

E. Water Resources and Wetlands

1. Introduction

The Knolls of Dover property (the Site) contains forty-six wetlands, covering a total of ± 185 acres, or approximately 20 percent of the property. The largest wetlands on the Site are located west of Route 22, and are immediately associated with the Swamp River floodplain. Wetlands on the east side of the Site include the reservoir for the former Harlem Valley Psychiatric Center (HVPC), along with several associated streams and drainage channels. Other wetlands are located throughout the Site and they vary in size, function, vegetation, and regulation. All of the wetlands on the property, with the exception of two that are located in the easternmost corner of the property, drain to the Swamp River.

2. Existing Conditions

The wetlands field delineation methodology is presented below, followed by a description of the pertinent regulatory jurisdictions. Individual wetland and upland habitats are also identified and described, followed by functional assessments of the wetlands.

a. *Field Delineation of Wetlands*

Wetlands on the Site were field delineated by Evans Associates Environmental Consulting, Inc. (Evans Associates) between August 1 and November 17, 2006. During the wetlands field delineation, vegetation, soils, and hydrology data were collected to characterize and assist in the functional assessments of the wetlands. The field delineation was conducted in accordance with the criteria in Article 24 of the New York State Department of Environmental Conservation (DEC) Law and the technical criteria in the 1987 Army Corps of Engineers (ACOE) Wetland Delineation Manual (TR-Y-87-1). The wetland/upland boundaries were flagged with sequentially numbered, orange flags depicting the words "Wetlands Boundary." The wetland flags were survey located by Badey & Watson Surveying & Engineering, P.C.

b. *Wetlands Regulatory Jurisdiction*

The locations of the wetlands, as well as their regulatory jurisdictions, are depicted on Exhibit III.E-1, "Wetland Location and Regulatory Jurisdiction Map." For the purpose of discussion, the wetlands are labeled by the first letter or letters of their flagging sequences. The wetland identification, location on the Site, along with the flagging sequence are summarized in Table III.E-1. The DEC designation (if any), the total wetland area, ACOE-regulated area, and DEC regulated-area for each wetland are summarized in Table III.E-2.

Army Corps of Engineers (ACOE) Wetland Regulations

The ACOE is the Federal agency that regulates certain wetlands under the Clean Water Act. The ACOE regulates wetlands based on the presence of hydrophytic vegetation, hydric soils and wetland hydrology as defined in the 1987 ACOE Wetland Delineation Manual (TR-Y-87-1). The ACOE regulates wetlands that are associated with hydrologic features that are connected to navigable waters (e.g., connected to streams that ultimately drain to the Hudson River). Pursuant to a change in ACOE jurisdiction in 2001, they no longer regulate hydrologically isolated wetlands (i.e., wetlands not connected to navigable waters). There is no wetland buffer regulated under federal jurisdiction.

New York State Wetland Regulations (ECL Article 24)

The DEC regulates wetlands in accordance with the New York State Freshwater Wetlands Act (Article 24 of the New York State Environmental Conservation Law). The DEC regulates wetlands that are 12.4 acres or greater primarily based on vegetation, that are shown on, or connected to wetlands shown on, the DEC freshwater wetlands maps. The DEC may also regulate smaller wetlands that are near (within 50 meters of) larger DEC wetlands that are determined to function together. The boundaries of the wetlands shown on the DEC freshwater wetlands maps are only used for reference and need to be field delineated and then confirmed by DEC staff. In addition to regulating the wetlands, the DEC also regulates 100-foot adjacent areas surrounding the wetlands.

Portions of DEC Freshwater Wetlands DP-22 (The Great Swamp), DP-30, DP-34 and DP-35 occur on the Site. On November 20, 2006 and December 18, 2006 Evans Associates conducted site walks with Ms. Heather Gierloff of the DEC to review the wetland boundaries. Ms. Gierloff determined that the boundaries of the wetlands were accurate as delineated. The DEC determination is valid for a period of ten years from the date of review and signature (April 18, 2007; i.e., the delineation is valid through 2017).

New York State Protection of Waters Program Regulations (ECL Article 15):

In addition to wetlands, the DEC also regulates certain watercourses or waterbodies on the property in accordance with section 825.6 of Title 6 of the *Official Compilation of Codes, Rules and Regulations of the State of New York*. Watercourses that are regulated are those classified as "Protected Streams" or "Protected Waters" based on the existing or expected best usage of these waters. The highest classification, "AA" or "A", are assigned to protect waters for uses including drinking and cooking. The next category, "B", is assigned to protect for uses including swimming and other contact recreation, but not for drinking water. Classification "C(T)" indicates waters protected at a level which will support trout populations. Un-named, perennial tributaries are given the classification of the stream that they are tributary to. Watercourses that are classified "AA", "A", "B" and "C(T)" or "C(TS)" are protected, and an

Article 15 permit is required to disturb the bed or banks of such streams (disturbance may be either temporary or permanent in nature). There are four streams that are located on or near the Site. The Swamp River flows through the Site, and two tributary streams, Tributary five, and Tributary six, flow into the Swamp River from the east. Tributary five enters the Swamp river near the intersection of Routes 22 and 55, and Tributary six flows out of the on-site reservoir, and eventually enters the Swamp River just north of the train station. The Swamp River is classified as Class "C(T)" below Tributary five, and "A(T)" above tributary five. The reservoir is classified as Class "A." Therefore, the Swamp River and the reservoir are regulated by the DEC under ECL Article 15 as a protected stream and waterbody. Tributary five and Tributary six are classified as Class "C" and therefore are not governed by these regulations.

Town Wetland and Watercourse Regulations

The Town of Dover currently does not have a local wetlands and watercourse ordinance. However, the Town does regulate certain activities in, and adjacent to, wetlands and watercourses in accordance with Chapter 65: Erosion and Sediment Control. Chapter 65 of the Town Code defines wetlands based on the presence of poorly and very poorly drained soil types. All of the wetlands on the Site contain poorly or very poorly drained soils. Therefore, certain activities around all of the wetlands on the Site will be subject to Chapter 65 regulations. In addition, site preparation within the hundred-year floodplain of any watercourse is also regulated.

Watershed/Drainage

The entire Site, with the exception of the easternmost corner, drains to the Swamp River, which flows north to the Tenmile River which is a tributary to the Housatonic River. The Site is not within the New York City Watershed, and is therefore not subject to the New York City Department on Environmental Protection (NYC DEP) watershed regulations.

The Lu Engineers report identified in the scoping document was a water supply study prepared in August 1988 for the HVPC. The report studied several alternative water supply sources including expansion of the existing reservoir system, utilization of other surface water sources (including the Swamp River, Mill River, and Ten-Mile River), the use of groundwater and water conservation.

Flooding

The low areas of the site near the Swamp River and adjacent wetlands are subject to flooding as they lie within the 100-Year Floodplain of the Swamp River. (See Exhibit III-I-4 , in the Stormwater Management section, which graphically depicts the approximate limit of flooding during a 100-Year storm.)

**Table III.E-1
Wetland Identification and Location**

Wetland ID	Wetland Location on Site	Flagging Sequences
A	southwest corner	A-1 - A-55
B	west side, just east of Wetland C, north of Wheeler Road	B-1 - B-106
C	near western property line, north of Wheeler Road	C-1 - C-40
D	just west of Route 22, North of Wheeler Road	D-1 - D-56 , J-1 - J-106
E	West of Route 22, adjacent to southern property boundary	E-1 - E-65 , H-1 - H-61 , K-1 - K-26 , L-1 - L-45
F	Immediately west of Route 22, south of Wheeler Road	F-1 - F-8
G	Immediately west of Route 22, south of Wheeler Road	G-1 - G-27
I	Immediately west of Route 22, south of Wheeler Road	I-1 - I-10
M	Just east of western property boundary, south of Wheeler Road	M-1 - M-5
N	just east of western property boundary, south of Wheeler Road, west of Wetland M	N-1 - N-97
O	along access road to golf course facilities; west of Wetland D	O-1 - O-19 , P-1 - P-16
Q	adjacent to northern property boundary, west of Route 22	Q-1 - Q-48
R	just southwest of Wetland Q	R-1 - R-11
S	centrally located north of Wheeler Road and West of Route 22	S-1 - S-13
T	adjacent to the northern property boundary	T-1 - T-28
U	east of, and adjacent to Route 22	U-1 - U-242 , U-39A - U-39Q
Unflagged Wetlands	between Wetland Z and Wetland BB, east of Hutchinson Avenue	not flagged
V	surrounded by Wetland U	V-1 - V-5

Wetland ID	Wetland Location on Site	Flagging Sequences
W	east of Route 22 and just north of Wheeler Road	W-1 - W-27
Wetland Pond	just south of Wheeler Road, and west of Wetland E	not flagged
X	east of Route 22 and just north of Wheeler Road	X-1 - X-14
Y	east of Route 22 and just north of Wheeler Road	Y-1 - Y-18
Z	east of Route 22 and just north of Wheeler Road	Z-1 - Z-4
AA	southeast of Wetland BB, east of unnamed access road	AA-1 - AA-16
BB	southeast of unflagged wetlands, west of unnamed access road	BB-1 - BB-15
CC	adjacent to out parcel on east side of Hutchinson Avenue	CC-1 - CC-36
DD	outflow from reservoir	DD-1 - DD-68 , EE-1 - EE-86
FF	just south of Wetland DD	FF-1 - FF-15
GG	includes the reservoir	GG-1 - GG-174
HH	adjacent to east side of Hutchinson Avenue	HH-1 - HH-29
II	adjacent to west side of Hutchinson Avenue	II-1 - II-6
JJ	in center of track east of Route 22, north of Wheeler Road	JJ-1 - JJ-34
KK	adjacent to northeastern property boundary	KK-1 - KK-39
LL	adjacent to northern property boundary, just east of Hutchinson Avenue	LL-1 - LL-24
MM	southeast of Wetland LL	MM-1 - MM-48
NN	south of Wetland MM	NN-1 - NN-8
OO	on southern property boundary, south of reservoir discharge	OO-1 - OO-22 , PP-1 - PP-21

Wetland ID	Wetland Location on Site	Flagging Sequences
QQ	northwest of reservoir	QQ-1 - QQ-26
RR	along southern property boundary, south of reservoir	RR-1 - RR-33 , SS-1 - SS-27
TT	along southeast property boundary, southeast of reservoir	TT-1 - TT-12
UU	along southeast property boundary, southeast of reservoir	UU-1 - UU-13
VV	east of reservoir	VV-1 - VV-60 , WW-1 - WW-51 , XX-1 - XX-32
YY	adjacent to easternmost property boundary	YY-1 - YY-4 , AAA-1 - AAA-52 , EEE-1 - EEE-9 , GGG-1 - GGG-7, III-1 - III-13
ZZ	along southeast property boundary, southeast of reservoir	ZZ-1 - ZZ-11
BBB	on eastern property boundary, north of reservoir	BBB-1 - BBB-12
CCC	just west of Wetland YY	CCC-1 - CCC-5

**Table III.E-2
Wetland Regulatory Summary Table**

Wetland ID	DEC designation: Freshwater Wetland Number (if applicable)	Total Area (acres)	ACOE Regulated Area (acres)	DEC Regulated Area (acres)
A	DP-34	3.43	3.43	3.43
B	DP-22	7.05	7.05	7.05
C	DP-22	1.77	1.77	1.77
D	DP-22	49.49	49.49	49.49
E	DP-22	45.20	45.20	45.20
F	--	0.07	0.07	--
G	--	0.33	0.33	--
I	--	0.11	--	--
M	DP-22	0.02	0.02	0.02
N	DP-22	8.28	8.28	8.28

Wetland ID	DEC designation: Freshwater Wetland Number (if applicable)	Total Area (acres)	ACOE Regulated Area (acres)	DEC Regulated Area (acres)
O	--	0.54	--	--
Q	DP-22	2.48	2.48	2.48
R	DP-22	0.19	0.19	0.19
S	--	0.25	--	--
T	DP-22	5.39	5.39	5.39
U	DP-30 (Portion)	18.88	18.88	17.94
Unflagged Wetlands	--	0.05	0.05	--
V	DP-30	0.03	--	0.03
W	--	0.24	0.24	--
Wetland Pond	--	0.78	--	--
X	--	0.05	0.05	--
Y	--	0.10	0.10	--
Z	--	0.00	0.00	--
AA	--	0.09	0.09	--
BB	--	0.04	0.04	--
CC	--	0.37	0.37	--
DD	--	0.98	0.98	--
FF	--	0.03	0.03	--
GG	DP-35 (Portion)	12.33	12.33	1.08
HH	--	0.11	0.11	--
II	--	0.03	0.03	--
JJ	DP-30	1.20	1.20	1.20
KK	DP-30	1.77	1.77	1.77
LL	DP-30 (Portion)	1.97	1.97	1.91
MM	--	0.46	0.46	--
NN	--	0.07	--	--

Wetland ID	DEC Freshwater designation: Number (if applicable) Wetland	Total Area (acres)	ACOE Regulated Area (acres)	DEC Regulated Area (acres)
OO	--	0.16	0.16	--
QQ	--	0.49	0.49	--
RR	--	0.52	0.52	--
TT	--	0.30	--	--
UU	--	0.25	0.25	--
VV	DP-35 (Portion)	14.15	14.15	14.05
YY	DP-31	4.17	4.17	4.17
ZZ	--	0.05	--	--
BBB	--	0.24	--	--
CCC	DP-31	0.05	0.05	0.05
Total for Site		184.5	177.0	165.5

Portion - only a portion of the flagged wetland is under DEC jurisdiction

c. Description of Individual Wetlands and Adjacent Upland Habitats

The vegetation cover type, soil type, and principal source of hydrology of each of the wetlands are summarized in Table III.E-3. The vegetation, soils and hydrology of each of the individual wetlands, as well as a brief description of the vegetative upland habitats surrounding some of the wetlands, are presented following the table. More complete upland habitat descriptions can be found in the Natural Resources section of this report, as well as in “Habitats and Rare Plants at the Proposed Dover Knolls Development Site” technical report by Hudsonia Ltd. that is included in the Appendix.

