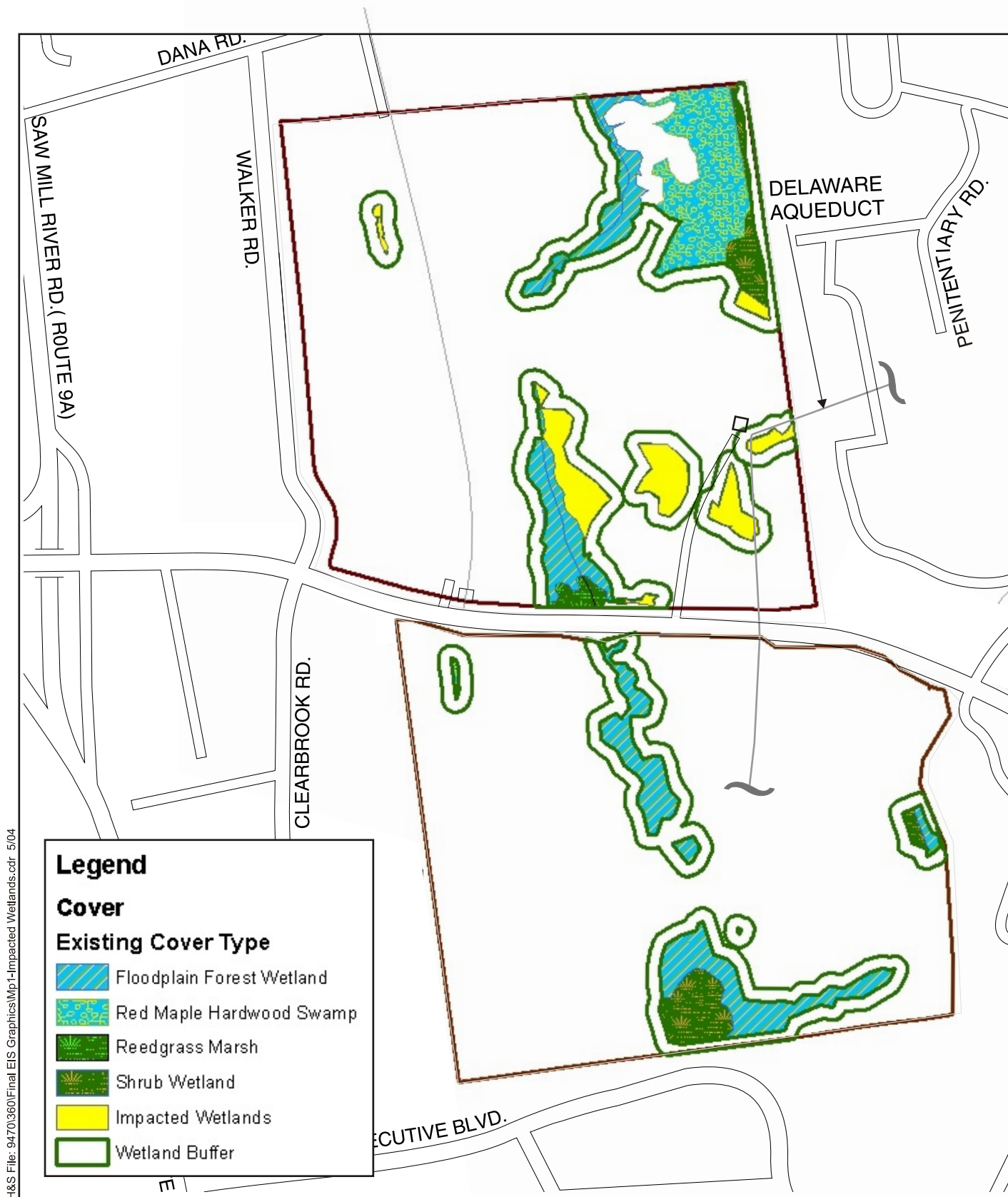
Wetlands, Waterways, and Floodplains. The overall development of the site has been designed to minimize disturbances to on-site wetland and stream features. However, due to the orientation of the Mine Brook stream corridor traversing the central portion of both the north and south parcels, significant adverse impacts to wetlands associated with the proposed project are unavoidable. Anticipated impacts include the removal of existing vegetation and the grading and filling of several wetland areas within the site to accommodate the construction of the UV Facility. [Figure 4.14-8](#) shows the wetlands and their adjacent area buffers that would be impacted as a result of the proposed facility.

The UV Facility footprint and construction staging areas would encroach into several of the wetland areas previously identified on the north parcel. The estimated direct disturbance of on-site wetlands in the north parcel would be approximately 2.0 acres. This wetland encroachment includes the filling of a 0.1 acre isolated shrub swamp wetland to the west of Mine Brook, a 0.3 acre encroachment into the north eastern shrub swamp wetland system that drains to Mine Brook via surface channels, 0.1 acres of floodplain forest wetland along Route 100C associated with surface drainage to Mine Brook, and the filling of three small shrub swamp wetlands (1.5 acres) within the UV Facility building footprint associated with surface ditches that drain to Mine Brook. In addition, a temporary bridge is proposed across the Mine Brook stream corridor to provide access to the western side of the site across the Brook. This temporary bridge has been designed to avoid impacts to on-site wetlands and buffer areas. It is estimated that an additional 1.1 acres of floodplain forest wetland immediately north and west of the UV Facility would be indirectly impacted by groundwater dewatering operations (see below and [Section 4.15, Water Resources](#) for a discussion of impacts from groundwater dewatering). Therefore, the total direct and indirect disturbance of on-site wetlands in the north parcel would be approximately 3.1 acres. A total of 5.3 acres of wetland buffer associated with the impacted wetlands in the north parcel could be lost as well. The impacted wetland buffers consist mainly of oak-tulip tree forest and successional southern hardwood forest.

A temporary significant adverse impact to an approximately 40-foot section of Mine Brook would occur to allow for the installation of culverts for the temporary bridge and installation of two underground utility conduits. Following construction of the permanent roadway over Mine Brook, the affected stream channel would be re-engineered to create natural stream morphology complete with pool and riffle dynamics that would attenuate stream velocities and improve water quality.

The proposed UV Facility would result in the direct loss 0.01 acres of forested floodplain on the south parcel for the replacement of the culvert under Route 100C. Approximately 0.2 acres of wetland buffer would be lost as result of construction of the Catskill Aqueduct pipeline. The impacted wetland buffer consists of oak-tulip tree forest.

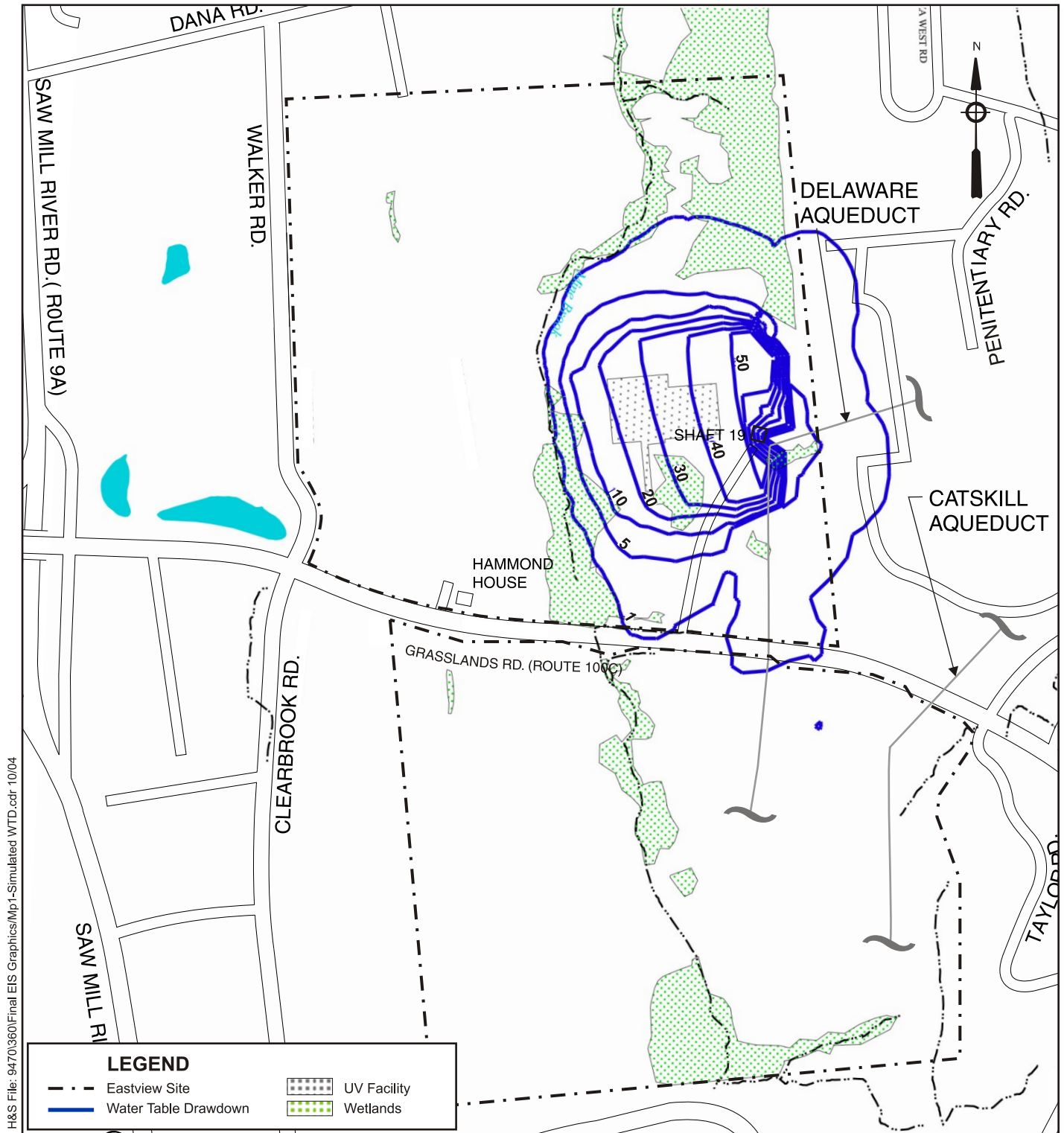
Most wetland plants require shallow depth to water to thrive because the root zones of many wetland plants do not extend more than a few feet below land surface. In order to minimize impacts to wetlands, it is desirable to maintain a maximum of two feet depth to water during the April to June growing period. Extensive groundwater modeling was performed to evaluate the impacts to groundwater levels and potential related wetland impacts from groundwater



**Impacted Wetlands from
UV Facility**

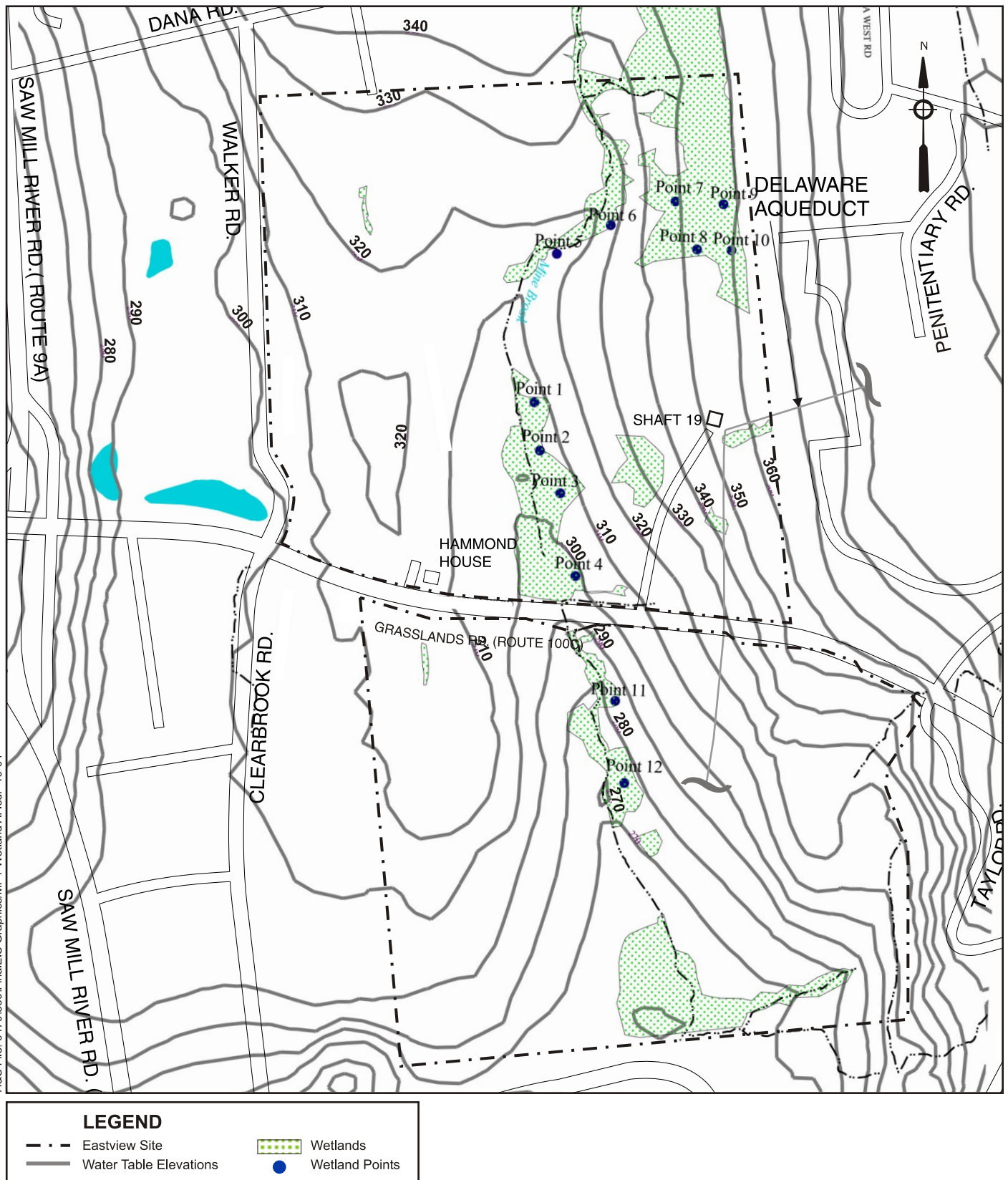
dewatering during construction of the proposed facility. [Figure 4.14-9](#) shows the simulated steady state water table drawdowns from baseline conditions during construction. The simulated one-foot drawdown line extends into some of the Mine Brook wetlands to the west of the proposed facility, south approximately to Route 100C and north into the southern most portion of the northeast wetlands. This indicates that it is likely that the construction dewatering activities would lower the water table enough to impact the wetlands along Mine Brook on the north parcel and in the southern portion of the northeast wetlands. The wetlands south of Route 100C are not likely to be impacted by dewatering effects on groundwater.