**Table III.E-3
Individual Wetland Description Table**

Wetland ID	Vegetation Cover Type(s)	Soil Type(s)	Principal Source(s) of Hydrology
A	forested	Wayland silt loam and Carlisle muck	seasonally high water table and runoff
B	emergent & scrub-shrub	Wayland silt loam and Sun silt loam	seasonally high water table and runoff
C	forested, emergent, & scrub-shrub	Wayland silt loam	seasonally high water table
D	forested & emergent	Carlisle muck	seasonally high water table

Wetland ID	Vegetation Type(s)	Cover	Soil Type(s)	Principal Source(s) of Hydrology
E	forested, scrub-shrub & emergent		Carlisle muck and Wayland silt loam	seasonally high water table, stream flooding
F	emergent & scrub-shrub		Udorthents, substratum	wet seasonally high water table and runoff
G	emergent & forested		Udorthents, substratum	wet seasonally high water table and runoff
I	emergent		Udorthents, substratum	wet seasonally high water table and runoff
M	emergent		Wayland silt loam	seasonally high water table
N	emergent, forested, & scrub-shrub		Wayland silt loam	seasonally high water table
O	forested		Udorthents, substratum	wet seasonally high water table and runoff
Q	forested		Wayland silt loam	seasonally high water table and runoff
R	forested		Wayland silt loam	seasonally high water table and runoff
S	open water & emergent		open water and Udorthents, substratum	wet seasonally high water table
T	emergent & scrub-shrub		Halsey mucky silt loam	seasonally high water table
U	forested & emergent		Wayland silt loam and Udorthents, substratum	wet seasonally high water table and runoff
Unflagged Wetlands	emergent		Udorthents, substratum	wet seasonally high water table and runoff
V	forested		Udorthents, substratum	wet seasonally high water table
W	forested, emergent, & scrub-shrub		Udorthents, substratum	wet seasonally high water table and runoff
Wetland Pond	open water & emergent		Open water and Udorthents, substratum	wet seasonally high water table
X	forested, emergent, & scrub-shrub		Udorthents, substratum	wet seasonally high water table and runoff
Y	forested, emergent, &		Udorthents,	wet seasonally high water table and

Wetland ID	Vegetation Type(s)	Cover	Soil Type(s)	Principal Hydrology	Source(s) of
	scrub-shrub		substratum	runoff	
Z	emergent		Udorthents, substratum	wet	seasonally high water table and runoff
AA	forested		Sun silt loam		seasonally high water table and runoff
BB	forested		Sun silt loam		seasonally high water table and runoff
CC	forested, emergent, & scrub-shrub		Sun silt loam		seasonally high water table
DD	forested		Sun silt loam		seasonally high water table and runoff (reservoir outflow)
FF	forested		Sun silt loam		seasonally high water table and runoff
GG	open water, emergent, forested, & scrub-shrub		open water and Sun silt loam		seasonally high water table and runoff
HH	emergent & scrub-shrub		Udorthents, substratum	wet	seasonally high water table and runoff
II	emergent		Udorthents, substratum	wet	seasonally high water table and runoff
JJ	emergent		Udorthents, substratum	wet	seasonally high water table
KK	forested & scrub shrub		Wayland silt loam		seasonally high water table
LL	forested, emergent & scrub shrub		Wayland silt loam		seasonally high water table and runoff
MM	forested, scrub shrub, & emergent		Sun silt loam		seasonally high water table
NN	forested & emergent		Udorthents, substratum	wet	seasonally high water table
OO	forested		Sun silt loam		seasonally high water table and runoff
QQ	forested		Sun silt loam		seasonally high water table
RR	forested & emergent		Sun silt loam		seasonally high water table and runoff
TT	forested		Sun silt loam		seasonally high water table
UU	forested		Sun silt loam		seasonally high water table and

Wetland ID	Vegetation Type(s)	Cover	Soil Type(s)	Principal Hydrology	Source(s) of
				runoff	
VV	emergent, scrub shrub, and forested		Sun silt loam	seasonally high water table	
YY	forested		Sun silt loam	seasonally high water table and runoff	
ZZ	forested		Sun silt loam	seasonally high water table	
BBB	forested, emergent & scrub-shrub		Sun silt loam	seasonally high water table	
CCC	forested		Sun silt loam	seasonally high water table	

(1) Wetland A

Wetland A is a 3.43-acre, mainly forested wetland that is located in the southwest corner of the property. Some areas of the wetland contain scrub-shrub habitat, and a small, central area of the wetland may pond temporarily in the spring. Vegetation in Wetland A includes red maple (*Acer rubrum*), American elm (*Ulmus americana*), and yellow birch (*Betula alleghaniensis*) trees and saplings, spicebush (*Lindera benzoin*), arrow-wood (*Viburnum dentatum*), high-bush blueberry (*Vaccinium corymbosum*), and sweet pepperbush (*Clethra alnifolia*) shrubs, poison ivy (*Toxicodendron radicans*) vines, along with skunk cabbage (*Symplocarpus foetidus*), jewelweed (*Impatiens capensis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), sensitive fern (*Onoclea sensibilis*), and tussock sedge (*Carex stricta*). There are also Sphagnum moss covered hummocks within the wetland.

The soils in Wetland A include Wayland silt loam, along with Carlisle muck in the interior, wetter portions of the wetland. Wayland silt loam is very deep to bedrock, and poorly drained and very poorly drained. This soil is formed in alluvium deposits on flood plains. Carlisle muck is very deep to bedrock and is very poorly drained. This soil is formed in organic material that is greater than 51 inches thick (some Palms muck, which has an organic thickness of 16 to 51 inches of organic material, may also be found here, complexed with the Carlisle muck). Carlisle and Palms muck are found on outwash, till, and flood plains. Wetland A is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. This wetland drains off site to the south and southeast, where it joins the Swamp River.

The shape of Wetland A, along with the presence of some debris indicate that the wetland was likely disturbed in the past, likely by cutting and filling.

Wetland A appears to be in good general condition, however, and no development activities are proposed in the wetland or wetland adjacent area.

Upland Vegetation Near Wetland A

Forested upland vegetation near Wetland A includes black cherry (*Prunus serotina*), sugar maple (*Acer saccharum*), black locust (*Robinia pseudoacacia*), and black oak (*Quercus velutina*) trees and saplings, Japanese barberry (*Berberis thunbergii*), and multiflora rose (*Rosa multiflora*) shrubs, poison ivy, Virginia creeper (*Parthenocissus Quinquefolia*), and Asiatic bittersweet (*Celastrus orbiculata*) vines, along with garlic mustard (*Alliaria petiolata*).

(2) Wetland B

Wetland B is a 7.05-acre, mainly emergent and scrub-shrub wetland that is located on the west side of the property, north of Wheeler road, and just east of Wetland C (described below). Vegetation in Wetland B includes cottonwood (*Populus deltoides*), bebb willow (*Salix bebbiana*), and green ash (*Fraxinus pennsylvanica*) trees and saplings, speckled alder (*Alnus rugosa*) shrubs, poison ivy vines, along with common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), sensitive fern, jewelweed, and royal fern.

The soils in Wetland B include Wayland silt loam, and Sun silt loam. Wayland and Sun silt loams are very deep to bedrock and are poorly drained and very poorly drained. Wayland silt loam is formed in alluvium deposits on flood plains. Sun silt loam is formed in glacial till. Wetland B is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. This wetland drains underneath Wheeler Road, through a culvert, and into Wetland N and then into Wetland E. Both of these wetlands drain into the Swamp River.

Wetland B is in good general condition, but may receive runoff from Wheeler Road as well as a small, poorly-maintained, dirt road that runs between Wetland B and Wetland C. In addition, invasive plant species are present in the wetland. Implementation of the sediment and erosion control plan during construction will reduce the potential for runoff-related impacts to the wetland.

(3) Wetland C

Wetland C is a 1.77-acre, forested, emergent, and scrub-shrub wetland that is located on the west side of the property, north of Wheeler road, and just west of Wetland B. Vegetation in Wetland C includes red maple, American elm, cottonwood, black willow (*Salix velutina*), and green ash (*Fraxinus*

pennsylvanica) trees and saplings, silky dogwood (*Cornus amomum*) shrubs, along with purple loosestrife, sensitive fern, and jewelweed.

The soil in Wetland C is mainly Wayland silt loam. Wayland silt loam is very deep to bedrock and poorly drained and very poorly drained. Wayland silt loam is formed in alluvium deposits on flood plains. Wetland C is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland drains east, underneath a poorly-maintained dirt road through a culvert, and into Wetland B.

Wetland C is in fair general condition, and may receive runoff from the small, dirt road that runs between Wetland B and Wetland C. In addition, some invasive plant species are present in the wetland, and vehicular activity was noted in a small section of the wetland near the small road. Implementation of the sediment and erosion control plan during construction will reduce the potential for runoff-related impacts to the wetland.

Upland Vegetation Near Wetland C

Vegetation in the uplands near Wetland C includes black cherry, eastern red cedar (*Juniperus virginiana*), and white ash (*Fraxinus americana*) trees and saplings, stiff dogwood (*Cornus foemina*) shrubs, poison ivy, Virginia creeper (*Parthenocissus Quinquefolia*), and grape (*Vitis sp.*) vines, along with garlic mustard (*Alliaria petiolata*), and goldenrod (*Solidago sp.*).

(4) Wetland D

Wetland D is a 49.49-acre, forested, emergent, and scrub-shrub wetland complex that is located in the north-central portion of the site, west of Route 22 and the railroad tracks. Wetland D comprises the floodplain on the west side of the Swamp River. Vegetation in the wetland includes red maple, American elm, cottonwood, and green ash trees and saplings, spicebush shrubs, along with skunk cabbage, sensitive fern, royal fern, jewelweed, bur-reed (*Sparganium sp.*), common reed, tussock sedge, arrow-leaf tear-thumb (*Polygonum sagittatum*), fringed sedge (*Carex crinita*), clearweed (*Pilea pumila*), cardinal flower (*Lobelia cardinalis*), and arrow-wood (*Viburnum recognitum*).

The soils in Wetland D are mainly Carlisle and Palms mucks. Carlisle and Palms mucks are very deep to bedrock and are very poorly drained. Carlisle muck is formed in organic material that is greater than 51 inches thick. Palms muck has 16 to 51 inches of organic material over mineral soils. Carlisle and Palms mucks are found on outwash, till, and flood plains. Wetland D is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland includes a portion of the Swamp River.

Wetland D is in very good general condition, based on its large size and variety of wetland habitats. A mainly dirt driveway runs most of the length of the western boundary of Wetland D, and some runoff from this road may enter the wetland. Moving the majority of the roadway away from the wetland (as currently proposed) as well as properly managing any remaining road runoff near the wetland could improve the quality of this wetland.

(5) Wetland E

Wetland E is a 45.20-acre, forested, scrub-shrub, and emergent wetland that is located west of Route 22, adjacent to the southern property boundary. Wetland E contains the floodplain on the west side of the Swamp River, along with the wetland that is located south of the golf course and Wheeler Road. Vegetation in the wetland includes red maple, American elm, cottonwood, green ash, ironwood (*Carpinus caroliniana*), black willow, and bebb willow trees and saplings, spicebush, and silky dogwood shrubs, poison ivy vines, along with common reed, skunk cabbage, sensitive fern, royal fern, jewelweed, purple loosestrife, trillium (*Trillium sp.*), arrow-leaf tear-thumb, and straw-colored flat sedge (*Cyperus strigosus*).

The soils in Wetland E include Wayland silt loam and Carlisle and Palms mucks. Wayland silt loam is very deep to bedrock and poorly drained and very poorly drained. This soil is formed in alluvium deposits on flood plains. Carlisle and Palms mucks are very deep to bedrock and are very poorly drained. Carlisle muck is formed in organic material that is greater than 51 inches thick. Palms muck has 16 to 51 inches of organic material over mineral soils. Carlisle and Palms mucks are found on outwash, till, and flood plains. Wetland E is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. This wetland includes a portion of the Swamp River.

Wetland E is in very good general condition, especially toward the more central portions of the wetland. Areas near the wetland are encroached by the golf course, and small roadways may contribute runoff to the wetland. Properly containing and managing road and proposed parking lot runoff near the wetland could improve the quality of this wetland, as could enhancing the wetland adjacent areas surrounding Wetland E, as is proposed.

Upland Vegetation Near Wetland E

Forested upland vegetation near Wetland E includes black cherry (*Prunus serotina*), sugar maple (*Acer saccharum*), red oak (*Quercus rubra*), black oak (*Quercus velutina*), white ash, and tulip-tree (*Liriodendron tulipifera*) trees and saplings, Japanese barberry shrubs, Virginia creeper vines, along with Christmas fern (*Polystichum acrostichoides*).

Wetland Pond near Wetland E

The 0.78-acre constructed Wetland Pond is located south of Wheeler Road, in the portion of the golf course that is located to the north and east of Wetland E. The Wetland Pond contains mainly open water, with some emergent vegetation.

The soils in the Wetland Pond are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. The Wetland Pond is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland appears to be hydrologically isolated.

The Wetland Pond appears to be in fair to poor condition, based on the proximity of the golf course to the pond. This pond likely receives inputs of fertilizers from the golf course, and is isolated from other, larger wetlands. Areas near the wetland are encroached by the golf course, right up to the edge of the wetland. Areas surrounding this wetland are proposed to be stormwater management areas, and the golf course areas will be replaced by buildings. Proper design and planting of the stormwater basins, as well as controlling runoff and fertilizer inputs to the pond could help improve the quality of the pond.

(6) Wetland F

Wetland F is a 0.07-acre, emergent and scrub-shrub wetland that is located west of Route 22, between the two abandoned railroad spurs. Wetland F is a constructed basin that is hydrologically connected to the north-south oriented ditch that is located just west of the active railroad track. Vegetation in the wetland includes buttonbush (*Cephalanthus occidentalis*), and silky dogwood shrubs, along with common reed, purple loosestrife, and cattails.

The soils in Wetland F are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland F appears to have been a former ash settling basin and may contain ashy, mucky soils. Wetland F is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. This wetland is hydrologically connected to a ditch that is located immediately to the west of the railroad tracks. Wetland F is in poor general condition, is a created drainage ditch, and is degraded.

(7) Wetland G

Wetland G is a 0.33-acre, emergent and forested wetland that is located in a ditch west of Route 22, immediately west of the active railroad track. Portions of this wetland extend beyond the property boundaries. Vegetation in the northern portion of Wetland G includes black willow trees and saplings, silky dogwood shrubs, along with jewelweed, common reed, purple

loosestrife, and duckweed (*Lemna sp.*). The southern portion of the wetland appears to be less altered and vegetation includes. Red maple saplings, silky dogwood and arrowwood shrubs, poison ivy vines, along with royal fern, tussock sedge, cinnamon fern, jewelweed, and skunk cabbage. The southern portion of the wetland contains less common reed.

The soils in Wetland G are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland G is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. Wetland G is in poor general condition, is a ditch carrying drainage from Route 22, and is degraded.

(8) Wetland I

Wetland I is a 0.11-acre, emergent wetland that is located west of Route 22, between the two abandoned railroad spurs. Vegetation in the wetland includes red maple saplings, poison ivy and Virginia creeper vines, along with royal fern, sensitive fern, and skunk cabbage.

The soils in Wetland I are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland I is a depressional area that does not appear to pond water. Wetland I is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. This wetland is hydrologically isolated. Wetland I is in poor general condition, and is very degraded by debris.

(9) Wetland M

Wetland M is a very small (0.02 acre), emergent wetland that is located on the west side of the property, south of Wheeler road, and just west of Wetland N. Vegetation in Wetland M includes purple loosestrife, jewelweed, arrow-leaved tear-thumb, and mint (*Menthan sp.*).

The soil in Wetland M is mainly Wayland silt loam. Wayland silt loam is very deep to bedrock and poorly drained and very poorly drained. Wayland silt loam is formed in alluvium deposits on flood plains. Wetland M is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland drains east, underneath a dirt driveway, through a culvert, and into Wetland N.

Wetland M is in fair to good condition, but may receive runoff from the small, dirt, farm road that runs between Wetland M and Wetland N. In addition, some invasive plant species are present in the wetland. Moving the roadway away from the wetland (as currently proposed) as well as properly

managing any remaining road runoff near the wetland could improve the quality of this wetland.

(10) Wetland N

Wetland N is a 8.28-acre, emergent, forested, and scrub-shrub wetland that is located on the west side of the property, south of Wheeler road, just east of Wetland M, and west of Wetland E. Vegetation in Wetland N includes red maple trees and saplings, silky dogwood shrubs, along with common reed, purple loosestrife, sensitive fern, jewelweed, cinnamon fern, arrow-leaf tear-thumb, joe-pye-weed (*Eupatoriadelphus maculatus*), cattails, and skunk cabbage.

The soil in Wetland N is mainly Wayland silt loam. Wayland silt loam is very deep to bedrock and poorly drained and very poorly drained. Wayland silt loam is formed in alluvium deposits on flood plains. Wetland N is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland drains east underneath a dirt driveway, through a culvert, and into Wetland E.

Wetland N is in good general condition, especially toward the more central portions of the wetland. Wheeler Road, along with a small, dirt roadway that is located between Wetland M and Wetland N may contribute runoff to the wetland. Properly containing and managing road runoff from Wheeler road, as well as moving the dirt roadway (as proposed) could improve the quality of this wetland.

(11) Wetland O

Wetland O is a 0.54-acre, forested wetland that is located on the west side of the property, north of Wheeler road, and just east of the roadway that borders the western edge of Wetland D. Vegetation in Wetland O includes red maple, American elm, green ash, and cottonwood trees and saplings, spicebush, arrowwood, and maple-leaf viburnum (*Viburnum acerifolia*) shrubs, poison ivy vines, along with sensitive fern, jewelweed, jack-in-the-pulpit (*Arisaema triphyllum*), and skunk cabbage.

The soils in Wetland O are mainly Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland O is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. Wetland O is hydrologically isolated. Wetland O is in fair general condition, is somewhat degraded, and shows evidence of disturbance.

(12) Wetland Q

Wetland Q is a 2.48-acre, forested wetland that is located on the west side of the property, adjacent to the northern property boundary. Vegetation in Wetland Q includes red maple, American elm, green ash, yellow birch (*Betula alleghaniensis*), swamp white oak (*Quercus bicolor*), and ironwood trees and saplings, spicebush shrubs, along with sensitive fern, royal fern, jewelweed, and skunk cabbage.

The soil in Wetland Q is mainly Wayland silt loam. Wayland silt loam is very deep to bedrock and poorly drained and very poorly drained. This soil is formed in alluvium deposits on flood plains. Wetland Q is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. Wetland Q begins off-site to the north of Route 21. This wetland drains south underneath a dirt driveway, through culverts, and into Wetland R.

Wetland Q is in fair general condition. The wetland is in the location of former gravel pits, so the evidence of disturbance is apparent. In addition, a small, dirt roadway that is located between Wetland Q and Wetland R may contribute runoff to the wetland. Properly containing and managing road runoff from the dirt roadway could improve the quality of this wetland.

(13) Wetland R

Wetland R is a 0.19-acre, forested wetland that is located on the west side of the property, southeast of Wetland Q. Vegetation in Wetland R includes red maple, American elm, and swamp white oak trees and saplings, spicebush shrubs, along with poison ivy.

The soil in Wetland R is mainly Wayland silt loam. Wayland silt loam is very deep to bedrock and poorly drained and very poorly drained. This soil is formed in alluvium deposits on flood plains. Wetland R is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands and Wetland Q. Wetland Q is connected to Wetland R via two culverts underneath a dirt road.

Wetland R is in fair general condition. The wetland is in the location of former gravel pits, so the evidence of disturbance is apparent. In addition, a small, dirt roadway that is located between Wetland Q and Wetland R may contribute runoff to the wetland. Properly containing and managing road runoff from the dirt roadway could improve the quality of this wetland.

(14) Wetland S

Wetland S is a 0.25-acre, open water and emergent wetland that is located in the center of the northwest portion of the property. This wetland appears to

be an old, created farm pond. Vegetation around the perimeter of the ponded area includes purple loosestrife, cattails, and clearweed.

Wetland S consists mainly of open water. The soils in Wetland S are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland S is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland is hydrologically isolated.

Wetland S appears to be in fair to poor condition, based on the proximity of the agricultural fields to this created pond. This pond likely receives inputs of fertilizers and other runoff from the field, and is isolated from other, larger wetlands. Areas near the wetland are encroached by a dirt roadway around the field. This pond is proposed to be located with the new areas of the golf course. Proper control and treatment of runoff and fertilizers into the wetland could help improve the quality of the pond.

(15) Wetland T

Wetland T is a 5.39-acre, emergent and scrub-shrub wetland that is located on the west side of the property, adjacent to the northern property boundary, and west of Wetland Q and Wetland R. This wetland was identified as a fen by Hudsonia Ltd. during their site assessment. Vegetation in Wetland T includes red maple, American elm, cottonwood, green ash, and bebb willow trees and saplings, red-osier dogwood (*Cornus stolonifera*), and silky dogwood (*Cornus amomum*) shrubs, along with purple loosestrife, tussock sedge, and sensitive fern.

The soil in Wetland T is mainly Halsey mucky silt loam. This soil is very deep to bedrock and is poorly drained and very poorly drained. Halsey mucky silt loam is formed in depressions and drainageways on glacial outwash plains. Wetland T is predominantly sustained by interception of the seasonally-high, regional groundwater table. Wetland T begins off-site to the north of Route 21.

Wetland T is in good general condition, especially toward the more central portions of the wetland, near the stream. Route 21 may contribute runoff to the wetland. Properly containing and managing road runoff from Route 21 could improve the quality of this wetland.

Upland Vegetation Near Wetland T

Forested upland vegetation near Wetland T includes red maple, sugar maple, eastern red cedar, green ash, elm, and black cherry trees and saplings, poison ivy vines, along with Christmas fern (*Polystichum acrostichoides*).

(16) Wetland U

Wetland U is a 18.88-acre, forested and emergent wetland that is located on the east side of the property, adjacent to Route 22. Wetland U contains some ponded areas, and also includes a section of a small drainage channel that flows under Route 22. Vegetation in Wetland U includes red maple, American elm, black willow, cottonwood, green ash, and ironwood trees and saplings, silky dogwood, maple-leaf viburnum (*Viburnum acerifolium*), and spicebush shrubs, along with common reed, purple loosestrife, sensitive fern, skunk cabbage, jewelweed, green bulrush (*Scirpus atrovirens*), and clearweed.

The soils in Wetland U are mainly Wayland silt loam and Udorthents, wet substratum. Wayland silt loam is very deep to bedrock and poorly drained and very poorly drained. This soil is formed in alluvium deposits on flood plains. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland U is predominantly sustained by interception of the seasonally-high, regional groundwater table. The wetland also receives some runoff from the surrounding uplands. Wetland U begins off-site to the north. A portion of this wetland drains west underneath Route 22.

Wetland U is in poor to fair general condition. Much of the wetland shows signs of alteration, including areas of debris, old foundations, and unnatural topography. Route 22 is adjacent to virtually the entire western boundary of this wetland, and the road contributes runoff to the wetland. Properly containing and managing road runoff from Route 21 could improve the quality of this wetland, as could enhancement of almost any section of the wetland or wetland adjacent area.

Upland Vegetation Near Wetland U

Forested upland vegetation near Wetland U includes black locust, cottonwood, Norway maple (*Acer platanoides*), black cherry, and black spruce (*Picea mariana*) trees and saplings, Japanese barberry, multiflora rose, Tartarian honeysuckle (*Lonicera tartarica*), and winged euonymous (*Euonymous alatus*) shrubs, poison ivy, grape, Asiatic bittersweet, and Virginia creeper vines, along with garlic mustard.

(17) Wetland V

Wetland V is a 0.03-acre, forested wetland pocket that is located within an upland area that is surrounded by Wetland U. Vegetation in Wetland V includes black willow, and green ash trees and saplings, silky dogwood shrubs, along with some common reed.

The soils in Wetland V are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting

and/or filling. Wetland V is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland is hydrologically isolated. Wetland V is in fair condition, and shows evidence of disturbance as seen in Wetland U.

(18) Wetland W

Wetland W is a 0.24-acre, forested, emergent, and scrub shrub wetland that is located within a drainage channel on the east side of the property, north of Wheeler Road. Vegetation in Wetland W includes bebb willow, green ash, American elm, black willow, and weeping willow trees and saplings, and some red-osier dogwood shrubs.

The soils in Wetland W are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland W is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Flow in this wetland is from southeast to northwest. This wetland is hydrologically connected to Wetland U and Wetland X. Wetland W is in poor general condition, is a created drainage ditch, and is very degraded.

(19) Wetland X

Wetland X is a 0.05-acre, forested, emergent, and scrub-shrub wetland that is located within a drainage channel on the east side of the property, north of Wheeler Road. Vegetation in Wetland X includes sycamore (*Platanus occidentalis*), and American elm trees and saplings, silky dogwood shrubs, along with some common reed.

The soils in Wetland X are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland X is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Flow in this wetland is from east to west. This wetland is hydrologically connected to Wetland W and Wetland Y. Wetland X is in poor general condition, is a created drainage ditch, and is very degraded.

(20) Wetland Y

Wetland Y is a 0.10-acre, forested, emergent, and scrub-shrub wetland that is located within a drainage channel on the east side of the property, north of Wheeler Road. Vegetation in Wetland Y is similar to that found in Wetland X. In addition, Wetland Y also includes cottonwood and purple loosestrife.

The soils in Wetland Y are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland Y is predominantly sustained by interception of the

seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Flow in this wetland is from east to west. This wetland is hydrologically connected to Wetland X and Wetland Z. Wetland Y is in poor general condition, is a created drainage ditch, and is very degraded.

(21) Wetland Z

Wetland Z is a less than 0.01-acre, emergent wetland that is located within a drainage channel on the east side of the property, north of Wheeler Road. Wetland Z is sparsely vegetated with raspberry shrubs, grape vines, and purple loosestrife.

The soils in Wetland Z are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland Z is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Flow in this wetland is from east to west. This wetland is hydrologically connected to Wetland Y and the unflagged wetlands to the southwest. Wetland Z is in poor general condition, is a created drainage ditch, and is very degraded.

(22) Wetland AA

Wetland AA is a 0.09-acre, forested wetland that is located within a stream channel on the east side of the property, just east of the hospital access road. Vegetation in Wetland AA includes American elm, sycamore, and black willow trees and saplings, along with some common reed and jewelweed.

The soil in Wetland AA consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland AA is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Flow in this wetland is from southeast to northwest. This wetland is hydrologically connected to Wetland BB. Wetland AA is also connected to Wetland DD, which carries the outflow from the reservoir, via a long, underground culvert.

Wetland AA is in good condition, though it receives inflow from a large culvert that was installed to contain the natural flow of the stream above. A paved roadway is currently located near the outflow from the wetland and the road may contribute runoff to the wetland. Moving the roadway away from the wetland (as currently proposed) as well as properly managing any remaining road runoff near the wetland could improve the quality of this wetland.

Upland Vegetation near Wetland AA

Forested upland vegetation near Wetland AA includes black cherry, black locust, cottonwood, Norway maple, and sugar maple trees and saplings, Japanese barberry, Tartarian honeysuckle, and wineberry shrubs, and grape vines.

(23) Wetland BB

Wetland BB is a 0.04-acre, forested wetland that is located within a drainage channel on the east side of the property, east of Hutchinson Avenue, and west of the hospital access road. Vegetation in Wetland BB includes American elm, sycamore, sugar maple, and cottonwood trees and saplings. Very little vegetation was identified within the stream.

The soil in Wetland BB consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland BB is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Flow in this wetland is from southeast to northwest. This wetland is hydrologically connected to Wetland AA and the unflagged wetlands.

Wetland BB is in fair general condition. This wetland is a disturbed, created drainage channel that is located near a paved roadway that may contribute runoff to the wetland. Moving the roadway away from the wetland (as currently proposed) as well as properly managing any remaining road runoff near the wetland could improve the quality of this wetland.

Unflagged Wetlands near Wetland BB

The three, small (0.05 acres total) sections of unflagged drainage channel are located northwest of Wetland BB, and southeast of Wetland Z. Little vegetation was identified in the drainage channel.

The soils in the unflagged wetlands are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. The unflagged wetlands are predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Flow in these wetlands is from southeast to northwest. These wetlands are hydrologically connected to Wetland BB and Wetland Z. The unflagged wetlands are in poor general condition, are created drainage ditches, and are very degraded.

(24) Wetland CC

Wetland CC is a 0.37-acre, forested wetland that is located east of Hutchinson Avenue, adjacent to, and just south of, the out parcel. Vegetation in Wetland CC includes black willow, and green ash trees and saplings, silky

dogwood shrubs, along with common reed, purple loosestrife, and some skunk cabbage.

The soil in Wetland CC consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland CC is predominantly sustained by interception of the seasonally-high, regional groundwater table. Outflow from this wetland, when present, flows through a culvert, underneath Hutchinson Avenue, and down an intermittent drainage channel within Wetland U.

Wetland CC is in fair general condition. This seepy, hillside wetland receives runoff from a dirt roadway that is located nearby, as well as from a neighboring parking lot. The wetland shows evidence of disturbance, including encroachment by the neighboring parking lot and nearby road, along with the historical burying of the outflow from the wetland.

Upland Vegetation near Wetland CC

Forested upland vegetation near Wetland CC includes black locust, red maple, and Norway maple trees and saplings, autumn olive (*Elaeagnus umbellata*), raspberry, Tartarian honeysuckle, and multiflora rose shrubs, Asiatic bittersweet vines, and goldenrod.

(25) Wetland DD

Wetland DD is a 0.98-acre, forested wetland that is located on the east side of the property, in the ravine below the reservoir. This wetland contains a stream that is the outflow of the reservoir. Vegetation in Wetland DD includes American elm, red maple, cottonwood, sycamore, and ironwood trees and saplings, silky dogwood, and spicebush shrubs, along with skunk cabbage, and some northern maiden-hair fern (*Adiantum pedatum*).

The soil in Wetland DD consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland DD is predominantly sustained by interception of the seasonally-high, regional groundwater table, along with outflow from the reservoir. Outflow from this wetland flows through a long, underground culvert, and into Wetland AA.

Wetland DD is in very good general condition and shows little evidence of degradation or disturbance. The wetland receives some runoff from nearby roadways above the wetland. Improvements to better capture or diffuse the current runoff from the roads could help improve the quality of the wetland.

Upland Vegetation near Wetland DD

Vegetation in the forested uplands near Wetland DD includes tulip-tree, cottonwood, black birch, sugar maple, red maple, red oak, white oak, and American beech trees and saplings, some Japanese barberry shrubs, along with Christmas fern.

(26) Wetland FF

Wetland FF is a 0.03-acre, forested wetland that is located on the east side of the property, south of Wetland DD. This wetland contains a portion of a northwest-flowing stream that begins off site to the southeast. Little vegetation was noted in the wetland.

The soil in Wetland FF consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland FF is predominantly sustained by interception of the seasonally-high, regional groundwater table, along with outflow from Wetland OO. Outflow from this wetland flows through a rock-covered culvert and into Wetland DD.