To further define wetland impacts due to groundwater drawdowns, modeling of seasonal groundwater levels was performed at twelve locations within delineated wetlands (see [Figure 4.14-10](#)). Wetland Assessment Points 1 through 4 are located in the wetlands between Mine Brook and the proposed UV Facility. Wetland Assessment Points 5 through 10 are located in wetlands to the north of the proposed facility. Wetland Assessment Points 11 and 12 are located along Mine Brook in the south parcel. [Figure 4.14-11a-f](#), present the results from the seasonal groundwater simulation results for the twelve wetland locations during construction conditions. The graphs show monthly values of simulated depths to water for the baseline and construction scenarios. The seasonal simulation results were reviewed to identify locations where depths to water change from within two feet of land surface to greater than two feet during the critical April – June period. Simulation results of construction dewatering activities suggest that the water table may drop to more than two feet below land surface during the critical growing season months from April to June at the Wetland Assessment Points 1, 2 and 3 located between Mine Brook and the proposed UV building. At Wetland Assessment Points 5 and 6, the water table is greater than two feet below the surface during existing conditions and as such, plants in these wetlands are more likely dependent upon surface water flow. In the northeast wetland area, Wetland Assessment Points 7 and 8, the simulated depth to the water table during construction is either at or slightly below two feet during the April to June period while at Wetland Assessment Points 9 and 10, minimal drawdown is predicted. At Wetland Assessment Points 11 and 12, south of Route 100C, there is little change from baseline groundwater levels during construction dewatering operations so impacts to wetlands in this area are not anticipated.



**Simulated Water Table Drawdown
for UV Facility During Construction**

Catskill/Delaware UV Facility

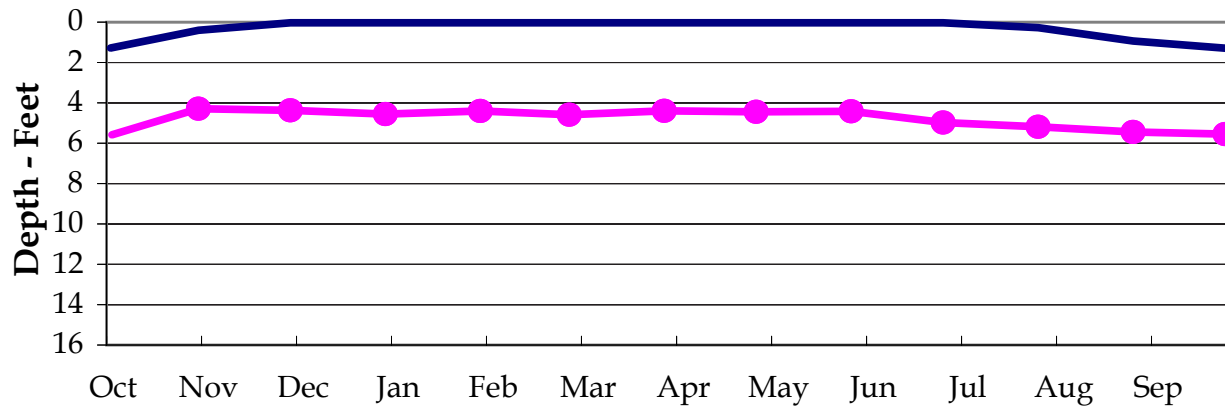


Wetland Assessment Points

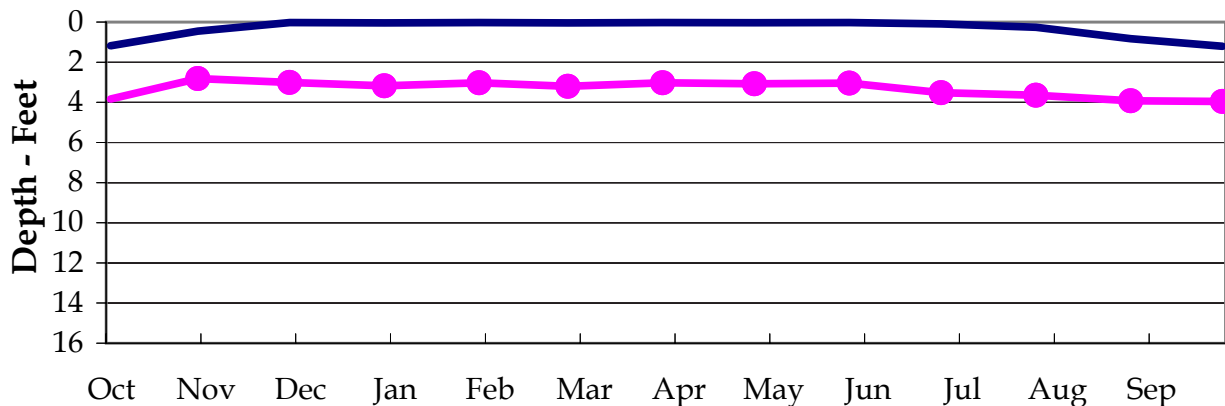
Catskill/Delaware UV Facility

Figure 4.14-10

WETLAND ASSESSMENT POINT 1



WETLAND ASSESSMENT POINT 2

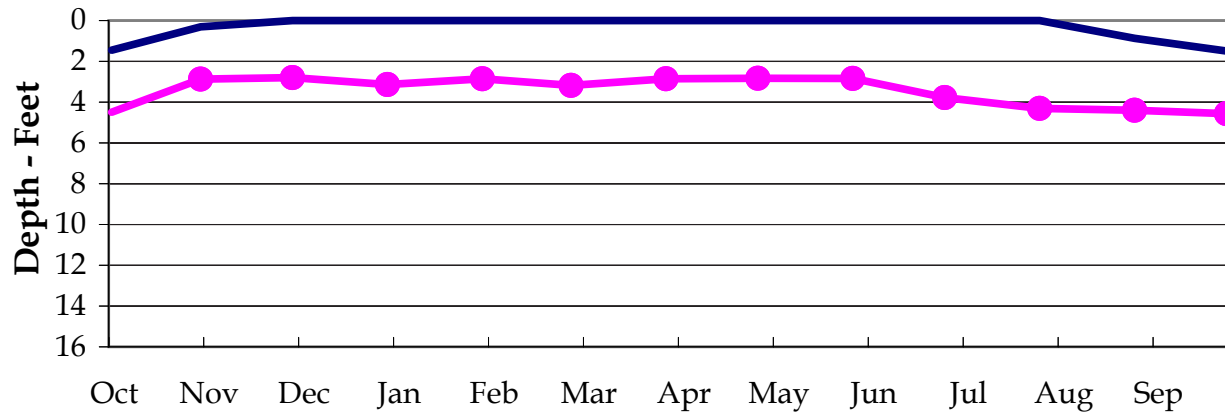


LEGEND

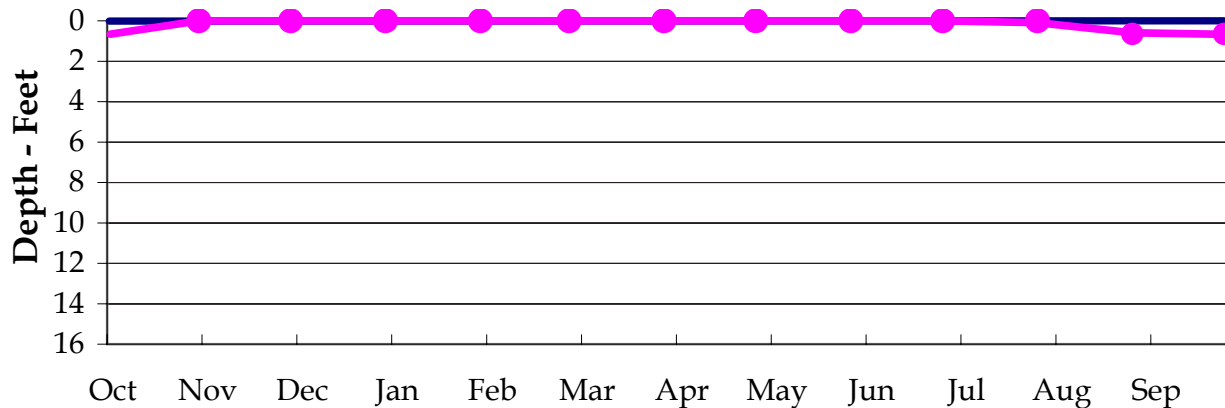
- Existing Conditions
- UV Facility Construction

Simulated Monthly Depths to Water
Within Delineated Wetland Areas
for UV Facility During Construction at
Wetland Assessment Points 1-2

WETLAND ASSESSMENT POINT 3



WETLAND ASSESSMENT POINT 4

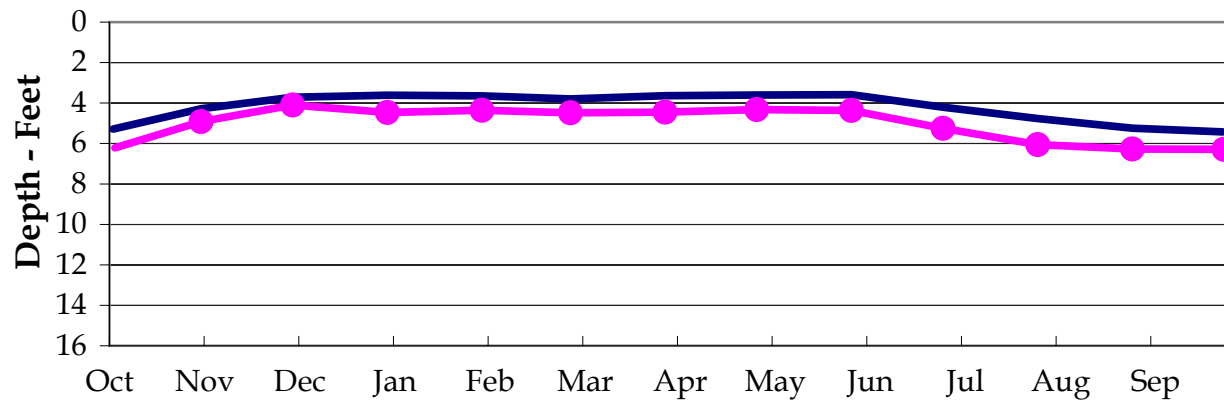


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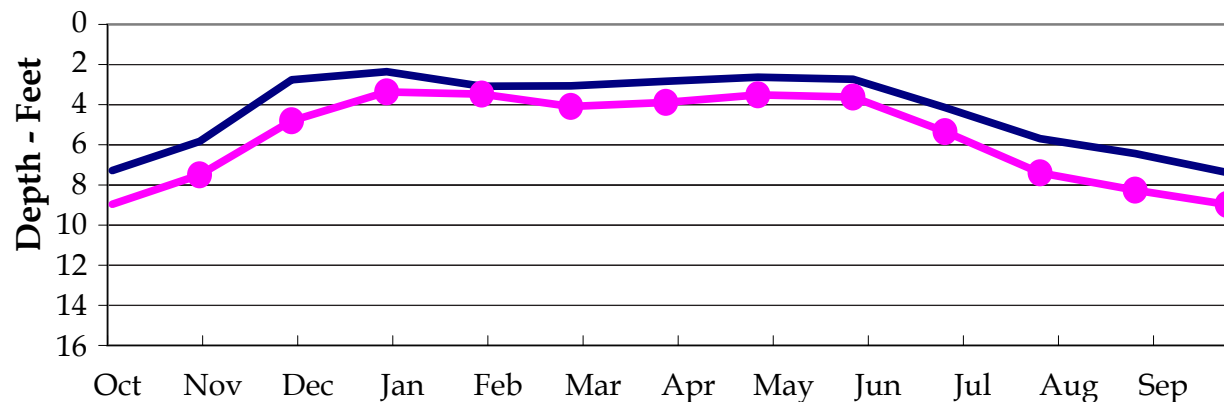
- Existing Conditions
- UV Facility Construction