Wetland FF is in good general condition, although it receives runoff from nearby roadways. Improvements to better capture or diffuse the current runoff from the roads could help improve the quality of the wetland.

(27) Wetland GG

Wetland GG is a 12.33-acre, forested, scrub-shrub, and emergent wetland that contains a reservoir. This wetland is located in the southeast corner of the property. Vegetation in Wetland GG includes red maple, green ash, American elm, cottonwood, and ironwood trees and saplings, spicebush, and high-bush blueberry shrubs, along with skunk cabbage.

Wetland GG contains mainly open water. The soil in Wetland GG consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland GG is predominantly sustained by interception of the seasonally-high, regional groundwater table, along with outflow from upgradient streams and wetlands. Outflow from the reservoir flows into Wetland DD.

Wetland GG is in good general condition, although it receives some runoff from nearby dirt roadways. Improvements to direct runoff and sediment away from the reservoir could help improve the quality of the wetland.

Upland Vegetation near Wetland GG

Vegetation in the forested uplands near Wetland GG includes tulip-tree, sugar maple, red maple, black cherry, black birch, white oak, pignut hickory,

tamarack (*Larix laricina*), white pine (*Pinus strobus*), cottonwood, witch hazel (*Hamamelis virginiana*), American beech, and black locust (many dead) trees and saplings, wineberry, Tartarian honeysuckle, Japanese barberry, and mountain laurel (*Kalmia latifolia*) shrubs, along with Christmas fern.

(28) Wetland HH

Wetland HH is a 0.11-acre, emergent and scrub-shrub wetland. This wetland is a small, road-side drainage ditch that is located along the east side of a portion of Hutchinson Avenue. Vegetation in Wetland HH includes black willow saplings, silky dogwood and red-osier dogwood shrubs, along with common reed, and purple loosestrife.

The soils in Wetland HH are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland HH is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Wetland HH may be hydrologically connected to Wetland II via a culvert underneath Hutchinson Avenue. Wetland HH is in poor general condition, is a road-side drainage ditch, and is very degraded.

(29) Wetland II

Wetland II is a 0.03-acre, emergent wetland. This wetland is a small, road-side drainage ditch that is located across Hutchinson Avenue from Wetland HH. Vegetation in Wetland II includes common reed, and purple loosestrife.

The soils in Wetland II are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland II is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as by runoff from surrounding areas. Wetland II may be hydrologically connected to Wetland HH and Wetland U via culverts. Wetland II is in poor general condition, is a road-side drainage ditch, and is very degraded.

(30) Wetland JJ

Wetland JJ is a 1.20-acre, emergent wetland. This wetland is located in the center of the walking track that is located just east of Route 22 and north of Wheeler Road. Vegetation in Wetland JJ consists mainly of mowed grasses (hydric lawn) and sedges.

The soils in Wetland JJ are Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland JJ is predominantly sustained by interception of the seasonally-high, regional groundwater table. Outflow from the wetland,

when present, flows through a drain in the northwest corner of the wetland, through an underground culvert, and into Wetland U.

Wetland JJ is in fair general condition, due to its location within the center of a walking track, which also indicates a history of disturbance and degradation. Currently, intermittent outflow from Wetland JJ is the only connect the wetland has to another wetland (Wetland U) via a small culvert. Reclaiming the surrounding track and reconnecting Wetland JJ to Wetland U (as proposed) will improve the quality of both wetlands.

(31) Wetland KK and Wetland LL

Wetland KK is a 1.77-acre, forested, and scrub-shrub wetland that is located on the northeast property boundary. Wetland LL is a 1.97-acre forested, scrub-shrub, and emergent wetland that is also located on the northeast property boundary. Both of these wetlands are part of a much larger wetland that begins off site to the north. Vegetation in Wetland KK and Wetland LL includes red maple, green ash, and American elm trees and saplings, spicebush, and silky dogwood shrubs, poison ivy vines, along with skunk cabbage, sensitive fern, cattails, and common reed.

The soil in Wetland KK and Wetland LL consists mainly of Wayland silt loam. Wayland silt loam is very deep to bedrock and poorly drained and very poorly drained. This soil is formed in alluvium deposits on flood plains. Both wetlands are predominantly sustained by interception of the seasonally-high, regional groundwater table. Wetland LL also receives runoff from Wetland MM. Mainly off site, outflow from the wetland flows through a culvert underneath Hutchinson Avenue, and into Wetland U.

Wetland KK and Wetland LL are in good general condition. Wetland LL is located near Hutchinson Avenue and likely receives runoff from the road. Currently, there is no on-site development located upgradient from the wetlands.

(32) Wetland MM

Wetland MM is a 0.46-acre, forested, scrub-shrub, and emergent wetland that is located on the east side of the property, south of Wetland LL. This wetland consists of two drainage channels that flow to the south, connect, then flow through a small culvert and into Wetland LL. Vegetation in Wetland MM includes green ash, American elm, and black willow trees and saplings, and silky dogwood shrubs, with small areas of sedges and soft rush (*Juncus effusus*).

The soil in Wetland MM consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till.

Wetland MM is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland is hydrologically connected to Wetland LL. Wetland MM is in fair general condition. The wetland contains disturbed, somewhat degraded, drainage channels.

Upland Vegetation near Wetland KK, Wetland LL, and Wetland MM

Vegetation in the uplands near Wetland KK, Wetland LL, and Wetland MM includes red maple, green ash, and black locust trees and saplings, autumn olive, Tartarian honeysuckle, winged euonymous, multiflora rose, Japanese barberry, and raspberry shrubs, grape, Asiatic bittersweet, and some mile-a-minute vines, along with Christmas fern, and garlic mustard.

(33) Wetland NN

Wetland NN is a 0.07-acre, forested, and emergent wetland that is located on the east side of the property, south of Wetland MM. This wetland consists of a disturbed area containing a small foundation that was filled with water and muck. Wetland NN contains mainly invasive plant species in hydric soils. Vegetation in Wetland NN includes green ash trees and saplings, wineberry, multiflora rose, and Japanese barberry shrubs, along with common reed, and garlic mustard.

The soil in Wetland NN consists of Udorthents, wet substratum. Udorthents, wet substratum are wetland soils that have been altered in the past by cutting and/or filling. Wetland NN is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland is hydrologically isolated. Wetland NN is in poor general condition, and is highly disturbed and degraded.

(34) Wetland OO

Wetland OO is a 0.16-acre, forested wetland that is located on the east side of the property, on the south-central property boundary. This wetland consists of a drainage channel that is located to the south of the south of the reservoir access road. Vegetation in Wetland OO includes a large sycamore tree, spicebush shrubs, along with cinnamon fern.

The soil in Wetland OO consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland OO is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as from runoff from surrounding upland areas. This wetland is hydrologically connected to Wetland FF via a culvert underneath the reservoir access road. Wetland OO is in good general condition and shows little evidence of degradation or disturbance, though the wetland may receive some runoff from a nearby roadway.

(35) Wetland QQ

Wetland QQ is a 0.49-acre, forested wetland that is located on the east side of the property, north of the reservoir. Vegetation in Wetland QQ includes red maple, and American elm trees and saplings, spicebush shrubs, along with skunk cabbage.

The soil in Wetland QQ consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland QQ is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland is hydrologically connected to the reservoir via a culvert underneath the reservoir access road.

Wetland QQ is in good general condition, although it receives some runoff from the gravel road at the lower portion of the wetland. Improvements to direct runoff and sediment away from the wetland could help improve its quality.

(36) Wetland RR

Wetland RR is a 0.52-acre, forested wetland that is located on the east side of the property, south of the reservoir. This wetland consists of two intermittent watercourses that begin off site to the south and flow to the north and northwest. Vegetation in Wetland RR includes red maple, and American elm trees and saplings, spicebush shrubs, along with skunk cabbage.

The soil in Wetland RR consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland RR is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as from runoff from surrounding upland areas. This wetland is hydrologically connected to the reservoir via a culvert underneath the reservoir access road. Wetland RR is in poor to fair general condition, as a significant portion of the wetland consists of a roadside ditch.

(37) Wetland TT

Wetland TT is a 0.30-acre, forested wetland that is located on the east side of the property, on the southern property boundary between Wetland ZZ and Wetland UU. Vegetation in Wetland TT includes red maple, American elm, and ironwood trees and saplings, and spicebush shrubs.

The soil in Wetland TT consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland TT is predominantly sustained by interception of the seasonally-

high, regional groundwater table. This wetland is hydrologically isolated. Wetland TT is in fair general condition, as it receives some runoff from the nearby dirt roadway.

(38) Wetland UU

Wetland UU is a 0.25-acre, forested wetland that is located on the east side of the property, south of Wetland VV. This wetland consists of an intermittent watercourse that begin off site to the south and flows to the north. Vegetation in Wetland UU includes red maple, American elm, and ironwood trees and saplings, spicebush and multiflora rose shrubs.

The soil in Wetland UU consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland UU is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as from runoff from surrounding upland areas. This wetland is hydrologically connected to Wetland VV via a culvert underneath a dirt road. Wetland UU is in fair general condition, and it may receive some runoff from a nearby dirt roadway.

(39) Wetland VV

Wetland VV is a 14.15-acre, emergent, scrub-shrub, and forested wetland that is located on the east side of the property, east of the reservoir. This wetland consists of an inundated beaver pond that is surrounded by forested areas. Vegetation in Wetland VV includes red maple, American elm, green ash, and ironwood trees and saplings, spicebush, high-bush blueberry, and winterberry (*Ilex verticillata*) shrubs, along with sensitive fern, and skunk cabbage.

The soil in Wetland VV consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland VV is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland is hydrologically connected to the reservoir via a culvert underneath a dirt road.

Wetland VV is in very good general condition, especially toward the more central portions of the wetland. Encroachment by nearby dirt roadways, along with their input of sediment and runoff may have caused some degradation of the wetland. In addition, the creation of the reservoir indicates that this wetland has a history of disturbance.

(40) Wetland YY

Wetland YY is a 4.17-acre, forested wetland that is located on the east side of the property, adjacent to the eastern-most property boundary. This

wetland drains off site to the east, where it continues. Vegetation in Wetland YY includes red maple, American elm, green ash, cottonwood, yellow birch, and ironwood trees and saplings, spicebush and high-bush blueberry shrubs, along with skunk cabbage and some tussock sedge.

The soil in Wetland YY consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland YY is predominantly sustained by interception of the seasonally-high, regional groundwater table, as well as from runoff from surrounding upland areas. This wetland is not hydrologically connected to any of the other wetlands on the property.

Wetland YY is in fair to good general condition. Portions of the wetland have been altered and disturbed, by vehicular crossings, un-natural topography, as well as inputs from sediment and roadway drainage.

Upland Vegetation near Wetland YY

Vegetation in the uplands near Wetland YY includes shag-bark hickory, black birch, sugar maple, tulip-tree, red maple, black locust, black cherry, and some striped maple (*Acer pennsylvanicum*) trees and saplings, multiflora rose, and some Japanese barberry shrubs, poison ivy, Asiatic bittersweet, and grape vines, along with Christmas fern.

(41) Wetland ZZ

Wetland ZZ is a 0.05-acre, forested wetland that is located on the east side of the property, between Wetland RR and Wetland UU, and adjacent to the southern property boundary. Vegetation in Wetland ZZ includes some red maple trees and saplings, and spicebush shrubs.

The soil in Wetland ZZ consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland ZZ is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland is hydrologically isolated.

Wetland ZZ is in poor to fair general condition, as it receives runoff from the nearby dirt roadway. Improvements to direct runoff and sediment away from the wetland could improve its quality, however in doing so, a source of hydrology may be disturbed.

(42) Wetland BBB

Wetland BBB is a 0.24-acre, forested, scrub-shrub, and emergent wetland that straddles the eastern property boundary, to the north of the reservoir. This wetland continues off site to the east. Wetland BBB is a classic vernal

pool. Vegetation in Wetland BBB includes red maple, and ironwood trees and saplings, spicebush and high-bush blueberry shrubs, along with tussock sedge and sphagnum hummocks.

The soil in Wetland BBB consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland BBB is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland had an intermittent outlet, however, it is not hydrologically connected to any of the other wetlands on the property.

Wetland BBB is in excellent general condition and represents an excellent example of a classic vernal pool. There is currently no on-site development in this area, and none is proposed.

(43) Wetland CCC

Wetland CCC is a 0.05-acre, open-water wetland pond that is located immediately west of Wetland YY. This wetland continues off site to the north. No vegetation was visible in Wetland CCC on the day of the delineation.

Wetland CCC consists mainly of open water. The soil in Wetland CCC consists mainly of Sun silt loam. This soil is very deep to bedrock, and poorly drained and very poorly drained. Sun silt loam is found in depressions and along drainageways in areas of glacial till. Wetland CCC is predominantly sustained by interception of the seasonally-high, regional groundwater table. This wetland may connect to larger, off-site wetlands.

Wetland CCC is in good general condition. Portions of the wetland have been altered, as evidenced by the creation of the ponded area. There is currently no on-site development in this area, and none is proposed.

3. Potential Impacts

The proposed impacts to ACOE and DEC-regulated wetlands were calculated by Divney Tung Schwalbe, LLP. These impacts are summarized in Table III.E-4. Some of the wetland impacts have been grouped together based on the wetlands in which they are located. The proposed impacts to the DEC-regulated 100-foot adjacent area are summarized in Table III.E-4. The adjacent area impacts have also been grouped together based on the wetland or wetlands nearest the proposed adjacent area impact. The impacts are discussed following each of the tables. Please see Exhibit III.E-2, Proposed Wetland and Adjacent Area Impacts Map, for the locations of all proposed impacts.

**Table III.E-4
Proposed ACOE and DEC-Regulated Wetland Impacts**

Wetland(s) or Wetland Portion	DEC Impacts (square feet)	ACOE Impacts (square feet)
B, and C	12266	12266
D	56896	56896
D, E, F, G, and I	704	19103
E	1796	1796
O, and D	735	10994
Q, and R	235	235
U, W, X, Y, Z, AA, and BB	--	24461
U, and CC	--	17132
HH	--	1129
LL, and MM	--	21680
QQ	--	6832
Total	72632 square feet	172524 square feet
	1.67 acres	3.96 acres
Total Proposed Wetland Impacts (to all regulated wetlands): 172525 square feet (3.96 acres)		

Note: slight mathematical discrepancies are due to the rounding of numbers

a. Proposed Wetland Impacts

Proposed wetland impacts total 3.96 acres, which consists of 2.1 percent of the total wetlands on the Site (\pm 185 acres), and 0.4 percent of the entire property. The majority of the proposed wetland impacts on the west side of the property are due to the construction or expansion of parking lots, along with the widening of existing roadways. Other proposed impacts are due to the construction of stormwater basin outlets, and residences. The majority of the proposed impacts have been minimized by limiting wetland crossings to existing roadways and pulling the vast majority of the development activities out of the wetlands. Proposed impacts to the east side of the property are due to construction of or improvements to buildings and roadways. Several of the wetlands that are located among the existing hospital buildings and roadways have already been confined to constructed, open channels. Proposed impacts on the east side of the property have been minimized by avoiding all impacts to DEC wetlands. In addition, many of the proposed activities will occur in areas that currently consist of the existing buildings, parking lots, and roadways that are associated with the former HVPC.

All of the proposed impacts will result in the loss of a small amount (about two percent) of the wetland habitat on the property. In addition, the wetland crossings potentially could result in the alteration of the hydrology of the wetlands by impeding flow between the different sections of the wetlands. The roads across, and around, the wetlands could also potentially impact the movement of amphibians and other wildlife that may be utilizing the wetlands. Wetland impacts during construction include potential for increased sedimentation in the wetlands. Mitigation for the proposed impacts includes creating additional wetland habitat on the property. Wetland mitigation is further discussed in the Mitigation Measures section.

**Table III.E-5
Proposed DEC Wetland Adjacent Area Impacts**

Wetland Buffer Portion	Proposed Wetland Adjacent Area Impact (square feet)
Wetland B	7455
Wetland B and C	19128
Wetland C	1029
Wetland D	123855
Wetland D and E	81547
Wetland E	53151
Wetland M	895
Wetland N	3299
Wetland N and B	28938
Wetland N and E	19141
Wetland Q and R	19383
Wetland T	939
Wetland U	4131
Wetland U and LL	5835
Wetland GG	529
Wetland KK	8425
Wetland LL	17382
Wetland VV	1193
Total	396257 square feet
	9.10 acres

Note: slight mathematic discrepancies are due to the rounding of numbers

b. *Proposed DEC Wetland Adjacent Area Impacts*

Proposed DEC wetland adjacent area impacts total 9.10 acres. The majority of the proposed wetland adjacent area impacts on the property are due to the construction or expansion of parking lots, along with the widening or relocation of existing roadways. Other proposed smaller impacts are due to the construction of portions of two stormwater basins, and other minor grading activities. Only 0.86 acres of adjacent area impact are proposed for the east side. Wetland adjacent-area mitigation is further discussed in the Mitigation Measures section.

“A Rapid Procedure for Assessing Wetland Functional Capacity based on Hydrogeomorphic (HGM) Classification” (Magee and Hollands, 1998) was used in the functional assessments of the wetlands on the Site. The functions and relative values of freshwater wetlands are determined by biological and physical characteristics, including the position of the wetland in the landscape, the geology and hydrology of the Site, and the substrate and vegetation comprising the wetland. Wetland inventory data were collected during the field visits by Evans Associates. The wetland inventory data sheets are included in the Appendix. The functions assessed by the model include: 1) modification of groundwater discharge, 2) modification of groundwater recharge, 3) storm and floodwater storage, 4) modification of stream flow, 5) modification of water quality, 6) export of detritus, 7) contribution to abundance and diversity of wetland vegetation and, 8) contribution to abundance and diversity of wetland fauna.

Wetlands on the Site that function together were grouped together for functional assessment evaluation. The wetlands were assigned a hydrogeomorphic classification based on the type that best represents the majority of the wetland or wetlands. For example, if a wetland or group of wetlands contain a majority of slope wetlands, but also have some minor depressional areas, the slope classification would be used. The model scores for each of the wetlands or wetland groups are summarized in Tables III.E-6 through III.E-28, the functions and values of each of the wetlands and wetland groups are discussed following the tables.

The model scores provide relatively good guidance for describing functions that a particular wetland may perform. However, the model has limitations because the model scores only indicate whether the wetland has the potential to perform a function, not the magnitude at which the wetland will perform that function. For example, a very small, isolated, depressional wetland will receive the highest score for the storm and flood water storage function, but will have little capacity and/or opportunity to actually perform this function. Therefore, the numerical scores that are produced by the model should not be just taken at face value, but should be viewed in terms of the overall capability of the wetland to actually perform the functions assessed by the model.

- (1) Wetland A

**Table III.E-6
Wetland Functional Model Scores - Wetland A**

Wetland ID: Wetland A HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	18	3-18
Modification of Ground Water Recharge	NA	4-21
Storm and Flood-Water Storage	19	4-27
Modification of Stream Flow	9	1-9
Modification of Water Quality	16	4-18
Export of Detritus	13	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	11	2-15
Contribution to Abundance and Diversity of Wetland Fauna	25	4-36

* Wetlands are regulated by the DEC and ACOE
NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands with intermittent outlets are typically areas of groundwater discharge. Also, because springs were present, Wetland A received the highest score for this function. During periods of drought, however, portions of this wetland may temporarily act as groundwater recharge areas.

Modification of Groundwater Recharge

As discussed above, depressional wetlands with intermittent outlets typically are areas of groundwater discharge, not recharge areas. Wetland A is primarily an area of groundwater discharge but during periods of drought, portions of this wetland system may temporarily act as groundwater recharge areas. Because the presence of seeps is an indicator of dysfunction, this wetland received a “Not Applicable” rating for this function, which accurately represents Wetland A the majority of the time.

Storm and Floodwater Storage

Wetland A receives hydrologic mainly as groundwater discharge, with some runoff. The depressional shape of Wetland A, along with seasonal flooding and high vegetation density allow the wetland to detain floodwaters prior to discharge. Accordingly, Wetland A received a moderately-high score for this function.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetland A received high scores for those variables, it also received a high score for this function. Groundwater discharge into Wetland A may provide base flow for the small stream that flows off-site to the southeast. This ground water discharge ultimately contributes to the base flow component of the Swamp River.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland A has characteristics that are conducive to the retention of particulates, such as the ability to store storm and floodwaters, a continuous, forested cover, and low-intensity land use. Accordingly, Wetland A received a high score for this function.

Export of Detritus

The dense vegetation within Wetland A along with the seasonal flooding and mineral soil provides ample opportunity for the export of detritus from this wetland. Accordingly, Wetland A received a high score for the export of detritus function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland A has a high vegetation density, medium vegetation diversity, and is connected below to another wetland. The relatively flat topography in portions of Wetland A allows it to trap water and retain it over a long enough period of time to support obligate wetland plants such as tussock sedge and skunk cabbage. Accordingly, Wetland A received a high score for this function and has potential for above average contribution to the abundance and diversity of wetland vegetation function.

Contribution to Abundance and Diversity of Wetland Fauna

The presence of persistent wetness for a period throughout the year sufficient to maintain the plants that provide food and cover to wetland animals, as well as the standing water that is required by some species, is correlated with the capacity of the wetland to trap and retain water. The seasonal ponding of water in Wetland A may provide breeding habitat for amphibians. This capacity along with the diversity and distribution of wetland vegetation contributed to Wetland A receiving an above-average score for this function.

Special/Pre-emptive Variables

Because Wetland A is ACOE and DEC regulated, it received a positive result for this variable.

(2) Wetlands B, and C

Wetlands B, and C function together and are separated by a culvert underneath a small, dirt driveway.

**Table III.E-7
Wetland Functional Model Scores - Wetlands B, and C**

Wetland ID: Wetlands B, and C HGM Type: Slope wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	2 - 15
Modification of Ground Water Recharge	NA	
Storm and Flood-Water Storage	15	4 - 21
Modification of Stream Flow	9	1 - 9
Modification of Water Quality	12	3 - 15
Export of Detritus	12	4 - 15
Contribution to Abundance and Diversity of Wetland Vegetation	11	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	22	4 - 33

* Wetlands are regulated by the DEC and ACOE

NA - Not Applicable

Modification of Groundwater Discharge

Slope wetlands are areas of groundwater discharge. The seepage that was observed in Wetlands B, and C verify that they are areas of groundwater discharge. Accordingly, the wetland received the highest score for this function.

Modification of Groundwater Recharge

Seeps were observed in the upper portions of Wetlands B, and C. Because seeps are considered an indicator of dysfunction, these wetlands are not considered capable of modifying groundwater recharge. Accordingly, they received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Slope wetlands typically do not provide for storm and floodwater storage. Wetlands B, and C received a high score for this function, however, because they have a restricted outlet, a low gradient, and high vegetation density.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetlands B, and C received high scores for those variables, they also received a high score for this function. Groundwater discharge into Wetlands B, and C may provide base flow for the small stream that flows through the wetlands and underneath Wheeler Road into Wetland E. This ground water discharge ultimately contributes to the base flow component of the Swamp River.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetlands B, and C received a high score for this function because it has characteristics conducive to the retention of particulates, such as having a restricted outlet, continuous cover.

Export of Detritus

The dense vegetation within Wetlands B, and C, along with the seasonal flooding and mineral soil provides ample opportunity for the export of detritus from these wetlands. Accordingly, the wetlands received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil or standing water. This encourages the development of plant communities that are more suited to a variety of moisture conditions rather than characteristic wetland species. Wetlands B, and C received an above-average score for this function based on their high vegetation density, medium vegetation diversity, and their connection below to another wetland. Some areas within the wetlands, especially near the stream, will be better able than others to support wetland vegetation.

Contribution to Abundance and Diversity of Wetland Fauna

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil, standing water, or characteristic wetland vegetation. This discourages the development of faunal communities that are suited to characteristic wetland habitats. Wetlands B, and C contain wetter areas which may be better able to support wetland fauna. Overall, however, the wetlands are not ideally suited to support faunal communities that are reliant on sustained wet conditions. Wetlands B, and C received a moderate score for this function.

Special/pre-emptive Variables

Because the wetlands are ACOE and DEC regulated, they received a positive result for this variable.

(3) Wetlands D, E, F, and G

Wetlands D, E, F, and G function together and consist of a portion of the Swamp River (Wetland D and Wetland E) along with associated drainage channels (Wetland F and Wetland G).

**Table III.E-8
Wetland Functional Model Scores - Wetlands D, E, F, and G**

Wetland ID: Wetlands D, E, F, and G HGM Type: Riverine wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	3 - 15
Modification of Ground Water Recharge	NA	4 - 18
Storm and Flood-Water Storage	16	3 - 24
Modification of Stream Flow	9	1 - 9
Modification of Water Quality	12	2 - 12
Export of Detritus	6	3 - 12
Contribution to Abundance and Diversity of Wetland Vegetation	11	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	29	4 - 36

* Wetlands are regulated by the ACOE and/or the DEC

NA - Not Applicable

Modification of Groundwater Discharge

The wetlands are areas of groundwater discharge. The seeps that were observed in the wetlands verify that they are areas of groundwater discharge. Accordingly, the wetlands received the highest score for the modification of groundwater discharge function.

Modification of Groundwater Recharge

The wetlands are areas of groundwater discharge, and are not capable of performing the groundwater recharge function. Therefore, the wetlands accurately received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

The wetlands surrounding and within the Swamp River are relatively large, have a low gradient, and are therefore capable of storing storm and floodwater runoff. Limiting factors include a perennial and unrestricted outlet, along with poorly-developed microrelief. Although the wetlands

received a moderately-high score for this function, the extensive floodplain has a high capacity to store storm and flood waters.

Modification of Stream Flow

Groundwater discharge into the wetlands provides base flow for the Swamp River. Accordingly, the wetlands received the highest score for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. The wetlands have characteristics that are conducive to the retention of particulates, such as the ability to store storm and floodwaters, emergent vegetation, muck soils, and low-intensity land use. In addition, sediment was found in some areas of the wetlands, which is a direct indicator and assigns the highest score for this function. However, the perennial and unrestricted outlet is not conducive to sediment retention. The Swamp River channel does not provide much water quality modification, but that function is provided by the wetlands associated with the stream channel. Wetland F and Wetland G are much smaller than Wetland D and Wetland E, and are therefore less able to perform this function.

Export of Detritus

Detritus can be exported off the property via the Swamp River. The moderate-intensity land use, and medium vegetation density and dominance provide a source of detritus to be exported. In addition, the perennial, unrestricted outlet does not limit the export of detritus. Although the wetlands received a moderate score for this function, they have a high capacity to export detritus. Wetland F and Wetland G are much smaller than Wetland D and Wetland E, and are therefore less able to perform this function.

Contribution to Abundance and Diversity of Wetland Vegetation

The wetlands are relatively large with several vegetative types present. The flat topography, connections to wetlands above and below, and mucky soils in portions of the wetlands may allow water to be trapped and retained for long periods of time, which can support a variety of plant species adapted to wetlands. Accordingly, the wetlands received a high score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

The presence of persistent wetness for a period throughout the year sufficient to maintain the plants that provide food and cover to wetland animals, as well as the standing water that is required by some species, is correlated with the capacity of the wetland to trap and retain water. The perennial flow of water in the wetlands, the areas of ponding, along with the diversity of vegetation

provides ideal habitat for wetland faunal communities. Accordingly, the wetlands received a high score for this function.

Special/pre-emptive Variables

Because all of the wetlands are regulated by the ACOE, and Wetlands D and E are regulated by the DEC, they received a positive result for this variable.

(4) Wetland I

**Table III.E-9
Wetland Functional Model Scores - Wetland I**

Wetland ID: Wetland I HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	no	NA
Modification of Ground Water Discharge	4	3-18
Modification of Ground Water Recharge	12	4-21
Storm and Flood-Water Storage	27	4-27
Modification of Stream Flow	NA	1-9
Modification of Water Quality	14	4-18
Export of Detritus	NA	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	7	2-15
Contribution to Abundance and Diversity of Wetland Fauna	18	4-36

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands may occur as groundwater recharge or discharge areas. Because Wetland I has no outlet, it accurately received a low score for this function.

Modification of Groundwater Recharge

The lack of flow from Wetland I indicates that it functions primarily as a recharge area. However, because of its small size, the ability of Wetland I to perform this function is severely limited. Wetland I received a moderate score for this function.

Storm and Floodwater Storage

Wetland I receives hydrologic input mainly from groundwater, with some runoff. Because Wetland I has no outlet, it automatically received the

highest score for this function. The depressional shape of Wetland I allows it to detain some floodwaters prior to discharge. However, because of the extremely small size of this wetland, the actual ability of Wetland I to perform this function is severely limited.

Modification of Stream Flow

Because Wetland I has no outlet, it accurately received a “Not Applicable” rating for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland I has characteristics that are conducive to the retention of particulates, such as having no outlet, having a continuous cover, and containing emergent vegetation. Accordingly, Wetland I received a moderately-high score for this function. However, because of its small size, the ability of Wetland I to perform this function is severely limited.

Export of Detritus

Because Wetland I has no outlet, it accurately received a “Not Applicable” score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland I has depressional topography which allows it to trap water and retain it over a long enough period of time to support obligate wetland plants such as royal fern, and skunk cabbage. However, because of the small size of the wetland and its isolation, it does not contribute greatly to this function. Wetland I received a moderate score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

Wetland I is capable of supporting some obligate wetland plants, however it appears that this wetland does not pond for any length of time. Therefore, support of wetland fauna is limited. Wetland I received a moderate score for this function.

Special/pre-emptive Variables

Because Wetland I is not regulated by the ACOE or the DEC, it received a negative result for this variable.