Simulated Monthly Depths to Water
Within Delineated Wetland Areas
for UV Facility During Construction at
Wetland Assessment Points 3-4

WETLAND ASSESSMENT POINT 5



WETLAND ASSESSMENT POINT 6

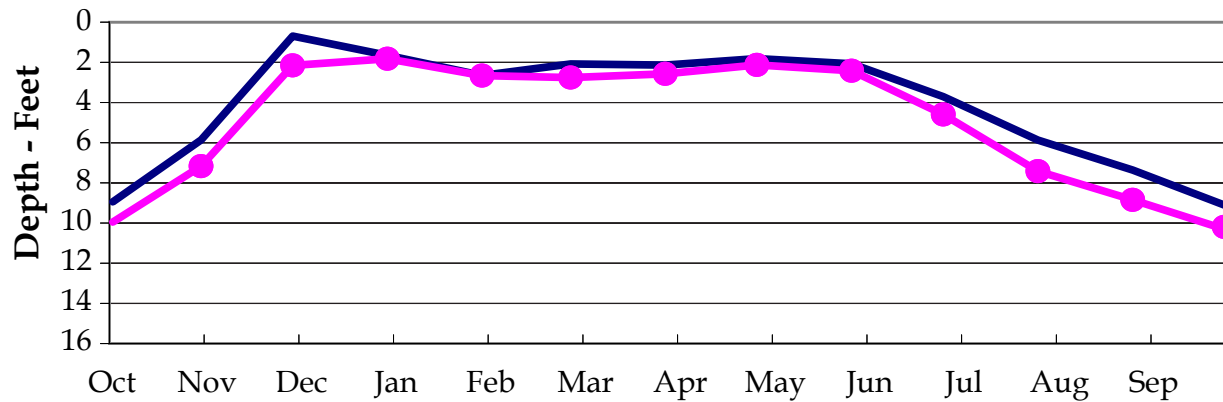


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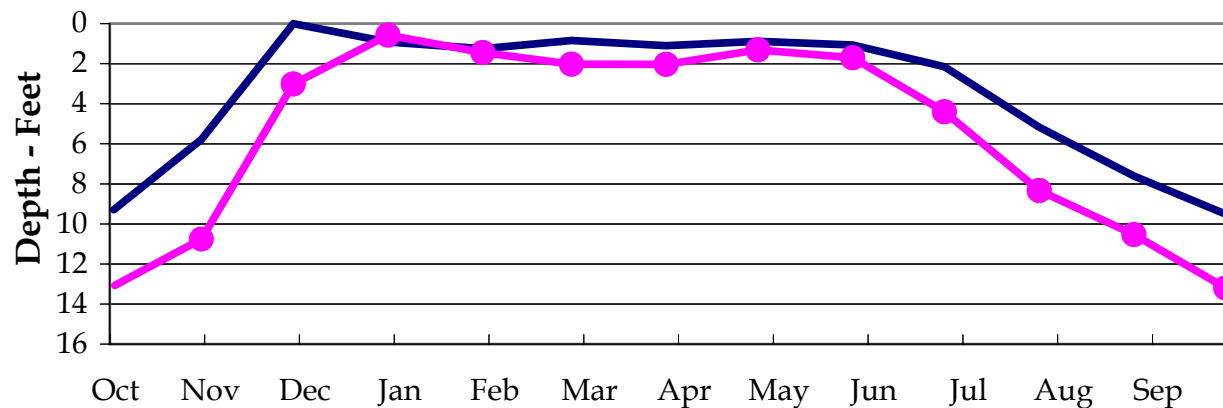
- Existing Conditions
- UV Facility Construction

Simulated Monthly Depths to Water
Within Delineated Wetland Areas
for UV Facility During Construction at
Wetland Assessment Points 5-6

WETLAND ASSESSMENT POINT 7



WETLAND ASSESSMENT POINT 8

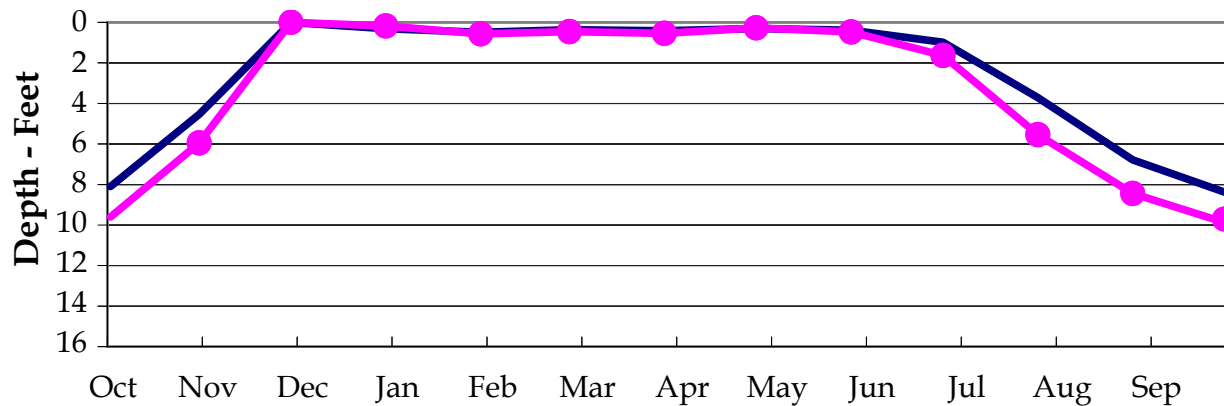


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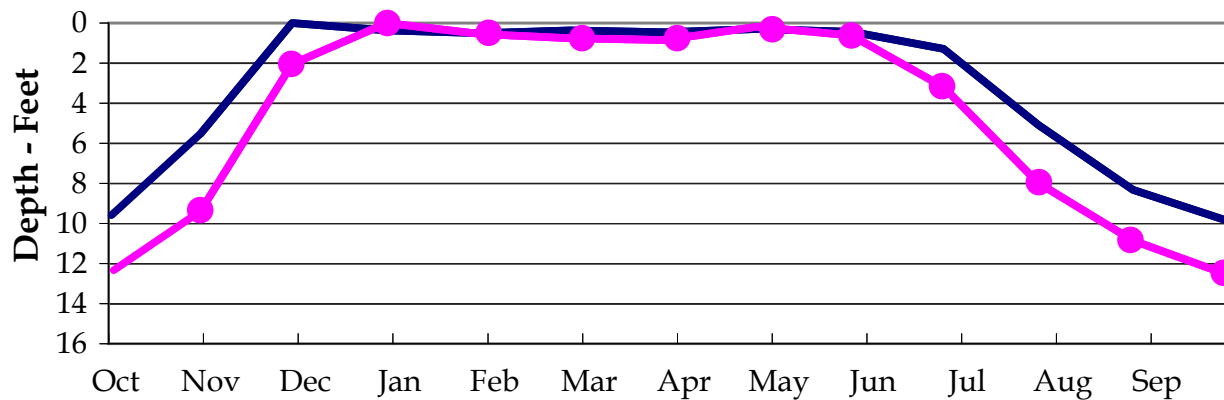
- Existing Conditions
- UV Facility Construction

**Simulated Monthly Depths to Water
Within Delineated Wetland Areas
for UV Facility During Construction at
Wetland Assessment Points 7-8**

WETLAND ASSESSMENT POINT 9



WETLAND ASSESSMENT POINT 10

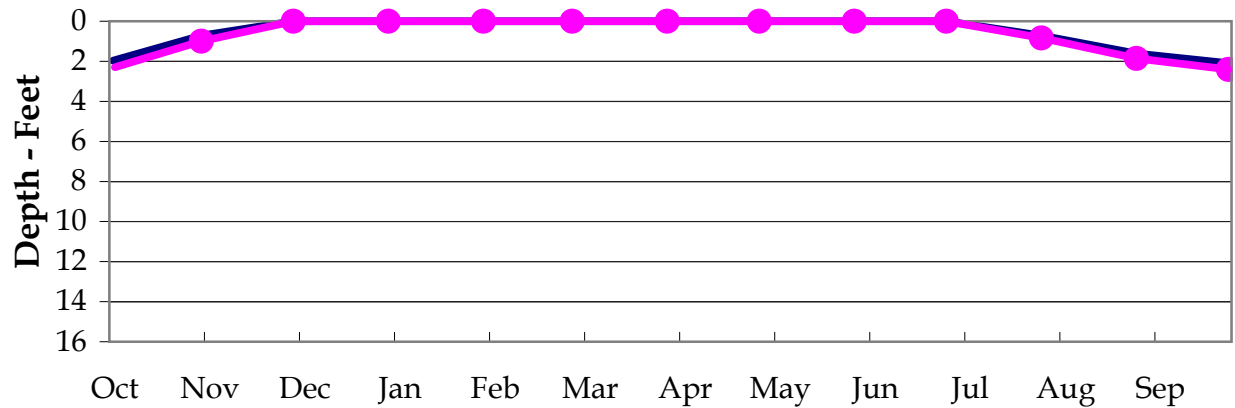


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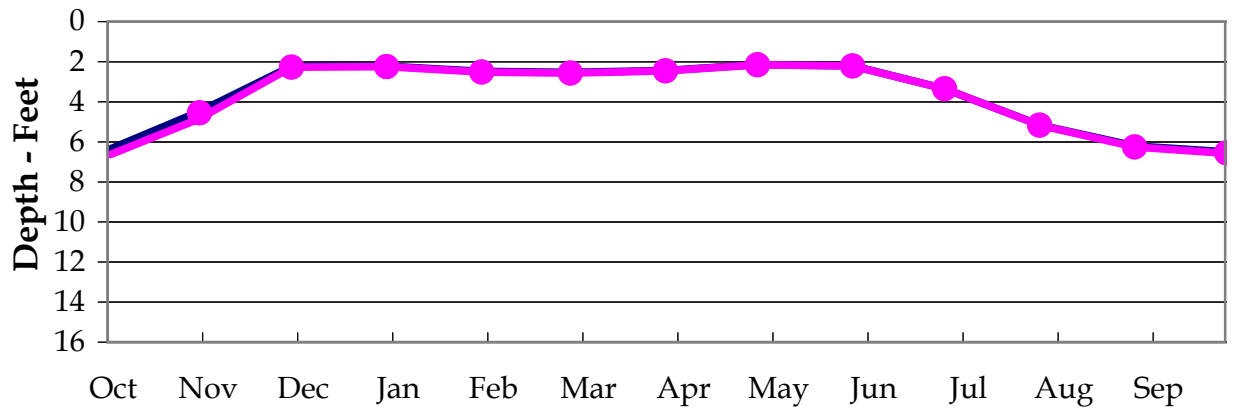
- Existing Conditions
- UV Facility Construction

Simulated Monthly Depths to Water
Within Delineated Wetland Areas
for UV Facility During Construction at
Wetland Assessment Points 9-10

WETLAND MONITORING POINT 11



WETLAND MONITORING POINT 12



LEGEND

- Existing Conditions
- UV Facility Construction

Simulated Monthly Depths to Water
Within Delineated Wetland Areas
for UV Facility During Construction at
Wetland Assessment Points 11-12