- (5) Wetlands M, and N

Table III.E-10
Wetland Functional Model Scores - Wetlands M, and N

Wetland ID: Wetlands M, and N HGM Type: Slope wetlands	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	2 - 15
Modification of Ground Water Recharge	NA	
Storm and Flood-Water Storage	16	4 - 21
Modification of Stream Flow	9	1 - 9
Modification of Water Quality	12	3 - 15
Export of Detritus	12	4 - 15
Contribution to Abundance and Diversity of Wetland Vegetation	11	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	24	4 - 33

* Wetlands are regulated by the DEC and ACOE
 NA - Not Applicable

Modification of Groundwater Discharge

Slope wetlands are areas of groundwater discharge. The seeps that were observed in Wetlands M, and N verify that they are areas of groundwater discharge. Accordingly, the wetlands received the highest score for this function.

Modification of Groundwater Recharge

Seeps were observed in Wetlands M, and N. Because seeps are considered an indicator of dysfunction, these wetlands are not considered capable of modifying groundwater recharge. Accordingly, the wetlands received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Slope wetlands typically do not provide for storm and floodwater storage. Wetlands M, and N received a moderately- high score for this function, however, because they have a high vegetation density, a low gradient, and are seasonally flooded. These wetlands have the capacity to store some storm and flood waters.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetlands M, and N received high scores for those variables, they also received a high score for this function. Groundwater discharge into Wetlands M, and N provides base flow for the small stream that flows

through the wetlands and into Wetland E. This ground water discharge ultimately contributes to the base flow component of the Swamp River.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetlands M, and N received a high score for this function because they have characteristics conducive to the retention of particulates, such as having an intermittent outlet, low-intensity wetland land use, and continuous cover.

Export of Detritus

The dense vegetation within Wetlands M, and N, along with the seasonal flooding and mineral soil provide ample opportunity for the export of detritus from these wetlands. Accordingly, the wetlands received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil or standing water. This encourages the development of plant communities that are more suited to a variety of moisture conditions rather than characteristic wetland species. Wetlands M, and N received a moderately-high score for this function based on their high vegetation density, medium vegetation diversity, and their connection to another wetland. Some areas within the wetlands, especially near the stream, will be better able than others to support wetland vegetation.

Contribution to Abundance and Diversity of Wetland Fauna

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil, standing water, or characteristic wetland vegetation. This discourages the development of faunal communities that are suited to characteristic wetland habitats. Wetlands M, and N contain wetter areas which may be better able to support wetland fauna. Overall, however, the wetlands are not ideally suited to support faunal communities that are reliant on sustained wet conditions. Wetlands M, and N received a moderately-high score for this function.

Special/pre-emptive Variables

Because the wetlands are ACOE and DEC regulated, they received a positive result for this variable.

- (6) Wetland O

**Table III.E-11
Wetland Functional Model Scores - Wetland O**

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Wetland ID: Wetland O HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	no	NA
Modification of Ground Water Discharge	6	3 - 18
Modification of Ground Water Recharge	15	4 - 21
Storm and Flood-Water Storage	27	4 - 27
Modification of Stream Flow	NA	1 - 9
Modification of Water Quality	16	4 - 18
Export of Detritus	NA	5 - 18
Contribution to Abundance and Diversity of Wetland Vegetation	7	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	20	4 - 36

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands may occur as ground water recharge or discharge areas. There are no outlets associated with this wetland and accordingly, Wetland O received a low score for this function.

Modification of Groundwater Recharge

The lack of flow from Wetland O indicates that it may function primarily as a recharge area. Wetland O received a relatively high score for this function, but its small size limits the role that the wetland plays in the overall groundwater recharge of the area.

Storm and Floodwater Storage

Because Wetland O does not have an outlet, the wetland received the highest score for this function. While Wetland O is capable of storing storm and flood waters, its small size limits the extent to which it can perform the storm and floodwater storage function.

Modification of Stream Flow

Because Wetland O has no outlet, it accurately received a “Not Applicable” rating for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland O received a very high score for this

function, based on characteristics such as low-intensity wetland land use, no outlet, and a forested, continuous vegetative cover. The small size of Wetland O may limit its ability to perform this function.

Export of Detritus

Because Wetland O has no outlet, it accurately received a “Not Applicable” rating for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland O has medium vegetation density and dominance, and it is not connected to other wetlands. For these reasons, Wetland O is capable of supporting some obligate wetland plants, such as skunk cabbage, but most of the plants that were identified in the wetland are not obligate wetland plants. Accordingly, Wetland O received a moderate score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

Depressional wetlands have the capacity to contribute to an abundance and diversity of wetland fauna. Wetland O is an isolated, depressional wetland that may seasonally pond water for a sufficient period of time to provide breeding habitat for certain amphibians. Wetland O received a moderate score for this function.

Special/pre-emptive Variables

Because Wetland O is not regulated by the ACOE or the DEC, it received a negative result for this variable.

(7) Wetlands Q, and R

**Table III.E-12
Wetland Functional Model Scores - Wetlands Q, and R**

Wetland ID: Wetlands Q, and R HGM Type: Depressional wetlands	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	6	3 - 18
Modification of Ground Water Recharge	15	4 - 21
Storm and Flood-Water Storage	27	4 - 27
Modification of Stream Flow	NA	1 - 9
Modification of Water Quality	18	4 - 18
Export of Detritus	NA	5 - 18

Wetland ID: Wetlands Q, and R HGM Type: Depressional wetlands	Site Score	Range
Function or Value		
Contribution to Abundance and Diversity of Wetland Vegetation	9	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	23	4 - 36

* Wetlands are regulated by the DEC and ACOE

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands may occur as ground water recharge or discharge areas. There are no outlets associated with Wetlands Q, and R, and accordingly, they received a low score for this function.

Modification of Groundwater Recharge

The lack of flow from Wetlands Q, and R indicates that these wetlands function primarily as a recharge area. Wetland Q, and R received a moderately-high score for this function.

Storm and Floodwater Storage

Because Wetlands Q, and R do not have an outlet, the wetland received the highest score for this function. The wetlands are capable of storing storm and flood waters.

Modification of Stream Flow

Because Wetlands Q, and R do not have an outlet, they accurately received a “Not Applicable” rating for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Because sediment was found in the wetlands, they received the highest score for this function.

Export of Detritus

Because Wetlands Q, and R do not have an outlet, they accurately received a “Not Applicable” rating for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetlands Q, and R have medium vegetation density and dominance, and they are connected to other wetlands. For these reasons, Wetlands Q, and R are capable of supporting some obligate wetland plants, such as skunk cabbage, but most of the plants that were identified in the wetland are not

obligate wetland plants. Accordingly, Wetlands Q, and R received a moderate score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

Depressional wetlands have the capacity to contribute to an abundance and diversity of wetland fauna. Wetlands Q, and R are depressional wetlands that may seasonally pond water for a sufficient period of time to provide breeding habitat for certain amphibians. Wetlands Q, and R received a moderate score for this function.

Special/pre-emptive Variables

Because the wetlands are ACOE and DEC regulated, they received a positive result for this variable.

(8) Wetland S

**Table III.E-13
Wetland Functional Model Scores - Wetland S**

Wetland ID: Wetland S HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	no	NA
Modification of Ground Water Discharge	7	3-18
Modification of Ground Water Recharge	13	4-21
Storm and Flood-Water Storage	27	4-27
Modification of Stream Flow	NA	1-9
Modification of Water Quality	13	4-18
Export of Detritus	NA	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	2	2-15
Contribution to Abundance and Diversity of Wetland Fauna	16	4-36

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands may occur as groundwater recharge or discharge areas. Because Wetland S has no outlet, it accurately received a low score for this function.

Modification of Groundwater Recharge

The lack of flow from Wetland S indicates that it functions primarily as a recharge area. However, because of its small size, the ability of Wetland S to

perform this function is severely limited. Wetland S received a moderate score for this function.

Storm and Floodwater Storage

Wetland S receives hydrologic input mainly from groundwater. Because Wetland S has no outlet, it automatically received the highest score for this function. The depressional shape of Wetland S allows it to detain some floodwaters. However, because of the small size of this wetland, the actual ability of Wetland S to perform this function is limited.

Modification of Stream Flow

Because Wetland S has no outlet, it accurately received a "Not Applicable" rating for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland S has characteristics that are conducive to the retention of particulates, such as having no outlet, and having a depressional shape that facilitates the capture of sediment. However, because Wetland S receives minimal surface water contributions, little sediment reaches the wetland. Wetland S received a moderately-high score for this function.

Export of Detritus

Because Wetland S has no outlet, it accurately received a "Not Applicable" rating for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland S is ponded and therefore has adequate hydrology to support wetland vegetation. However, very little vegetation was present in the wetland, which caused the wetland to receive a low score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

Wetland S is capable of supporting wetland plants, however very little vegetation was present. Because of the lack of vegetation, it is concluded that fauna communities will also be limited. For this reason, Wetland S received a moderately-low score for this function. However, adult and young painted turtles, along with a snapping turtle and a water snake were identified in and around Wetland S. Therefore, this wetland appears to be able to support at least some faunal communities.

Special/pre-emptive Variables

Because Wetland S is not regulated by the ACOE or the DEC, it received a negative result for this variable.

(9) Wetland T

**Table III.E-14
Wetland Functional Model Scores - Wetland T**

Wetland ID: Wetland T HGM Type: Slope wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	2 - 15
Modification of Ground Water Recharge	NA	NA
Storm and Flood-Water Storage	16	4 - 21
Modification of Stream Flow	9	1 - 9
Modification of Water Quality	12	3 - 15
Export of Detritus	12	4 - 15
Contribution to Abundance and Diversity of Wetland Vegetation	11	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	25	4 - 33

* Wetlands are regulated by the DEC and ACOE
NA - Not Applicable

Modification of Groundwater Discharge

Slope wetlands are typically areas of groundwater discharge. The seepage that was observed in Wetland T verifies that is an area of groundwater discharge. Accordingly, the wetland received the highest score for this function.

Modification of Groundwater Recharge

Seeps were observed in portions of Wetland T. Because seeps are considered an indicator of dysfunction, these wetlands are not considered capable of modifying groundwater recharge. Accordingly, the wetlands received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Slope wetlands typically do not provide for storm and floodwater storage. Wetland T received a moderately-high score for this function, however, because it has a low gradient, high vegetation density, and is seasonally flooded.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetland

T received high scores for those variables, it also received a high score for this function. Groundwater discharge into Wetland T provides base flow for Swamp River via the small outlet stream that flows underneath Route 21.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland T received a high score for this function because it has characteristics conducive to the retention of particulates, such as having an intermittent outlet, low-intensity wetland land use, and continuous cover.

Export of Detritus

The dense vegetation within Wetland T, along with the seasonal flooding, and mineral soil provides ample opportunity for the export of detritus from these wetlands. Accordingly, the wetland received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil or standing water. This encourages the development of plant communities that are more suited to a variety of moisture conditions rather than characteristic wetland species. Wetland T received a moderately-high score for this function based on its high vegetation density, medium vegetation diversity, and a connection to another wetland. Some areas within the wetlands, especially near the wetter, central portion of the wetland, will be better able than other areas to support wetland vegetation. Wetland T was identified as a fen and is capable of supporting species adapted to calcareous conditions.

Contribution to Abundance and Diversity of Wetland Fauna

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil, standing water, or characteristic wetland vegetation. This discourages the development of faunal communities that are suited to characteristic wetland habitats. Portions of Wetland T are wetter than others and may be able to support wetland fauna. Other areas, however, are not ideally suited to support faunal communities that are reliant on sustained wet conditions. Wetland T received a moderately-high score for this function.

Special/pre-emptive Variables

Because Wetland T is ACOE and DEC regulated, it received a positive result for this variable.

(10) Wetlands U, HH, and II

Wetland U is a slope wetland that comprises the majority of this wetland system. Wetlands HH, and II are small drainage channels that flow into

Wetland U. All three wetlands function together and are therefore evaluated as one system.

**Table III.E-15
Wetland Functional Model Scores - Wetlands U, HH, and II**

Wetland ID: Wetlands U, HH, and II HGM Type: Slope wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	2 - 15
Modification of Ground Water Recharge	NA	NA
Storm and Flood-Water Storage	15	4 - 21
Modification of Stream Flow	9	1 - 9
Modification of Water Quality	12	3 - 15
Export of Detritus	14	4 - 15
Contribution to Abundance and Diversity of Wetland Vegetation	13	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	25	4 - 33

* Wetlands are regulated by the ACOE and/or the DEC

NA - Not Applicable

Modification of Groundwater Discharge

Slope wetlands are typically areas of groundwater discharge. The seepage that was observed in the wetlands verify that they are areas of groundwater discharge. Accordingly, the wetland received the highest score for this function.

Modification of Groundwater Recharge

Seeps were observed in portions of Wetland U. Because seeps are considered an indicator of dysfunction, these wetlands are not considered capable of modifying groundwater recharge. Accordingly, Wetlands U, HH, and II received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Slope wetlands typically do not provide for storm and floodwater storage. Wetlands U, HH, and II, received a high score for this function, however, because portions of the wetlands are capable of ponding and storing water. The wetlands have a low gradient, high vegetation density, and seasonal flooding. The wetlands received a moderately-high score for this function.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetlands U, HH, and II received high scores for those variables, they also received a high score for this function. Groundwater discharge into Wetland U provides base flow for the Swamp River, via culverts underneath Route 22.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetlands U, HH, and II received a high score for this function because the wetlands have characteristics conducive to the retention of particulates, such as having a low-intensity wetland land use, and a continuous, mainly forested, vegetative cover.

Export of Detritus

The dense vegetation within Wetland U, along with the seasonal flooding, perennial outlet, and mineral soil provides ample opportunity for the export of detritus from these wetlands. Accordingly, the wetlands received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil or standing water. This encourages the development of plant communities that are more suited to a variety of moisture conditions rather than characteristic wetland species. However, portions of Wetland U remain ponded for significant lengths of time and are able to support obligate wetland vegetation. Wetlands U, HH, and II received a high score for this function based on their high vegetation density, medium vegetation diversity, and their connections to other wetlands.

Contribution to Abundance and Diversity of Wetland Fauna

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil, standing water, or characteristic wetland vegetation. This discourages the development of faunal communities that are suited to characteristic wetland habitats. Wetland U contains some areas that remain ponded for significant lengths of time and may be able to support wetland fauna. Wetlands U, HH, and II received a moderately-high score for this function.

Special/pre-emptive Variables

Because all of the wetlands are regulated by the ACOE, and most of Wetland U is regulated by the DEC, they received a positive result for this variable.

- (11) Wetlands unflagged, U (portion), W, X, Y, Z, AA, BB, DD, FF, and OO

Wetland DD combines with outflow from Wetland OO and Wetland FF, then flow from the combined stream flows into a culvert, emerging in Wetland AA. These wetlands, along with the remainder of the wetlands connecting Wetland AA to the culvert underneath Route 22 (Wetland BB, unflagged wetlands, Wetland Z, Wetland Y, Wetland X, Wetland W, and the end portion of Wetland U), are grouped together for this functional evaluation.