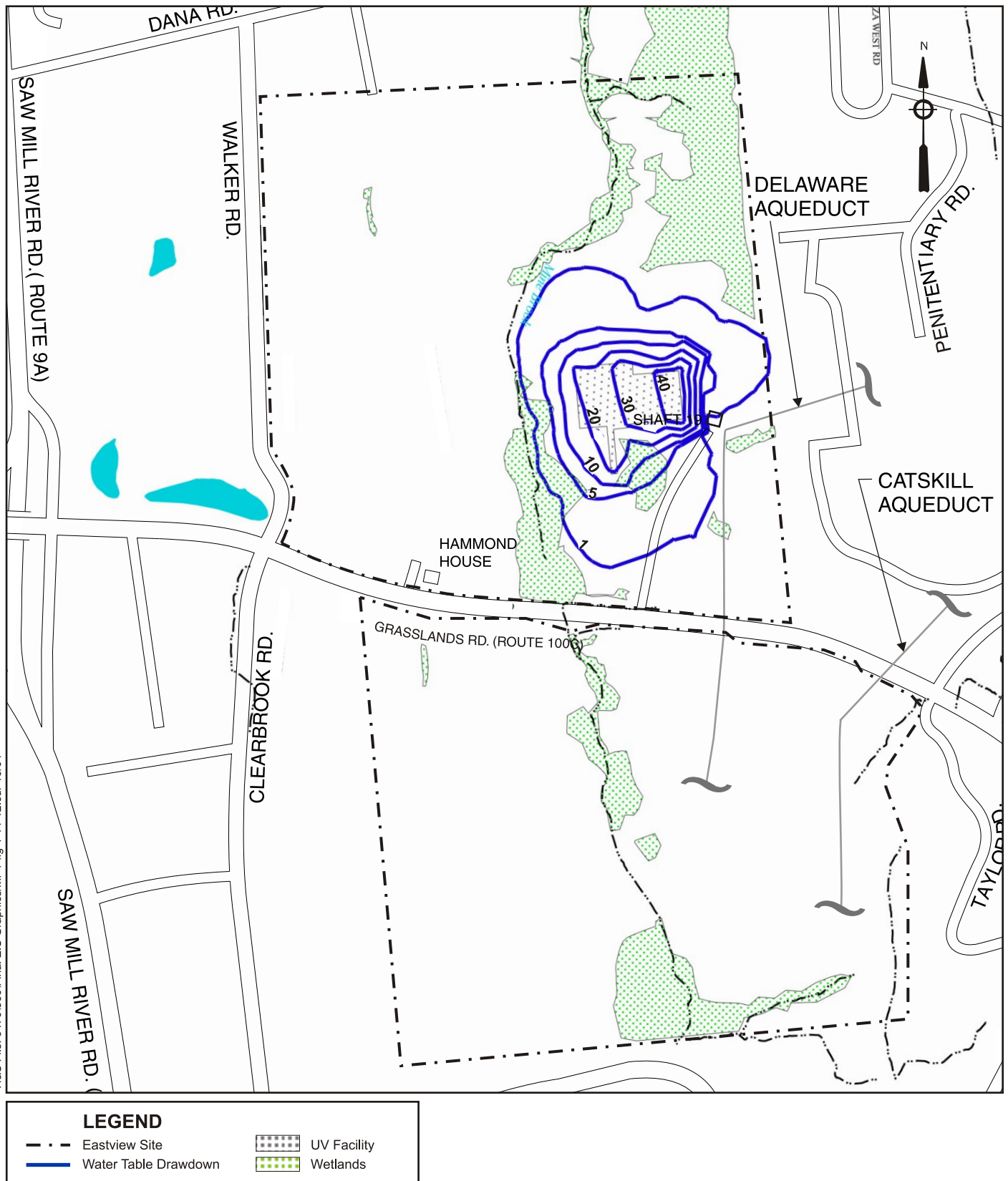
Extensive groundwater modeling was also performed to evaluate the impacts to groundwater levels and potential related wetland impacts from the proposed groundwater dewatering operations under operating conditions with the proposed facility. Figure 4.14-12 shows the simulated steady state water table drawdowns from baseline conditions during operation. The simulated one-foot drawdown line extends into some of the Mine Brook wetlands to the west of the proposed facility. No portion of the wetlands in the northeast portion of the north parcel appears within the one-foot drawdown. Also, no wetlands in the south parcel appear within the one-foot drawdown.

Figures 4.14-13 a-f present the results from the seasonal groundwater simulation results for the twelve wetland locations during proposed operating conditions (see Figure 4.14-10 for twelve locations). The graphs show monthly values of simulated depths to water for the baseline and operating conditions. The seasonal simulation results were reviewed to identify locations where depths to water change from within two feet of land surface to greater than two feet during the critical April – June period. Simulation results indicate that the water table does not drop significantly during the critical growing season months except at Wetland Assessment Point 1 (Figure 4.14-13a). This point is located at the most upstream extent of the wetland area between Mine Brook and the proposed UV Facility. At this location, the groundwater model predicts that the depth to water would approach or slightly exceed two feet during the April to June period. The seasonal groundwater simulations suggest that, in general nearby wetlands would not be affected by significant changes in depth to groundwater during operation of the proposed UV Facility.

Groundwater dewatering during construction of the proposed UV Facility would significantly alter the hydrology of the wetlands between Mine Brook and the proposed UV Facility. Groundwater dewatering during operation of the proposed UV Facility along with the additional loss of surface water flow to these wetlands due to the development of the site would further alter the hydrology and thus the functionality of these wetlands. Therefore, it is estimated that under a worst case scenario, approximately 1.1 acres of wetlands between Mine Brook and the proposed UV Facility would incur a potential significant adverse impact.

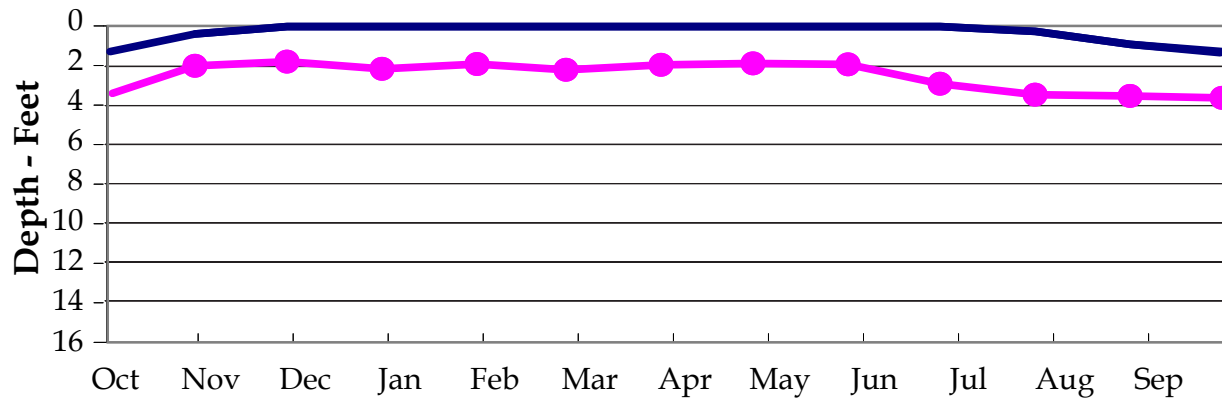
The potential for wetland impacts has been minimized to the greatest extent possible while still providing access to the existing aqueducts. A project limiting fence installed prior to construction would prevent unauthorized wetland encroachments during the construction and operational phases of the project. Drains constructed around the facility would be oriented to collect surface water runoff and redirect these flows into the remaining wetland system in order to maintain, to the greatest extent possible, the surface hydrology of the wetlands. Runoff from the facility would be treated in a stormwater detention basin and discharged back into the Mine Brook wetland system in attempt to replicate current surface drainage patterns (see Section 4.15, Water Resources for discussion on the detention basin).

Based on a review of the current site dynamics, the hydrology of the wetlands in the north parcel appears to be most dependent on surface hydrology including runoff from adjacent undeveloped areas, ponding resulting from precipitation, and flooding associated with Mine Brook. The wetland soils mapped in the northeastern portion of the north parcel are characterized by Sun loams

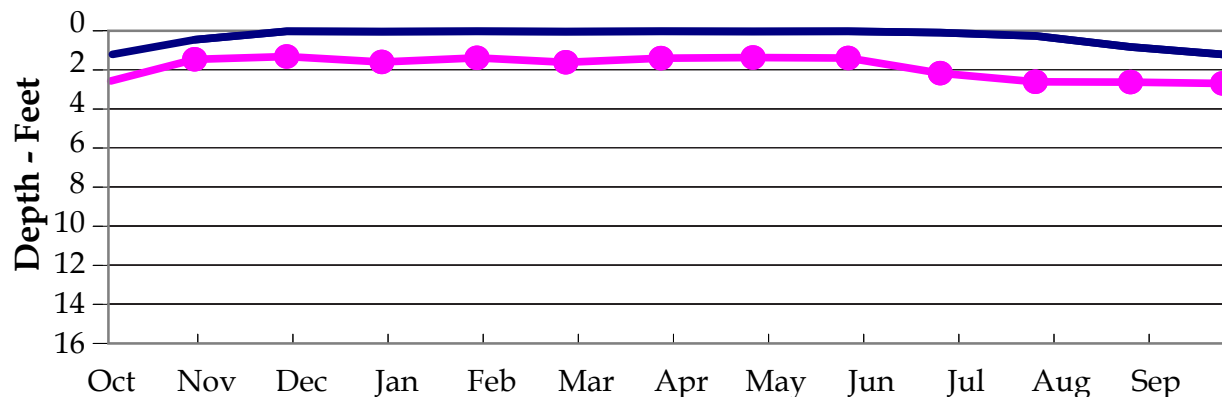


**Simulated Water Table Drawdown
for UV Facility During Operation**

WETLAND ASSESSMENT POINT 1



WETLAND ASSESSMENT POINT 2

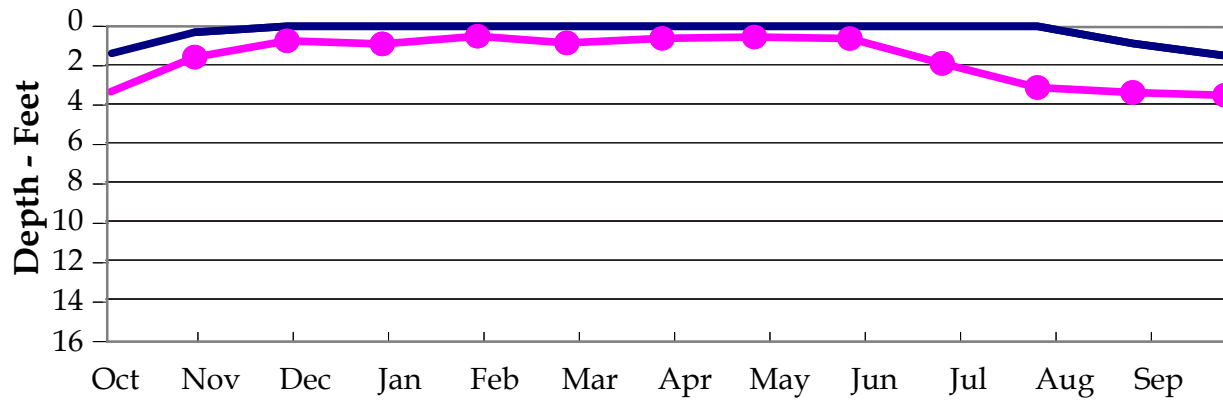


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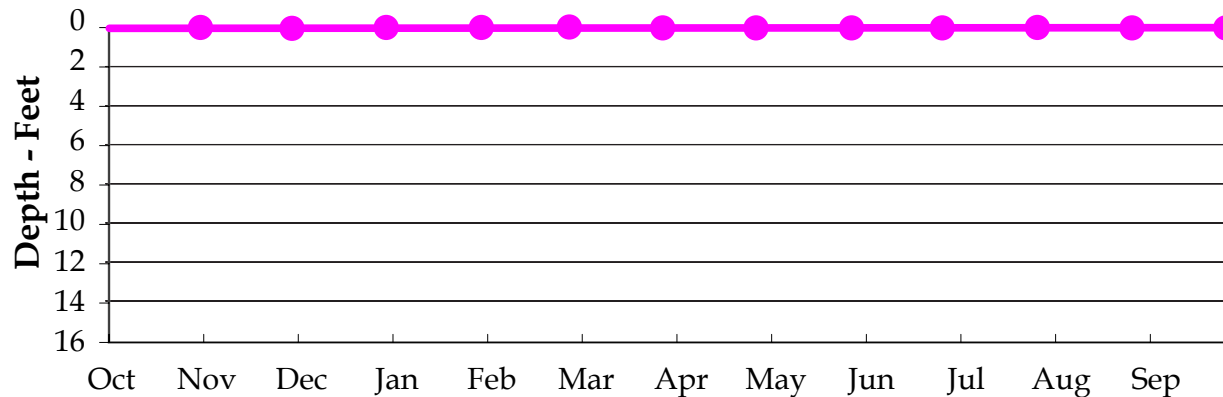
- Existing Conditions
- UV Facility Operations

☐
Simulated Monthly Depths to Water
Within Delineated Wetland Areas for
UV Facility During Operation at
Wetland Assessment Points 1-2

WETLAND ASSESSMENT POINT 3



WETLAND ASSESSMENT POINT 4

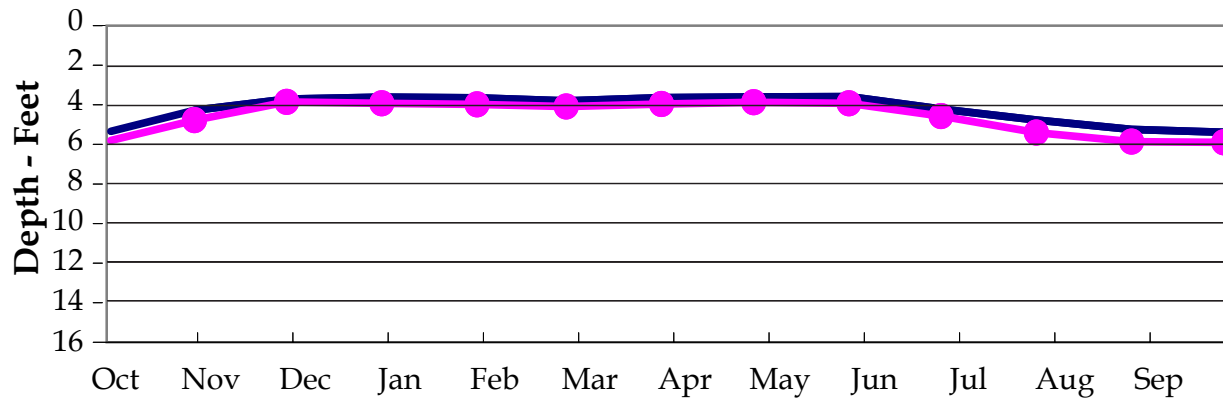


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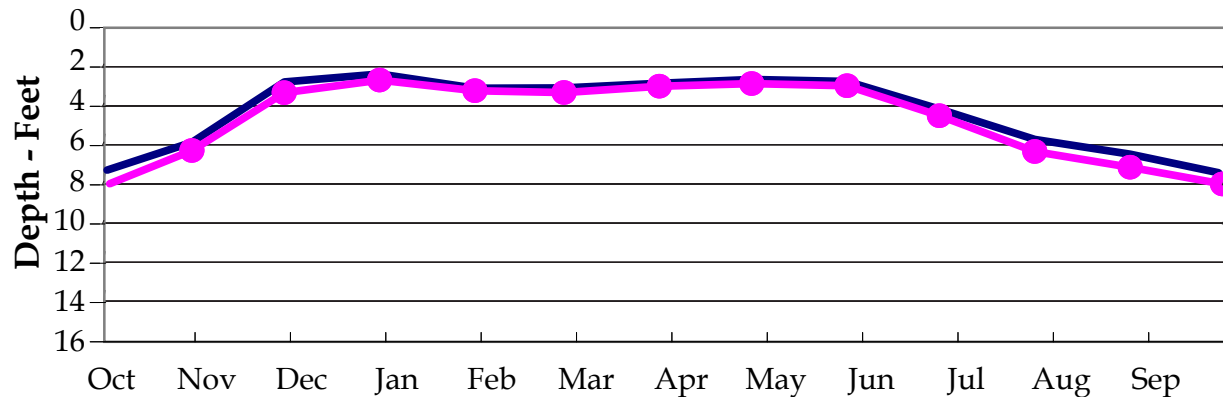
- Existing Conditions
- UV Facility Operations

☐ Simulated Monthly Depths to Water
☐ Within Delineated Wetland Areas for
☐ UV Facility During Operation at
☐ Wetland Assessment Points 3-4

WETLAND ASSESSMENT POINT 5



WETLAND ASSESSMENT POINT 6

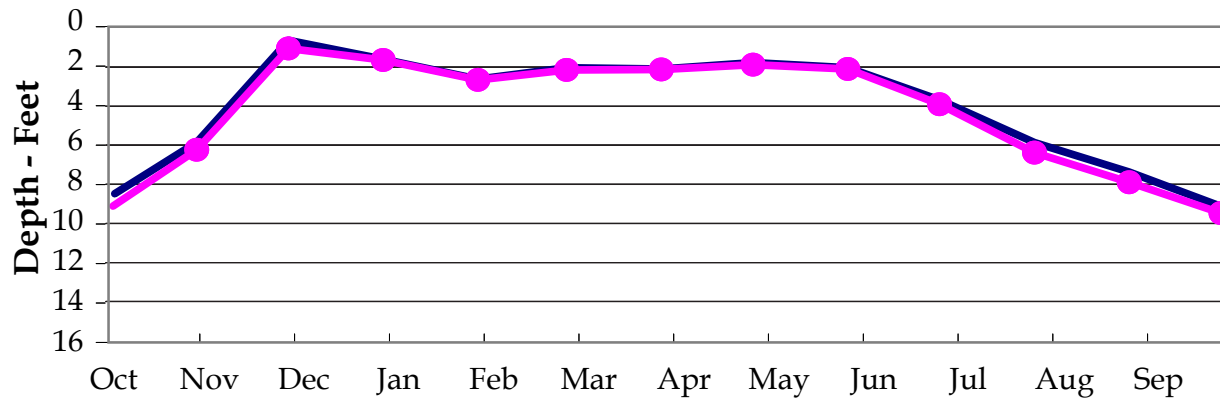


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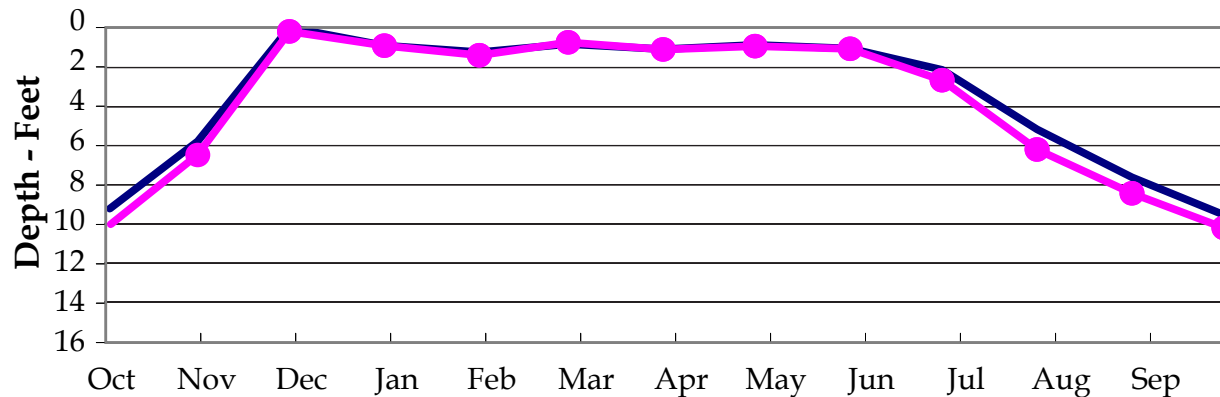
- Existing Conditions
- UV Facility Operations

☐ Simulated Monthly Depths to Water
☐ Within Delineated Wetland Areas for
☐ UV Facility During Operation at
☐ Wetland Assessment Points 5-6

WETLAND ASSESSMENT POINT 7



WETLAND ASSESSMENT POINT 8

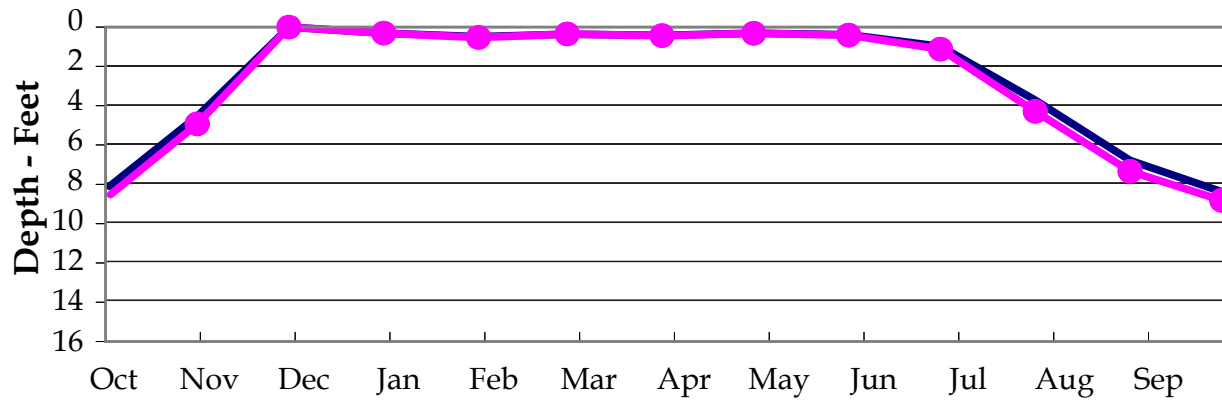


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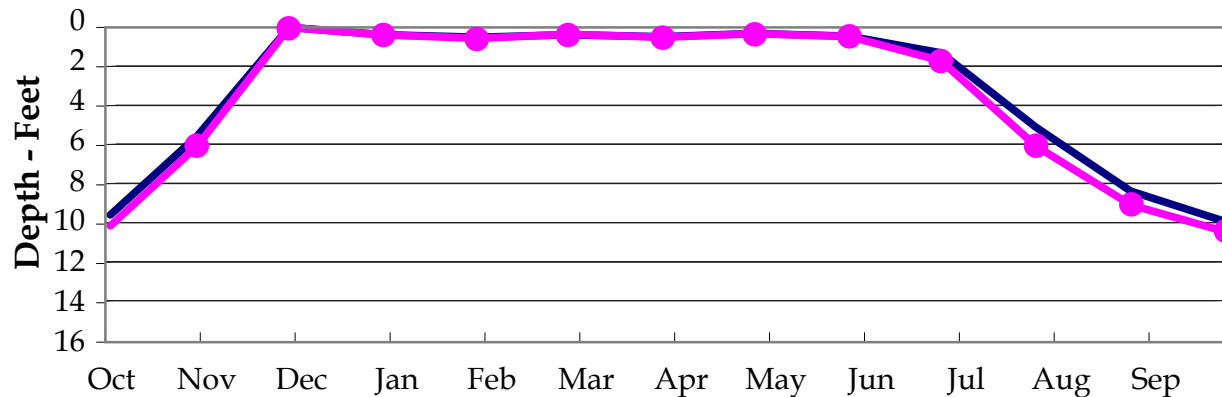
- Existing Conditions
- UV Facility Operations

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Simulated Monthly Depths to Water
Within Delineated Wetland Areas for
UV Facility During Operation at
Wetland Assessment Points 7-8

WETLAND ASSESSMENT POINT 9



WETLAND ASSESSMENT POINT 10

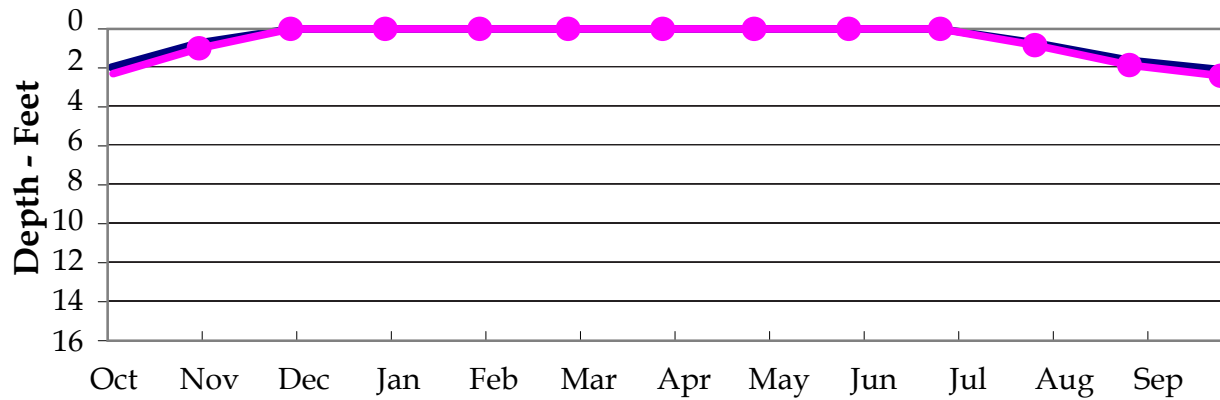


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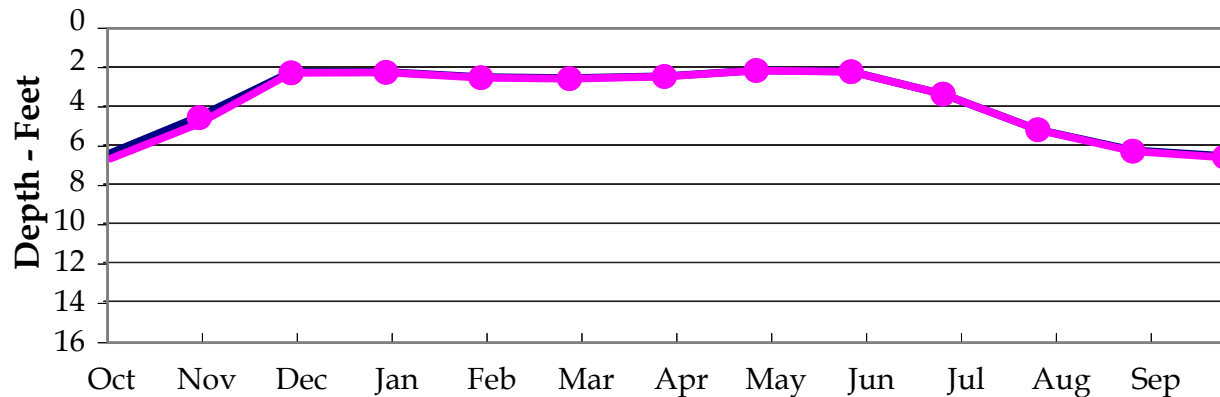
- Existing Conditions
- UV Facility Operations

Simulated Monthly Depths to Water
Within Delineated Wetland Areas for
UV Facility During Operation at
Wetland Assessment Points 9-10

WETLAND ASSESSMENT POINT 11



WETLAND ASSESSMENT POINT 12



LEGEND

- Existing Conditions
- UV Facility Operations

Simulated Monthly Depths to Water
Within Delineated Wetland Areas for
UV Facility During Operation at
Wetland Assessment Points 11-12

(Sh), which are poorly drained to very poorly drained soils with a seasonal high water table typically between 1.0 to 0.5 feet below the surface. These soils have moderate permeability in the surface layer and slow or very slow permeability in the subsoil and substratum. The slow permeability results in a fragipan that causes ponding at the surface. As a result, the wetland soils were generally found to be saturated near the surface, within the upper foot, and trending toward dryer conditions with depth.