**Table III.E-16
Wetland Functional Model Scores - Wetlands unflagged, U (part), W, X, Y, Z, AA, BB, DD, FF, and OO**

Wetland ID: Wetlands unflagged, U (part), W, X, Y, Z, AA, BB, DD, FF, and OO HGM Type: Riverine wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	3 - 15
Modification of Ground Water Recharge	NA	4 - 18
Storm and Flood-Water Storage	7	3 - 24
Modification of Stream Flow	3	1 - 9
Modification of Water Quality	12	2 - 12
Export of Detritus	8	3 - 12
Contribution to Abundance and Diversity of Wetland Vegetation	9	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	25	4 - 36

* Wetlands are regulated by the ACOE
NA - Not Applicable

Modification of Groundwater Discharge

The wetlands are mainly areas of groundwater discharge, as evidenced by the seeps that were observed. Accordingly, the wetlands received the highest score for this function. However, during very dry periods of time, if discharge from the reservoir is still flowing, the wetlands may provide some recharge while the regional water table is low.

Modification of Groundwater Recharge

Because seeps were identified within the wetlands, they are considered incapable of performing the groundwater recharge function. Therefore, the wetlands received a “Not Applicable” score for this function. However, during very dry periods of time, if discharge from the reservoir is still flowing, the wetlands may provide some recharge while the regional water table is low.

Storm and Floodwater Storage

The wetlands are mainly streams and drainage channels, and do not have the capacity to store storm and flood waters to any great degree. Accordingly, the wetlands received a low score for this function.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because the wetland received low and high scores, respectively, for these categories, they also received a low score for the modification of stream flow function. However, groundwater discharge into the wetlands eventually provides some base flow for the Swamp River via flow through a culvert underneath Route 22.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Some areas of sedimentation were identified within the wetlands, for which the functional analysis automatically assigns the highest score. The actual ability of the wetlands to perform this function is limited, however, by the lack of slow waters, or ponding, which may be necessary for the retention of sediments and particulates.

Export of Detritus

Detritus can be exported off the property via the streams and drainage channel within the wetlands. The moderate-intensity land use, flowing waters with perennial outlet, and mineral soil provide a source and method for detritus to be exported. Sparse vegetation within the stream channels, however, limit the amount of detritus to be exported. The wetlands received a moderately- high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Most areas of the wetlands are sparsely vegetated, as they are flowing streams and drainage channels. However, connections to wetlands above and below, and medium vegetation diversity within the wetlands provide for a moderate score for this function. The actual capability of the wetlands to perform this function are probably less, as no obligate wetland plants were identified within the wetlands.

Contribution to Abundance and Diversity of Wetland Fauna

The presence of persistent wetness for a period throughout the year sufficient to maintain the plants that provide food and cover to wetland animals, as well as the standing water that is required by some species, is correlated with the capacity of the wetland to trap and retain water. The wetlands received a moderate score for this function based on connections to wetlands above and below, ideal interspersion of vegetation and water, along with essentially

permanent water flow. However, the actual capability of these wetlands to perform this function is limited by a lack of still, ponded waters that would more-likely provide habitat for wetland fauna.

Special/pre-emptive Variables

Because the wetlands are regulated by the ACOE, they received a positive result for this variable.

(12) Wetland V

**Table III.E-17
Wetland Functional Model Scores - Wetland V**

Wetland ID: Wetland V HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	3	3-18
Modification of Ground Water Recharge	12	4-21
Storm and Flood-Water Storage	27	4-27
Modification of Stream Flow	NA	1-9
Modification of Water Quality	16	4-18
Export of Detritus	NA	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	5	2-15
Contribution to Abundance and Diversity of Wetland Fauna	20	4-36

* Wetlands are regulated by the DEC

NA - Not Applicable

Modification of Groundwater Discharge

Wetland V is a very small, depressional wetland that is mainly unable to provide the modification of groundwater discharge function. Wetland V received a low score for this function based on factors such as no inlet or outlet, no water present, and mineral soil.

Modification of Groundwater Recharge

Depressional wetlands with no inlet or outlet typically are areas of groundwater recharge. However, due to the very small size of Wetland V, its actual ability to perform this function is limited. Wetland V received a moderate score for this function.

Storm and Floodwater Storage

Wetland V receives hydrologic input mainly from groundwater. Because Wetland V has no outlet, it automatically received the highest score for this function. However, because of the extremely small size of this wetland, the actual ability of Wetland V to perform this function is severely limited.

Modification of Stream Flow

Because Wetland V has no outlet, it accurately received a “Not Applicable” rating for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland V has characteristics that are conducive to the retention of particulates, such as having no outlet, having a continuous cover, and containing forested vegetation. Wetland V received a high score for this function. However, because of its extremely small size, the ability of Wetland V to perform this function is severely limited.

Export of Detritus

Because Wetland V has no outlet, it accurately received a “Not Applicable” score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland V has a low diversity of wetland species, and is not connected to other wetlands. Also, no obligate wetland plants were identified in the wetland. For these reasons, Wetland V received a low score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

Wetland V does not support any obligate wetland plants, and it does not appear to pond. Therefore, support of wetland fauna is limited. Wetland V received a moderate score for this function, based on vegetation cover and interspersions, along with low-intensity wetland land use. However, the actual ability of this very-small wetland to actually support wetland fauna is much less.

Special/pre-emptive Variables

Because Wetland V is regulated by the DEC, it received a positive result for this variable.

(13) Wetland Pond

**Table III.E-18
Wetland Functional Model Scores - Wetland Pond**

Wetland ID: Wetland Pond HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	no	NA
Modification of Ground Water Discharge	7	3-18
Modification of Ground Water Recharge	13	4-21
Storm and Flood-Water Storage	27	4-27
Modification of Stream Flow	NA	1-9
Modification of Water Quality	12	4-18
Export of Detritus	NA	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	3	2-15
Contribution to Abundance and Diversity of Wetland Fauna	16	4-36

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands may occur as groundwater recharge or discharge areas. Because the Wetland Pond has no outlet, it accurately received a moderately-low score for this function.

Modification of Groundwater Recharge

The lack of flow from the Wetland Pond indicates that it functions primarily as a recharge area. However, because of its small size, the amount of recharge provided to the overall watertable is limited. The Wetland Pond received a moderate score for this function.

Storm and Floodwater Storage

The Wetland Pond receives hydrologic input mainly from groundwater. Because the Wetland Pond has no outlet, it automatically received the highest score for this function. The capacity of this wetland to store storm and flood waters is dependent on the water level in the pond at the time of impact.

Modification of Stream Flow

Because The Wetland Pond has no outlet, it accurately received a "Not Applicable" rating for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. The Wetland Pond has characteristics that are conducive to the retention of particulates, such as having no outlet, and containing emergent vegetation and silty soil. The Wetland Pond received a moderate score for this function. However, because the Wetland Pond receives minimal surface water contributions, little sediment reaches the wetland. This wetland may, however, provide a “sink” for fertilizers that are used on the golf course.

Export of Detritus

Because The Wetland Pond has no outlet, it accurately received a “Not Applicable” rating for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Because The Wetland Pond has low vegetative diversity and density, it received a low score for this function. However, the ponding that is present indicates that the wetland is hydrologically capable of supporting obligate wetland vegetation.

Contribution to Abundance and Diversity of Wetland Fauna

The Wetland Pond appears to have the hydrologic capacity to support wetland vegetation and wetland fauna. However, the wetland is small and sparsely vegetated. The Wetland Pond received a moderate score for this function.

Special/pre-emptive Variables Because the Wetland Pond is not regulated by the ACOE or the DEC, it received a negative result for this variable.

(14) Wetland CC

**Table III.E-19
Wetland Functional Model Scores - Wetlands CC**

Wetland ID: Wetland CC HGM Type: Slope wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	2 - 15
Modification of Ground Water Recharge	NA	NA
Storm and Flood-Water Storage	13	4 - 21
Modification of Stream Flow	6	1 - 9

Wetland ID: Wetland CC HGM Type: Slope wetland	Site Score	Range
Function or Value		
Modification of Water Quality	13	3 - 15
Export of Detritus	12	4 - 15
Contribution to Abundance and Diversity of Wetland Vegetation	9	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	21	4 - 33

* Wetlands are regulated by the ACOE

NA - Not Applicable

Modification of Groundwater Discharge

Slope wetlands are typically areas of groundwater discharge. The seepage that was observed in Wetland CC verifies that it is an area of groundwater discharge. Accordingly, the wetland received the highest score for this function.

Modification of Groundwater Recharge

Seeps were observed in Wetland CC. Because seeps are considered an indicator of dysfunction, this wetland is not considered capable of modifying groundwater recharge. Accordingly, the wetland received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Slope wetlands typically do not provide for storm and floodwater storage. Wetland CC received a moderate score for this function, however, because it has a low gradient, seasonal flooding, and high vegetation density.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetland CC received moderate and high scores, respectively, for those variables, it received a moderate score for this function. Groundwater discharge into Wetland CC provides some base flow for the intermittent outflow from this wetland that enters Wetland U via a culvert underneath Hutchinson Avenue.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland CC received a high score for this function because it has characteristics conducive to the retention of particulates, such as having a continuous, mainly forested vegetative cover, silty soil, and low-intensity wetland land use. However, because Wetland

CC receives minimal surface water contributions, little sediment reaches the wetland.

Export of Detritus

The dense vegetation within Wetland CC, along with the seasonal flooding and mineral soil provides ample opportunity for the export of detritus from this wetland. Accordingly, the wetland received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil or standing water. This encourages the development of plant communities that are more suited to a variety of moisture conditions rather than characteristic wetland species. Wetland CC received a moderate score for this function based on its high vegetation density, and medium vegetation diversity. While one obligate wetland plant species (skunk cabbage) was present, the majority of the plant species present were not obligate wetland plants.

Contribution to Abundance and Diversity of Wetland Fauna

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil, standing water, or characteristic wetland vegetation. This discourages the development of faunal communities that are suited to characteristic wetland habitats. Overall, Wetland CC is not ideally suited to support faunal communities that are reliant on sustained wet conditions, as this wetland does not appear to pond for long-enough periods of time. Wetland CC received a moderate score for this function.

Special/pre-emptive Variables

Because the wetland is regulated by the ACOE, it received a positive result for this variable.

(15) Wetlands GG, QQ, and RR

Wetlands GG, QQ, and RR consists of the reservoir (Wetland GG), along with areas of slope wetlands (Wetland QQ), and riverine wetlands (Wetland RR). Because the three wetland function together and Wetland GG consists of the majority of the area, the wetlands were categorizes as lacustrine fringe wetlands. This type of wetland generally occurs adjacent to a lake, however, the majority of the reservoir contains open water rather than vegetated wetland fringe areas. Both the lacustrine fringe areas and open water areas are discussed with relation to the functions of this wetland.

**Table III.E-20
Wetland Functional Model Scores - Wetlands GG, QQ, and RR**

Wetland ID: Wetlands GG, QQ, and RR HGM Type: Lacustrine fringe	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	NA	NA
Modification of Ground Water Recharge	NA	4-18
Storm and Flood-Water Storage	6	2-21
Modification of Stream Flow	1	1-9
Modification of Water Quality	7	2-12
Export of Detritus	7	3-12
Contribution to Abundance and Diversity of Wetland Vegetation	9	2-15
Contribution to Abundance and Diversity of Wetland Fauna	30	4-36

* Wetlands are regulated by the ACOE and/or the DEC
NA - Not Applicable

Modification of Groundwater Discharge

Because seeps were identified in Wetlands QQ, and RR, the wetlands automatically received the highest score for this function. In actuality, the reservoir, with its controlled water level, mainly acts as an area of groundwater recharge. The smaller QQ and RR wetlands provide areas of groundwater discharge, as they have the characteristics of slope and riverine wetlands.

Modification of Groundwater Recharge

Because seeps were identified in Wetland QQ, and RR, the wetlands received a “Not Applicable” rating for this function. However, as discussed above, the reservoir acts as an area of groundwater recharge the majority of the time.

Storm and Floodwater Storage

Lacustrine fringe wetlands can act as the floodplain of the lake and can store storm and floodwaters at times of high water. However, the lacustrine fringe wetlands around the reservoir are very narrow and do not allow for the storage of storm and floodwaters. In addition, the level of the reservoir is controlled by a dam. Accordingly, the wetlands received a low score for this function.

Modification of Stream Flow

The score for this function for lacustrine fringe wetlands is dependent on the scores for the modification of groundwater recharge and storm and floodwater storage functions. Based on the scores for these two functions, the wetlands received a low score for this function. However, outflow from the reservoir supports flow within the streams below.

Modification of Water Quality

Lacustrine fringe wetlands are predominantly still water environments where sedimentation of suspended solids from the water column and accumulation of dissolved elements and compounds can occur. Therefore, lacustrine fringe wetlands have a high potential and opportunity for this function. The wetlands received a moderate score for this function.

Export of Detritus

Detritus can be transported out of the reservoir via the outlet stream. However, the amount of detritus available for export is limited by the dam and the settling of detritus in the water column. The wetlands received a moderate score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

The vegetated fringe around the reservoir is generally narrow and of medium diversity. The hydrology of the reservoir is sufficient to support wetland vegetation. The wetlands received a moderate score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

The stable hydrologic conditions around the edge of a lake that are conducive to the establishment of wetland plant communities provide food and cover for wetland faunal species. The wetlands received a high score for this function. A beaver lodge, along with evidence of beaver activity, was identified within the reservoir.

Special/pre-emptive Variables

Because all of the wetlands are regulated by the ACOE, and a portion of Wetland GG is regulated by the DEC, the wetlands received a positive result for this variable.

(16) Wetland JJ

**Table III.E-21
Wetland Functional Model Scores - Wetland JJ**

Wetland ID: Wetland JJ HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	18	3-18
Modification of Ground Water Recharge	NA	4-21
Storm and Flood-Water Storage	17	4-27
Modification of Stream Flow	6	1-9
Modification of Water Quality	15	4-18
Export of Detritus	13	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	9	2-15
Contribution to Abundance and Diversity of Wetland Fauna	23	4-36

* Wetlands are regulated by the DEC and ACOE
NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands with intermittent outlets are typically areas of groundwater discharge. Also, because seeps were present, Wetland JJ received the highest score for this function.

Modification of Groundwater Recharge

As discussed above, depressional wetlands with intermittent outlets typically are areas of groundwater discharge, not recharge areas. Because the presence of seeps is an indicator of dysfunction, Wetland JJ received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Wetland JJ receives hydrologic input mainly as groundwater discharge. The man-made, depressional shape of Wetland JJ, along with its seasonal flooding, restricted outlet, low gradient, and high vegetation density allow the wetland to detain some floodwaters prior to discharge. Wetland JJ received a moderate score for this function.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetland

JJ received moderate, and high scores, respectively, for those variables, it received a moderately-high score for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland JJ has characteristics that are conducive to the retention of particulates, such as a continuous vegetative cover, and low-intensity wetland land use, and a restricted outflow. Wetland JJ received a high score for this function. However, because Wetland JJ receives minimal surface water contributions, little sediment actually reaches the wetland from outside sources.

Export of Detritus

The dense vegetation within Wetland JJ, along with its seasonal flooding and mineral soil provides ample opportunity for the export of detritus from this wetland. Accordingly, Wetland JJ received a high score for the export of detritus function. This ability is limited, however, by the intermittent outflow from the wetland.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland JJ has a high vegetation density, and is connected below to another wetland. The flat to bowl-shaped topography of this wetland trap water and retain it over a long enough period of time to support obligate wetland plants including and abundance of sedges. Wetland JJ received a moderate score for this function. The wetland vegetation, however, appears to be regularly mowed.