The proposed dewatering associated with the construction and operational phases of the UV Facility is not anticipated to have a significant impact on the function of the wetlands in the northeast portion of the north parcel. The wetlands along Mine Brook in this area would continue to be recharged from surface water flows. The wetlands in the northeastern corner of the site are anticipated to continue to function based on existing overland flow from adjacent properties. However, the wetlands located closest to the facility, those areas immediately west of the UV facility and east of Mine Brook are the most likely to be impacted by diversion of surface water flows and groundwater lowering during dewatering operations. In the worst-case scenario, some changes in the vegetative community toward a dryer system and subsequent changes in species composition may be anticipated. However, the overall vegetative structure of the existing communities is not anticipated to change. It should also be noted that the vegetation in this area is already dominated by facultative wetland vegetation, plants that are adapted to both wetland and upland communities. Nevertheless, due to the change in the groundwater hydrologic regime and the surface water redirection and wetland functionality, it is anticipated that an additional 1.1 acres of floodplain forest wetland immediately west of the UV Facility would be impacted.

The proposed UV Facility calls for the installation of a stormwater pretreatment best management practice system on-site. The proposed BMP, consisting of a pretreatment forebay, enhanced wetland, and a newly created stream channel, would mitigate the adverse impacts of the untreated storm water runoff by attenuating peak flows and reducing pollutant loads to downstream reaches. This, in turn, minimizes flooding and erosion, improves water quality, and promotes conditions for improved aquatic and wildlife habitats. The pretreatment forebay is adequately sized to detain up to the 3-month storm and provides for water quality treatment by way of removal of sediment, nutrients, and bacteria. Approximately 80% sediment removal can be achieved, and 50% removal of soluble nutrients, such as phosphorus and nitrogen. Removal of bacteria is achieved with less efficiency. Once the water surface elevation in the forebay exceeds that of the weir (El. 301), the flow spills over the weir into the newly created stream segment, and flows towards the existing wetland. It must be noted that an existing phragmites marsh exists at the site of the proposed enhanced wetland. Historical data suggests that the existing phragmites coverage has doubled in the past 3 to 4 years. If this expansion in coverage is not correctly addressed, it could continue encroaching on the upstream floodplain forest wetland. Under the proposed project, the existing low-diversity reed grass marsh would be removed, the area excavated and regraded, and the weir north of Route 100C reconstructed, to optimize upstream storage and creation of a diversely vegetated wetland. The enhanced wetland, consisting of low and high marsh, would be diversely vegetated with native species, such as Soft Rush, Pickerel Weed, Lizard Tail, Spicebush, New England Aster, and Sensitive Fern. The construction of the multi-stage weir along with the culvert replacement would allow the flow to be stored and released gradually to the downstream areas, to mitigate the erosivity resulting from

stormwater runoff, due to frequent storms. In addition, it would also replenish Mine Brook with the redirected stormwater and groundwater.

In addition to direct impacts anticipated during construction, both temporary and permanent potential indirect impacts from de-watering activities associated with the construction of the facility may also impact the wetlands. In order to compensate for the 3.1 acres of project related wetland impacts, 7.5 acres of wetland enhancement/creation would be undertaken on-site with native vegetation to compensate for the functions and values of the wetlands lost (see [Section 6, Mitigation of Potential Significant or Temporary Adverse Impacts](#)). The created/enhanced wetlands would include 50-foot buffers that would compensate for wetland buffer areas eliminated by the proposed construction elsewhere on the site.

Fish and Benthic Macroinvertebrates. As outlined above in the existing conditions, examination of Mine Brook revealed a moderate diversity of benthic macroinvertebrates, principally taxa characterized as tolerant or moderately intolerant of poor water quality. Water quality measurements taken in the field further support the conclusion that the degraded water quality of the stream is likely a function of off-site upstream conditions.

Most of the stream channel, near-stream vegetation, and wetlands are located within the portion of the site that would not be subject to disturbance, thereby not affecting existing aquatic fauna. A pretreatment forebay has been proposed to retain and treat storm water runoff from the developed portions of the site in conjunction with the enhancement of the existing reed grass marsh. This may result in temporary disturbances to flora and fauna that might utilize this section of the channel. Following construction, the affected stream channel would be re-engineered to create a natural stream morphology thereby attenuating stream velocities and improving water quality. No significant adverse impacts to the stream channel are anticipated during the operational phase of the project. Increased water pollutant loadings to the stream and wetlands may occur despite the removal rates anticipated by the proposed basin.

A bridge crossing of Mine Brook is necessary to connect the UV Facility with other project components during construction and operation. Prior to installing the permanent bridge crossing, a temporary bridge would be installed. Temporary piping of the stream would be required for the temporary bridge. This would result in temporary significant adverse impact to flora and fauna that might utilize this section of Mine Brook. The affected stream channel would be re-engineered to create natural stream morphology complete with pool and riffle dynamics which would attenuate stream velocities and improve water quality upon completion of the construction of the permanent bridge.

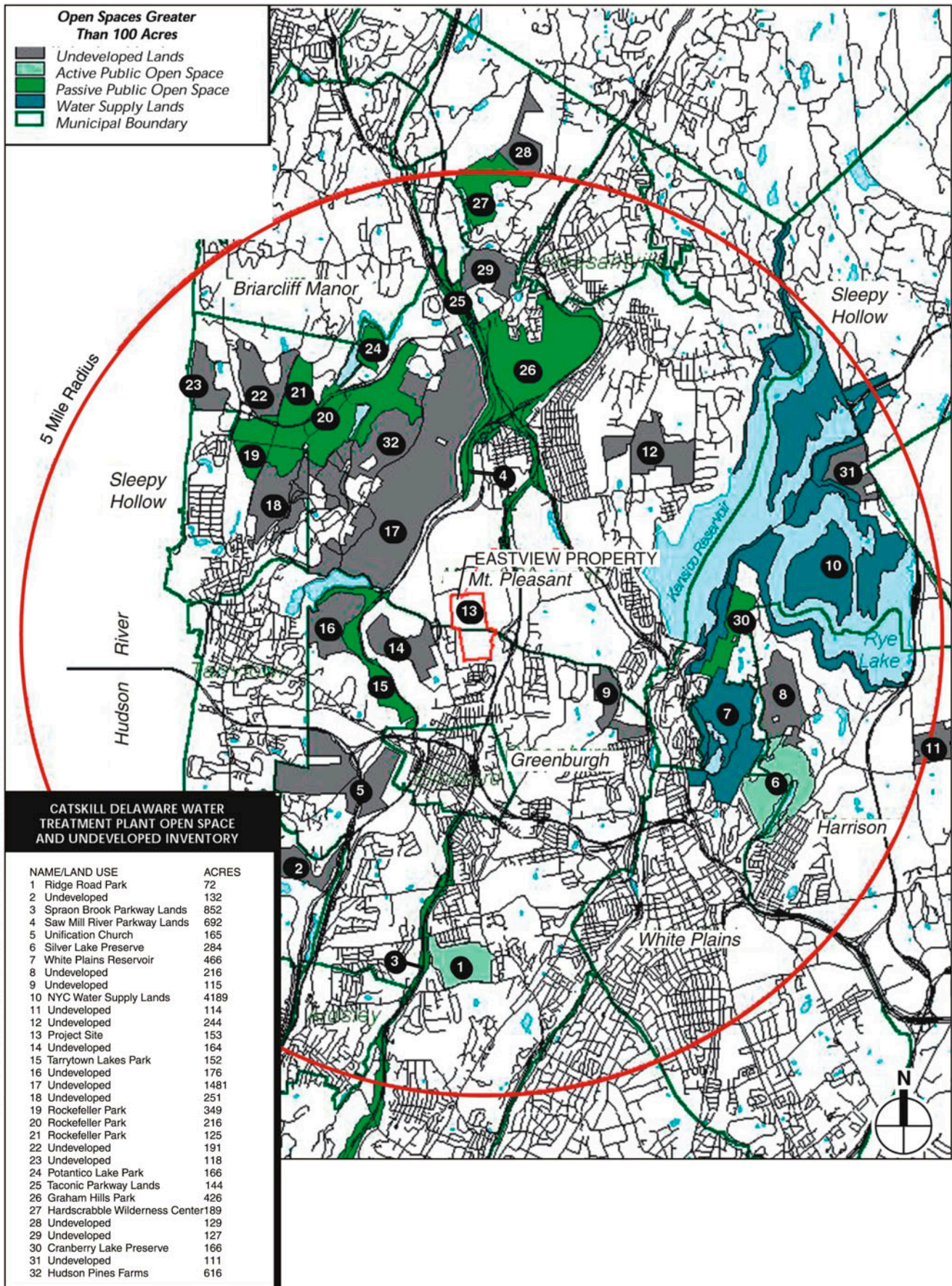
Reptiles and Amphibians. The forested and wetland areas of the Eastview Site contain good reptile and amphibian (herpetile) habitat due to the availability of water, high density of leaf litter, and high percent of canopy cover (see Existing Conditions discussion above). Loss of oak-tulip tree, successional southern hardwood forest, shrub swamp, and forested floodplain wetlands associated with the construction of the UV Facility (see [Table 4.14-8](#) and [Table 4.14-9](#)) would decrease the leaf litter and habitat available for herpetile shelter on the site.

The loss of the forest and wetland habitat associated with the proposed UV Facility could displace some of the local herpetile community (salamanders, green frogs, and garter snakes) but would not represent a potentially significant adverse impact to regional populations. The surrounding wetlands, upland forest, and running water through the remainder of the site could provide habitat to support viable communities of herpetile species. In addition, the proposed 7.5 acres of on-site wetland enhancement/creation to mitigate for the loss of shrub and forested wetland would provide additional criteria needed for the regional herpetile community. Additional off-site wetland mitigation would benefit the regional herpetile community (see [Section 6, Mitigation of Potential Significant or Temporary Adverse Impacts](#)).

Avifauna. No long-term significant adverse impacts to the avifauna of the Eastview Site are anticipated to occur from the proposed UV Facility. Any potential impacts are anticipated to be short-term and primarily related to the construction phases of the project (see [Section 4.14.3.2 Potential Construction Impacts](#), for details). The avifauna consists of species that are common in similar habitats in the region and none are listed as threatened or endangered by New York State or by the USFWS. The most significant impact to birds that would result from the UV Facility would be the loss and modification of existing vegetative communities, primarily for breeding species. However, none of the vegetative communities on the site serve as critical breeding or nesting areas for any of the species identified during the field surveys and listed in [Table 4.14-6](#).

Recent concern has been raised regarding the potential impact of development and forest fragmentation in the northeastern United States upon neotropical migrant bird species. Although some of the species observed on-site are neotropical migrants, the development of the site should not negatively affect these species. Most of the issues about these species relate to the effects of fragmentation of larger contiguous woodlands and are, therefore, not of concern on the Eastview Site. The margins of the existing forest outside of the facility footprint would remain as they are under existing conditions. The project impacts at these forest margins would result from lighting at the UV Facility and noise from trucks during the day. Light exiting the site would be minimized through the use of deflectors and proper alignment and the light wavelength of the lamps used would be designed to minimize impacts to night flying moths and other insects. However, most of the birds in this area would have already been acclimated to the presence of buildings and human activities. A total of 3.8 acres of oak-tulip tree forest and 20.3 acres of successional southern hardwood forest in the north parcel would be impacted by the proposed UV Facility (see [Table 4.14-8](#)). A total of 1.3 acres of oak-tulip tree forest and 2.7 acres of successional southern hardwood forest in the south parcel would be impacted by the proposed facility (see [Table 4.14-9](#)).

[Figure 4.14-14](#) shows undeveloped parcels of 100 acres or more located within five miles of the Eastview Site. These parcels are primarily forested lands that are either dedicated as passive parkland or currently undeveloped. The permanently protected parcels of land include Rockefeller State Park, Graham Hills Park, Tarrytown Lakes Park, and Hardscrabble Wilderness Center to the north and east of the project site and public water supply lands and Cranberry Lake Preserve to the east of the project site. In total, this area of Westchester County contains 32 parcels of open space similar in size and habitat structure to the project site.



Regional Open Space Parcels

Catskill/Delaware UV Facility

Figure 4.14-14

Although the total acreage of open space within this area of Westchester is significantly larger than the 32 parcels shown, these parcels contain contiguous acres of land that are of greater value from ecological and open space perspectives because these resources have not been fragmented by development. The availability of these other large parcels for resident and migratory wildlife in the region demonstrates that development of the project site would not result in a significant impact on regional ecology. Thus, the reduction in the amount of available habitat on site is less onerous than the loss of a large, contiguous forested parcel shown to provide the necessary habitat for neotropical migrant birds and other wildlife.

The location of the site, near the Hudson and Saw Mill Rivers, may place the property on the fringe of a migratory corridor for migrating passerines (perching birds). All of the migrant species observed during the field surveys (eastern phoebe, red-eyed vireo, cedar waxwing, and black-and-white warbler) are common and anticipated in the region. Observations during the spring and fall of migrating bird populations do not indicate that the Eastview Site is significant in this respect. As a result, no significant adverse impacts to migrating birds that may utilize the site are anticipated during operation of the UV Facility. It is anticipated that the vegetative communities that would remain on-site during operation would continue to provide adequate habitat for migrating passerines that may use the site. The proposed on-site restoration of 17.2 acres of a shrubland/grassland community would include vegetative species that would provide perching habitat and a food source for migratory passerines.

Mammals. The Eastview Site is likely inhabited by a variety of small mammals and is utilized by deer, as discussed in the “Existing Conditions.” In addition to the forested habitat impacts described above, the UV Facility would require the clearing 0.1 acres of floodplain forest wetland, 1.9 acres of shrub swamp wetland, and 28.5 acres of successional shrubland on the north parcel (see [Table 4.14-8](#)). On the south parcel, 0.01 acres of forest floodplain would be lost due to the replacement of the culvert under Route 100C.

The change to these resources would decrease the amount of food and shelter for many species such as gray squirrel, chipmunk, groundhog, coyote, red fox, and white-tailed deer. Some species requiring forested habitat would probably relocate to the north of the proposed footprint within the remaining oak-tulip tree forest and floodplain/red maple hardwood swamp forested wetlands and to the south parcel within the oak-tulip tree forest, floodplain forest wetland, and successional southern hardwood forest. However, most of the species found on the site can utilize both forested and shrub/field habitats. Construction noise and activity would also likely cause local wildlife to move to unutilized portions of the project site. While a portion of the local wildlife population may be displaced or lost due to construction activity and a reduction in habitat, no long-term significant adverse impacts to regional wildlife populations are anticipated. The local wildlife community could also experience a decrease in diversity as well due to the loss of habitat.

The local mammal fauna, including white-tailed deer, are very common and very adaptable and readily habituate to human presence. Edge species (eastern cottontail, groundhog, striped skunk, coyote, and red fox) would utilize cleared areas and benefit from them. Regional extirpation would not occur as a result of the proposed facility because the lost habitat is common in a regional context. Lighting around the proposed facility and access roads may affect some

nocturnal or reclusive animals. However, it is unlikely that reclusive species currently exist in this small fragment of forest surrounded by development and that light exiting the site would be minimized through the use of deflectors and proper alignment. The fauna anticipated to occur around this site typically habituate rapidly to low-level lighting around the proposed facility.

Rare Species Inventory. As indicated above in the Existing Conditions section, no State or Federally listed threatened or endangered, or rare species, as defined by the New York Natural Heritage Program were observed on the north or south parcel of the Eastview Site, and none are anticipated to occur or be affected by the proposed facility. However, two avian species that are listed as New York State Species of Special Concern were observed flying over the site: a sharp-shinned hawk (*Accipiter striatus*) in April 2000 and a Coopers hawk (*Accipiter cooperii*) in May 2000. The NYSDEC Breeding Bird Atlas Program has reported neither species as breeding in the region and it is most likely that the Sharp-shinned hawk was a migrant species passing through the area. This species is a very common spring migrant in the region. Whether the Coopers hawk was a migrant or breeding individual is unknown, but Coopers hawk populations have been increasing significantly throughout the region during the past decade. No significant adverse impacts to migrating birds that may utilize the site are anticipated during the operation phase of the proposed facility. It is anticipated that the vegetative communities that would remain on the site during operation would continue to provide adequate habitat for migrating passerines that may use the site.

Conclusion. It is anticipated that the amount of area that would be impacted during both construction and operation of the proposed UV Facility would significantly alter the natural resources on the Eastview Site. Significant adverse impacts to existing habitat, wetlands, and trees would probably displace local wildlife from the site. Reductions in local wildlife diversity can be anticipated as well. However, it should be noted that wildlife species inhabiting the project site are very common and very adaptable and readily habituate to human presence. Project related impacts to natural resources are not anticipated to have serious consequences in a regional context. The availability of large parcels of undeveloped land in Westchester County, many of which are permanently protected, for resident and migratory wildlife in the region demonstrates that the development of the project site would not result in a significant impact on overall species populations of wildlife and the regional ecology.

4.14.3.1.2. With Croton Project at the Eastview Site

This section describes the potential additional impacts associated with the construction and operation of the proposed UV Facility with the Croton project at the Eastview Site. The proposed UV Facility would be located in the southeast portion of the north parcel and the eastern portion of the south parcel. As such, the additional impacts associated with the placement of the proposed UV Facility on the Eastview Site would be addressed in this section.

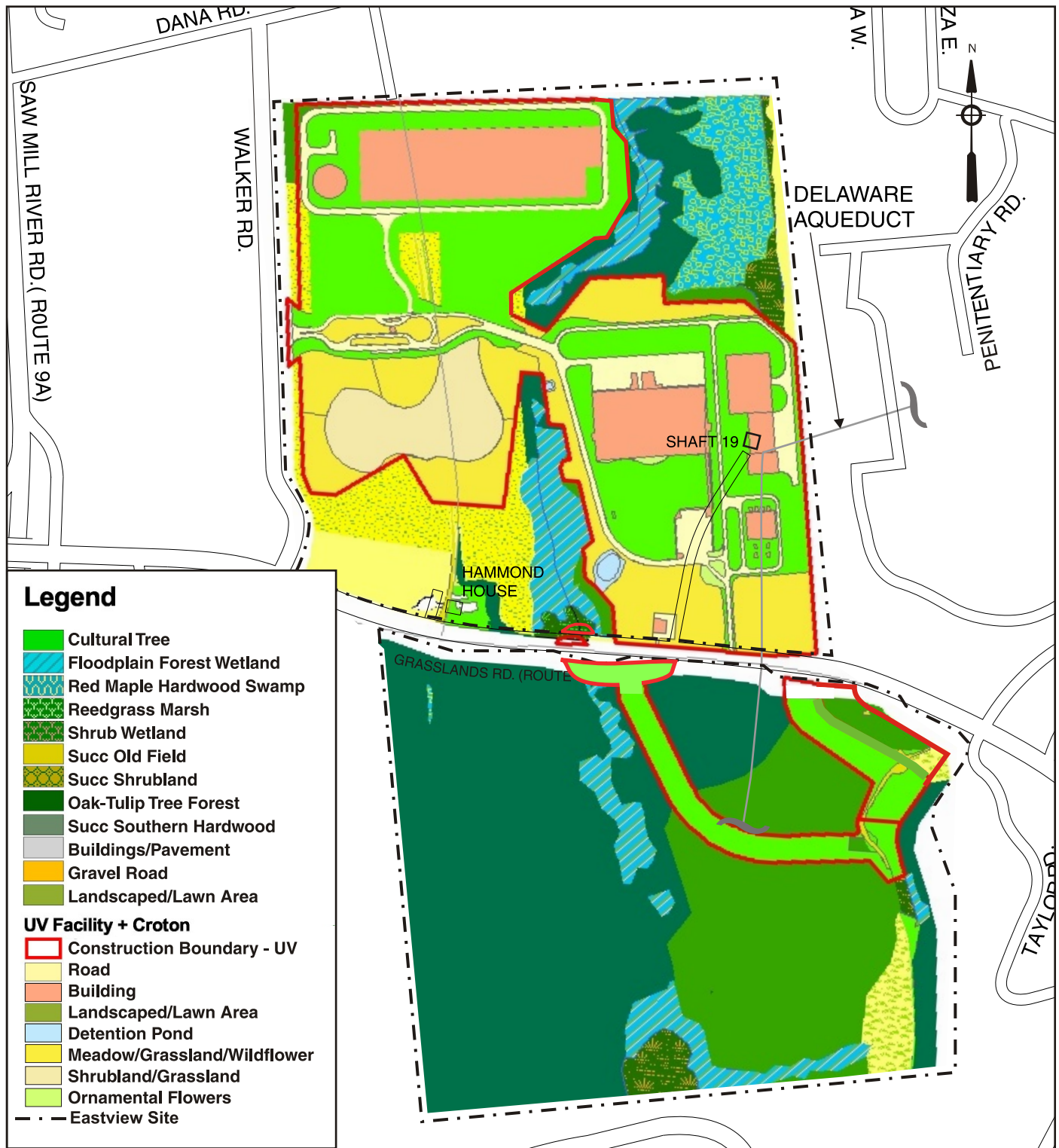
The Croton project would call for the clearing of approximately 30 acres of the north parcel. The proposed UV Facility would call for the clearing of:

- an additional 2.7 acres of oak-tulip tree forest,
- an additional 15.4 acres of successional southern hardwood forest,
- an additional 1.2 acres of floodplain forest wetland,

- an additional 1.8 acres of isolated shrub wetland,
- an additional 7.3 acres of successional shrubland, and
- an additional 3.5 acres of successional old field.

Approximately 16.7 acres on the north parcel would be utilized for roads, parking, and buildings during operation of the UV Facility with the Croton project on-site. See [Figure 4.14-15](#), for a depiction of the natural resources at the Eastview Site during operating conditions for the proposed UV Facility and the Croton project.

Vegetation. With the Croton project on-site, The UV Facility would disturb approximately 32 additional acres of the north parcel. Approximately 15.2 acres surrounding the proposed buildings for the Croton project would be maintained lawn or low ground cover landscaped area. Approximately 10.9 acres surrounding the proposed UV facility would be maintained lawn or low ground cover landscaped area. The shallow marginal areas within the stormwater detention basins of the two projects would be vegetated and maintained annually to promote the drainage function (initially it would be maintained every six months until the site is vegetated). These disturbances would also constitute a permanent loss of the existing on-site vegetation. [Table 4.14-16](#) quantifies the incremental cover change that would occur with the proposed UV Facility and the Croton project occurring on the Eastview Site.



Natural Resources with the UV Facility and Croton Project

The introduction of the UV Facility would result in the additional removal of 1,393 trees greater than four inches dbh. (Table 4.14-17). Of the trees to be cut, 958 trees are greater than six inches dbh (the size regulated by the Town of Mount Pleasant). Trees adjacent to the construction impact area, although not proposed for removal, may be threatened by construction activity, for example from compacted soils, so their survival is uncertain.

The additional loss of trees and habitat that is anticipated with the introduction of the UV Facility to the Eastview Site with the Croton Project would be a significant impact that would be mitigated for with off-site reforestation and wetland creation/enhancement. In addition, approximately 16 acres of impacted successional shrubland and successional old field would be replaced with a combination of shrubland/grassland and meadow/grassland/wildflower communities on-site which have a higher ecological value (see Section 6, Mitigation of Potential Significant or Temporary Adverse Impacts).

There would be no additional impacts to vegetation or cover type within the south parcel that would occur beyond what would be impacted by the UV Facility alone, even if the Croton Project were to occur at the Eastview Site.

Wetlands, Waterways, and Floodplains. The introduction of the proposed UV Facility would result in the loss of an additional 0.3 acres of the northeastern shrub swamp wetland system that drains to Mine Brook via surface channels, 0.1 acres of floodplain forest wetland along Route 100C associated with surface drainage to Mine Brook, and the filling of three small shrub swamp wetlands (1.5 acres) within the proposed UV Facility building footprint associated with surface ditches that drain to Mine Brook. It is anticipated that an additional 1.2 acres of floodplain forest wetland immediately north and west of the proposed UV Facility would be indirectly impacted by groundwater dewatering operations (see Section 4.15, Water Resources for a discussion of impacts from groundwater dewatering). The proposed UV Facility would result in the direct disturbance of 0.01 acres of floodplain forest wetland in the south parcel (Town of Greenburgh) due to the replacement of the culvert under Route 100C.

The disturbance to Mine Brook and its associated wetlands would be considered a significant adverse impact, and compensation for this impact would be provided through a combination of on-site and off-site wetland enhancement and creation. The on-site wetland enhancement associated with the proposed stormwater best management practice system for the UV Facility would replace an existing monoculture reed grass marsh with diverse, native emergent wetland plantings. This would improve vegetative habitat diversity and provide increased habitat value for aquatic fauna, herptiles, and reptiles. Loss of shrub swamp and floodplain forest wetlands and their associated stormwater attenuation functions would be mitigated for with the proposed pretreatment forebay which would provide water quality treatment by way of removal of sediments, nutrients, and bacteria. The lost habitat value would be replaced with a combination of on-site and off-site wetland enhancement and creation of shrub swamp and floodplain forest wetlands. See Section 6.1, Mitigation of Potential Significant or Temporary Adverse Impacts, for a description of this compensatory mitigated wetland that would be created to offset the loss of wetlands described above

In order to compensate for project related wetland impacts of the proposed UV Facility with the Croton project at the Eastview Site, 7.8 acres of wetland enhancement/creation would be undertaken on-site (1.7 acres on the north parcel; 6.1 acres on the south parcel). Native vegetation would be used to compensate for the functions and values of the wetlands lost. A 50-foot buffer area around this wetland would compensate for wetland buffer areas eliminated by the proposed construction elsewhere on the site.

Fish and Benthic Macroinvertebrates. As outlined above in the existing conditions, examination of Mine Brook revealed a moderate diversity of benthic macroinvertebrates, principally taxa characterized as tolerant or moderately intolerant of poor water quality. Water quality measurements taken in the field further support the conclusion that the degraded water quality of the stream is likely a function of offsite upstream conditions.

Most of the stream channel, near-stream vegetation, and wetlands are located within the portion of the site that would not be subject to disturbance, thereby not affecting existing flora and fauna. A stormwater detention basin and on-site floodplain wetland creation/enhancement have been proposed to retain and treat stormwater runoff and partially compensate for loss of wetland habitat from the developed portions of the site. Increased water pollutant loadings to the stream and wetlands may occur despite the removal rates anticipated by the proposed basin and wetland.

Reptiles and Amphibians. The forested and wetland areas of the Eastview Site contain good reptile and amphibian (herpetile) habitat due to the availability of water, high density of leaf litter, and high percent of canopy cover (see Existing Conditions). The UV Facility would require the removal of forest and wetland cover type that would decrease the leaf litter and habitat available for herpetile shelter.

The additional loss of forest and wetland areas could displace some of the local herpetile community (salamanders, green frogs, and garter snakes). However, no significant adverse impact to regional populations is anticipated. The surrounding wetlands, mature upland forest, and running water through the remainder of the site would provide habitat to support viable communities of herpetile species. In addition, the planned wetland enhancement/creation and associated 50-foot wetland buffer would provide additional criteria needed for the herpetile community.

Avifauna. No long-term significant adverse impacts to the avifauna of the Eastview Site are anticipated to occur from the operation of the proposed NYCDEP developments. Any potential impacts are anticipated to be short-term and primarily related to the construction phases of the project. Light exiting the site would be minimized through the use of deflectors and proper alignment and the light wavelength of the lamps used would be designed to minimize impacts to night flying moths and other insects. The avifauna of the site consists of species that are common in similar habitats in the region and none are listed as threatened or endangered by New York State or by the USFWS. The most significant impact to birds would be the loss and modification of existing vegetative communities, primarily for breeding species. However, none of the vegetative communities on the site serve as critical breeding or nesting areas for any of the species identified during the field surveys and listed in [Table 4.14-6](#).

Mammals. The Eastview Site is likely inhabited by a variety of small mammals and is utilized by deer, as discussed in the “Existing Conditions.” The UV Facility would require the clearing of oak-tulip tree forest, floodplain forest wetland, successional southern hardwood forest, and successional shrubland (see [Table 4.14-16](#)). The change to these resources would decrease the amount of food and shelter for many species including white-tailed deer. Species requiring forested habitat would probably relocate to the forested wetlands and mature upland forests, and to the south parcel within the mature upland forests, forested wetland, and successional upland field. However, most of the species found on the site can utilize both forested and shrub/field habitats. Construction noise and activity would also likely cause local wildlife to move to unutilized portions of the project site.

While a portion of the local wildlife population may be displaced or lost due to construction activity and a reduction in habitat, no long-term, significant adverse impacts to regional wildlife are anticipated. The local wildlife community could also experience a decrease in diversity as well due to the loss of habitat.

The local mammal fauna, including white-tailed deer, are very common and very adaptable and readily habituate to human presence. Edge species would utilize cleared areas and benefit from them. Regional extirpation would not occur because this forest is common in a regional context. Lighting around the proposed NYCDEP developments and access roads may affect some nocturnal or reclusive animals. However, it is unlikely that reclusive species currently exist in this small fragment of forest surrounded by development and that light exiting the site would be minimized through the use of deflectors and proper alignment. The fauna anticipated to occur around this site typically habituate rapidly to low-level lighting such as that proposed around the facility.

Rare, Threatened, and Endangered Species. As indicated above in the Existing Conditions section, no State or Federally listed threatened or endangered, or rare species, as defined by the New York Natural Heritage Program were observed on the north parcel of the Eastview Site, and none are anticipated to occur or be affected by the proposed NYCDEP developments. However, two avian species that are listed as New York State Species of Special Concern were observed flying over the site: a sharp-shinned hawk (*Accipiter striatus*) in April 2000 and a Coopers hawk (*Accipiter cooperii*) in May 2000. The NYSDEC Breeding Bird Atlas Program has reported neither species as breeding in the region and it is most likely that the Sharp-shinned hawk was a migrant species passing through the area. This species is a very common spring migrant in the region. Whether the Coopers hawk was a migrant or breeding individual is unknown, but Coopers hawk populations have been increasing significantly throughout the region during the past decade. No significant adverse impacts to migrating birds that may utilize the site are anticipated. It is anticipated that the vegetative communities that would remain on the site during operation would continue to provide adequate habitat for migrating passerines that may use the site.

Conclusion. It is anticipated that the amount of area that would be impacted during both construction and operation of the proposed UV Facility with the Croton project on-site would significantly alter the natural resources on the Eastview Site. Significant adverse impacts to existing habitat, wetlands, and trees would probably displace local wildlife from the site. The

loss of mature trees, particularly slow growing, native species that provide wildlife with food from seeds or nuts are a valuable resource. Additionally, the woodlands on site with a diverse community of native cover types, especially those stands of trees with an established forest canopy and a well established forest floor and shrub layers provide better habitat value than areas of isolated trees and monocultures, such as the areas on-site dominated by multiflora rose. Reductions in local wildlife diversity can be anticipated as well. However, it should be noted that wildlife species inhabiting the project site are very common and very adaptable and readily habituate to human presence. Project related impacts to natural resources are not anticipated to have serious consequences in a regional context. The availability of large parcels of undeveloped land in Westchester County, many of which are permanently protected, for resident and migratory wildlife in the region demonstrates that the development of the project site would not result in a significant impact on regional ecology.

TABLE 4.14-16. INCREMENTAL HABITAT COVER TYPE CHANGE OF UV AT NORTH PARCEL WITH CROTON WTP

Cover Type (acres)	Existing Area (acres)	Future With Croton Project (acres)	Incremental UV Impacts With Croton On -Site Acres (% Change)	New York State Natural Heritage Program Cover Type Categories (1)		
				System	Subsystem	Community Type
Floodplain Forest Wetland	4.8	4.7	-1.2 (-25.0%)	Palustrine	Forested Mineral Soil Wetland	Floodplain Forest
Red Maple Hardwood Swamp	4.2	4.2	0.0	Palustrine	Forested Mineral Soil Wetland	Red Maple Hardwood Swamp
Shrub Swamp	2.7	2.6	-1.8 (-66.7%)	Palustrine	Open Mineral Soil Wetland	Shrub Swamp
Reedgrass/Purple Loosestrife Marsh (2)	0.4	0.4	-0.4 (-100.0%)	Palustrine	Palustrine Cultural	Reedgrass Marsh
Oak-Tulip Tree Forest	8.3	7.0	-2.7 (-32.5%)	Terrestrial	Forested Upland	Oak-Tulip Tree Forest
Successional Southern Hardwood Forest	20.8	15.9	-15.4 (-74.0%)	Terrestrial	Forested Uplands	Successional Southern Hardwoods
Successional Shrubland	32.2	9.9	-7.3 (-22.7%)	Terrestrial	Open Uplands	Successional Shrubland
Successional Old Field	7.7	4.0	-3.5 (-45.5%)	Terrestrial	Open Uplands	Successional Old Field
Cultural Trees	0.7	0.6	-0.6 (-85.7%)	Terrestrial	Terrestrial Cultural	Planted Shade Trees
Pretreatment Forebay	0.0	1.0	0.3	Terrestrial	Palustrine Cultural	Water Recharge Basin
Landscaped/Lawn Area	0.4	17.1	10.9	Terrestrial	Terrestrial Cultural	Mowed Lawn with Trees
Roads, Parking, Buildings	1.1	13.7	9.9	Terrestrial	Terrestrial Cultural	Mixed Community Types
TOTAL	83.3	81.1	--	--	--	--
Stream Length (feet)	2,345	2,305	-40.0	Riverine	Natural	Perennial Stream
50-foot Wetland Buffer	11.4	11.4	4.6	NA	NA	NA

Notes:

(1) Reschke, Carol, et al. 2002. Ecological Communities of New York State. New York Natural Heritage Program. N.Y.S. Dept. of Environmental Conservation. Latham, NY.

(2) Loss of 0.4 acres of Reedgrass/Purple Loosestrife Marsh results from proposed Wetland Enhancement/Creation that will replace the existin low ecological value monoculture reedgrass marsh with diverse, native emergent wetland plantings thereby improving vegetative habitat diversity and providing increased habitat value for aquatic fauna, herpetiles, and reptiles.

**TABLE 4.14-17. SUMMARY OF INCREMENTAL ADDITIONAL TREES CUT ON THE NORTH PARCEL
WITH UV FACILITY AND CROTON WTP**

Common Name	Scientific Name	Diameter at Breast Height (inches)												Total By Species
		4-5	6-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	33-36	>36	
Boxelder	Acer negundo	8	9	1	2	--	--	--	--	--	--	--	--	20
Norway Maple	Acer platanoides	1	34	10	6	1	1	1	1	2	4	1	1	63
Planetree Maple	Acer pseudoplatanus	--	1	--	--	--	3	1	1	--	1	--	--	7
Red Maple	Acer rubrum	23	56	17	3	2	--	--	1	--	--	--	1	103
Silver Maple	Acer saccharihum	1	4	1	--	--	--	2	2	3	1	--	2	16
Sugar Maple	Acer saccharum	32	49	13	3	4	3	3	4	4	--	1	--	116
Pignut Hickory	Carya glabra	1	1	--	--	--	--	--	--	--	--	--	--	2
Shagbark Hickory	Carya ovata	4	2	--	--	--	2	1	1	--	--	--	--	10
Mockernut Hickory	Carya tomentosa	--	--	1	--	--	--	--	--	--	--	--	--	1
Flowering Dogwood	Cornus florida	1	--	--	--	--	--	--	--	--	--	--	--	1
White Ash	Fraxinus americana	163	101	17	4	4	2	--	--	--	2	--	3	296
Green Ash	Fraxinus pennslyvanica	99	107	11	1	--	--	--	--	--	--	--	--	218
Black Walnut	Juglans nigra	1	1	--	1	--	--	--	--	--	--	--	--	3
Tulip Tree	Liriodendron tulipifera	--	1	--	1	--	--	--	--	1	--	--	--	3
Osage orange	Maclura pomifera	--	1	--	--	--	--	--	--	--	--	--	--	1
Apple	Malus sp.	16	12	--	--	--	--	--	--	--	--	--	--	28
White Mulberry	Morus alba	--	1	1	--	--	--	--	--	--	--	--	--	2
Eastern Hophornbeam	Ostrya virginiana	--	--	--	1	--	--	--	--	--	--	--	--	1
Norway Spruce	Picea abies	--	--	--	2	3	10	6	1	1	--	--	--	23
American Sycamore	Platanus occidentalis	3	2	4	1	--	--	--	--	1	1	--	--	12
Quaking Aspen	Populus tremuloides	1	--	--	--	--	--	--	--	--	--	--	--	1
Black Cherry	Prunus serotina	31	93	18	1	1	--	--	1	--	--	--	--	145
White Oak	Quercus alba	--	1	1	--	--	--	--	--	--	1	1	2	6
Pin Oak	Quercus palustris	--	23	8	2	1	1	--	1	1	--	--	--	37
Red Oak	Quercus rubra	--	4	4	--	--	--	--	--	1	--	--	--	9
Black Oak	Quercus velutina	--	1	--	--	--	--	--	--	--	--	--	--	1
Black Locust	Robinia pseudoacacia	2	40	36	8	6	2	1	1	--	--	1	1	98
Bebe Willow	Salix bebbiana	5	3	--	--	2	--	--	--	--	--	--	--	10
Black Willow	Salix nigra	1	1	--	--	--	--	--	--	--	--	--	--	2
Basswood	Tilia americana	--	2	--	--	--	--	--	--	--	--	--	--	2
American Elm	Ulmus americana	39	81	19	8	4	--	2	--	--	--	--	--	153
Elm	Ulmus sp.	2	--	--	--	--	--	--	--	--	--	--	--	2
Unknown		1	--	--	--	--	--	--	--	--	--	--	--	1
	TOTAL BY DBH	435	631	162	44	28	24	17	14	14	10	4	10	1393