Contribution to Abundance and Diversity of Wetland Fauna

The presence of persistent wetness for a period throughout the year sufficient to maintain the plants that provide food and cover to wetland animals, as well as the standing water that is required by some species, is correlated with the capacity of the wetland to trap and retain water. The seasonal ponding of water in Wetland JJ may provide limited breeding habitat for amphibians, provided it remains ponded long enough and deep enough for the wetland species. Wetland JJ received a moderate score for this function.

Special/pre-emptive Variables

Because Wetland JJ is ACOE and DEC regulated, it received a positive result for this variable.

(17) Wetlands KK, LL, and MM

**Table III.E-22
Wetland Functional Model Scores - Wetlands KK, LL, and MM**

Wetland ID: Wetlands KK, LL, and MM HGM Type: Slope wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	2 - 15
Modification of Ground Water Recharge	NA	NA
Storm and Flood-Water Storage	14	4 - 21
Modification of Stream Flow	9	1 - 9
Modification of Water Quality	11	3 - 15
Export of Detritus	14	4 - 15
Contribution to Abundance and Diversity of Wetland Vegetation	13	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	27	4 - 33

* Wetlands are regulated by the ACOE and/or the DEC
NA - Not Applicable

Modification of Groundwater Discharge

Slope wetlands are typically areas of groundwater discharge. The seepage that was observed in the wetlands verify that they are areas of groundwater discharge. Accordingly, the wetland received the highest score for this function.

Modification of Groundwater Recharge

Seeps were observed in portions of the wetlands. Because seeps are considered an indicator of dysfunction, these wetlands are not considered capable of modifying groundwater recharge. Accordingly, the wetlands received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Slope wetlands typically do not provide for storm and floodwater storage. The wetlands received a moderate score for this function, however, because portions of the wetlands have a low gradient, and high vegetation density. Also, the wetlands have a restricted outlet. These characteristics provide for some storm and floodwater storage capabilities.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because the wetlands received high scores for those variables, they also received a high score for this function. Groundwater discharge into Wetlands KK, and LL provide base flow for the stream that flows through these wetlands and underneath Route 22 into the Swamp River.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. The wetlands received a moderately-high score for this function because they have characteristics conducive to the retention of particulates, such as having a restricted outlet, and continuous cover. Flow through Wetland MM is slowed when it reaches Wetland LL. The slowing of the water flow allows sediment to settle out, and dissolved particulates to be utilized by the wetland, thereby improving water quality.

Export of Detritus

The dense vegetation within the wetlands, along with the seasonal flooding, mineral soil, and perennial outlet provides ample opportunity for the export of detritus from these wetlands. Accordingly, the wetlands received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil or standing water. This encourages the development of plant communities that are more suited to a variety of moisture conditions rather than characteristic wetland species. However, the wetlands received a high score for this function based on their high vegetation density, medium vegetation diversity, and their connections to other wetlands. Some areas within the wetlands, especially off-site near the stream, will be better able than others to support wetland vegetation.

Contribution to Abundance and Diversity of Wetland Fauna

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil, standing water, or characteristic wetland vegetation. This discourages the development of faunal communities that are suited to characteristic wetland habitats. The wetlands, however, contained wetter areas which supported wetland vegetation and is better able to support wetland fauna. Because of the dependable wetland hydrology and wetland vegetation, these wetlands received a high score for this function.

Special/pre-emptive Variables

Because all of the wetlands are regulated by the ACOE, Wetland KK is regulated by the DEC, and the majority of Wetland LL is regulated by the DEC, the wetlands received a positive result for this variable.

(18) Wetland NN

**Table III.E-23
Wetland Functional Model Scores - Wetland NN**

Wetland ID: Wetland NN HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	no	NA
Modification of Ground Water Discharge	18	3-18
Modification of Ground Water Recharge	NA	4-21
Storm and Flood-Water Storage	13	4-27
Modification of Stream Flow	6	1-9
Modification of Water Quality	13	4-18
Export of Detritus	15	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	7	2-15
Contribution to Abundance and Diversity of Wetland Fauna	24	4-36

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands with intermittent outlets are typically areas of groundwater discharge. Also, because seeps were present, Wetland NN received the highest score for this function.

Modification of Groundwater Recharge

As discussed above, depressional wetlands with intermittent outlets typically are areas of groundwater discharge, not recharge. Because the presence of seeps is an indicator of dysfunction, this wetland received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Wetland NN receives hydrologic input mainly as groundwater discharge. The depressional shape of Wetland NN, along with seasonal flooding, low gradient, and high vegetation density could allow the wetland to detain floodwaters prior to discharge. However, because of the very small size of

the wetland and its intermittent outlet, it is unlikely that Wetland NN will have the capacity to store much storm or flood waters. Wetland NN received a moderate score for this function.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetland NN received moderately and high scores, respectively, for those variables, it also received a moderately-high score for this function. However, due to the very small size and virtually isolated location of Wetland NN, it is unlikely that this wetland modifies any stream flow, other than the minor, intermittent inputs into Wetland MM.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland NN has characteristics that are conducive to the retention of particulates, such as a continuous cover, and low-intensity wetland land use. Wetland NN received a moderately-high score for this function. However, because wetland NN receives minimal surface water contributions, little sediment and few particulates actually reach the wetland.

Export of Detritus

The dense vegetation within Wetland NN along with the seasonal flooding, mineral soil, and an unrestricted outflow provides ample opportunity for the export of detritus from this wetland. Wetland NN received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland NN has a high vegetation density, but a low vegetation diversity, and it is essentially isolated. The relatively flat topography in Wetland NN allows it to trap water, but likely not for a long-enough period of time to support obligate wetland plants. Wetland NN received a moderate score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

The presence of persistent wetness for a period throughout the year sufficient to maintain the plants that provide food and cover to wetland animals, as well as the standing water that is required by some species, is correlated with the capacity of the wetland to trap and retain water. Wetland NN likely does not remain ponded for a long-enough period of time to provide breeding habitat for amphibians. A small concrete foundation that is located within Wetland NN may hold water long enough to provide a small breeding pool. Wetland NN received a moderately-high score for this function. This capacity along with the diversity and distribution of wetland vegetation contributed to

Wetland NN receiving an above-average score for this function, based on vegetative quality and land use.

Special/pre-emptive Variables

Because Wetland NN is not regulated by the ACOE or DEC, it received a negative result for this variable.

(19) Wetland TT

**Table III.E-24
Wetland Functional Model Scores - Wetland TT**

Wetland ID: Wetland TT HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	no	NA
Modification of Ground Water Discharge	5	3-18
Modification of Ground Water Recharge	15	4-21
Storm and Flood-Water Storage	27	4-27
Modification of Stream Flow	NA	1-9
Modification of Water Quality	14	4-18
Export of Detritus	NA	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	3	2-15
Contribution to Abundance and Diversity of Wetland Fauna	21	4-36

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands may occur as groundwater recharge or discharge areas. Because Wetland TT has no outlet, it accurately received a low score for this function.

Modification of Groundwater Recharge

The lack of flow from Wetland TT indicates that it functions primarily as a recharge area. Wetland TT received a moderately-high score for this function, based on seasonal flooding, glacial till soils, and no microrelief. However, because of its very small size, the ability of Wetland TT to perform this function is severely limited.

Storm and Floodwater Storage

Wetland TT receives hydrologic input mainly from groundwater. Because Wetland TT has no outlet, it automatically received the highest score for this

function. The depressional shape of Wetland TT allows it to detain some floodwaters prior to discharge. However, because of the very small size of this wetland, the actual ability of Wetland TT to perform this function is limited.

Modification of Stream Flow

Because Wetland TT has no outlet, it accurately received a “Not Applicable” rating for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland TT has characteristics that are conducive to the retention of particulates, such as having no outlet, and having a depressional shape that facilitates the capture of sediment. However, because Wetland TT receives minimal surface water contributions, little sediment reaches the wetland. Wetland TT received a moderately-high score for this function.

Export of Detritus

Because Wetland TT has no outlet, it accurately received a “Not Applicable” rating for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland TT is seasonally ponded and therefore has adequate hydrology to support wetland vegetation during certain times of the year. However, very little vegetation was present in the wetland, which caused the wetland to receive a low score for this function. Also, the wetland is likely dry for several months the year.

Contribution to Abundance and Diversity of Wetland Fauna

Wetland TT contained very little wetland vegetation, and it ponds for only short periods of time during the year. However, this wetland may act as a vernal pool and may therefore have the ability to support some wetland fauna during certain periods of the year. Wetland TT received a moderate score for this function.

Special/pre-emptive Variables

Because Wetland TT is not regulated by the ACOE or the DEC, it received a negative result for this variable.

(20) Wetlands UU, and VV

Wetland UU consists of a stream that flows into Wetland VV. Wetland VV contains a ponded area containing open water, scrub/shrub, and emergent vegetation. This area is surrounded by forested areas. The remainder of the wetland is forested.

**Table III.E-25
Wetland Functional Model Scores - Wetlands UU, and VV**

Wetland ID: Wetlands UU, and VV HGM Type: Slope wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	2 - 15
Modification of Ground Water Recharge	NA	NA
Storm and Flood-Water Storage	13	4 - 21
Modification of Stream Flow	6	1 - 9
Modification of Water Quality	10	3 - 15
Export of Detritus	10	4 - 15
Contribution to Abundance and Diversity of Wetland Vegetation	13	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	29	4 - 33

* Wetlands are regulated by the ACOE and/or the DEC

NA - Not Applicable

Modification of Groundwater Discharge

Slope wetlands are areas of groundwater discharge. The seepage that was observed in Wetlands UU, and VV verify that they are areas of groundwater discharge. Accordingly, the wetlands received the highest score for this function.

Modification of Groundwater Recharge

Seeps were observed in portions of Wetlands UU, and VV. Because seeps are considered an indicator of dysfunction, these wetlands are not considered capable of modifying groundwater recharge. Accordingly, the wetlands received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Slope wetlands typically do not provide for storm and floodwater storage. Wetlands UU, and VV received a moderate score for this function, however, because they have a low gradient, and high vegetation density. These wetlands have the capacity to store some storm and flood waters.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetlands UU, and VV received moderate and high scores, respectively, for

those variables, they also received a moderately-high score for this function. Groundwater discharge into Wetlands UU, and VV flow into the reservoir.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetlands UU, and VV received a high score for this function because they have characteristics conducive to the retention of particulates, such as having an intermittent outlet, areas of forested and scrub/shrub vegetation, and a ponded area.

Export of Detritus

The dense vegetation within portions of Wetlands UU, and VV, along with the and mineral soil provides opportunity for the export of detritus from these wetlands. However, the large ponded portion of the wetlands just prior to the outlet may reduce the actual amount of detritus that leaves the wetlands. The wetlands received a moderately-high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil or standing water. This encourages the development of plant communities that are more suited to a variety of moisture conditions rather than characteristic wetland species. Wetlands UU, and VV received a high score for this function, however, based on their high vegetation density, medium vegetation diversity, and their connections to other wetlands. Some areas within the wetlands, especially in and around the ponded area, are better able than others to support wetland vegetation.

Contribution to Abundance and Diversity of Wetland Fauna

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil, standing water, or characteristic wetland vegetation. This discourages the development of faunal communities that are suited to characteristic wetland habitats. However, Wetlands UU, and VV ponded areas which may be better able to support wetland fauna. The Wetlands received a high score for this function, based on variety and arrangement of vegetation, connections to other wetlands, and areas of permanent ponding.

Special/pre-emptive Variables

Because both of the wetlands are regulated by the ACOE, and the majority of Wetland VV is regulated by the DEC, the wetlands received a positive result for this variable.

- (21) Wetlands YY, and CCC

Table III.E-26
Wetland Functional Model Scores - Wetlands YY, and CCC

Wetland ID: Wetlands YY, and CCC HGM Type: Slope wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	yes*	NA
Modification of Ground Water Discharge	15	2 - 15
Modification of Ground Water Recharge	NA	NA
Storm and Flood-Water Storage	16	4 - 21
Modification of Stream Flow	9	1 - 9
Modification of Water Quality	13	3 - 15
Export of Detritus	12	4 - 15
Contribution to Abundance and Diversity of Wetland Vegetation	13	2 - 15
Contribution to Abundance and Diversity of Wetland Fauna	23	4 - 33

* Wetlands are regulated by the DEC and ACOE
 NA - Not Applicable

Modification of Groundwater Discharge

Slope wetlands are areas of groundwater discharge. The seepage that was observed in the wetlands verify that they are areas of groundwater discharge. The wetlands automatically received the highest score for this function.

Modification of Groundwater Recharge

Seeps were observed in portions of Wetlands YY, and CCC. Because seeps are considered an indicator of dysfunction, these wetlands are not considered capable of modifying groundwater recharge. Accordingly, the wetlands received a “Not Applicable” rating for this function.

Storm and Floodwater Storage

Slope wetlands typically do not provide for storm and floodwater storage. Wetlands YY, and CCC received a high score for this function, however, because they have a low gradient, seasonal flooding, and high vegetation density. Some of the more level areas of the wetlands may be able to store small amounts of storm and flood waters.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetlands YY, and CCC received high scores for those variables, they also received a high score for this function. Groundwater discharge into Wetlands YY, and CCC flow off site to the south via a small, forested stream.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetlands YY, and CCC received a high score for this function because the wetlands have characteristics conducive to the retention of particulates, such as having an intermittent outlet, and continuous, forested cover.

Export of Detritus

The dense vegetation within Wetlands YY, and CCC, along with the seasonal flooding and mineral soil provides opportunity for the export of detritus from these wetlands. Accordingly, the wetlands received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil or standing water. This encourages the development of plant communities that are more suited to a variety of moisture conditions rather than characteristic wetland species. Wetlands YY, and CCC received a high score for this function based on their high vegetation density, medium vegetation diversity, and their connections to other wetlands. Some areas within the wetlands, especially the more level areas, will be better able than others to support wetland vegetation.

Contribution to Abundance and Diversity of Wetland Fauna

Slope wetlands generally have low, or unpredictable, abilities to retain saturated soil, standing water, or characteristic wetland vegetation. This discourages the development of faunal communities that are suited to characteristic wetland habitats. Wetlands YY, and CCC contain wetter, more-level areas which may be better able to support wetland fauna. Wetland CCC was ponded on the day of the wetland delineation. The wetlands received a moderately-high score for this function, based on vegetative cover, and connections to other wetlands.

Special/pre-emptive Variables

Because the wetlands are ACOE and DEC regulated, they received a positive result for this variable.

(22) Wetland ZZ

**Table III.E-27
Wetland Functional Model Scores - Wetland ZZ**

Wetland ID: Wetland ZZ HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	no	NA
Modification of Ground Water Discharge	5	3-18
Modification of Ground Water Recharge	15	4-21
Storm and Flood-Water Storage	27	4-27
Modification of Stream Flow	NA	1-9
Modification of Water Quality	14	4-18
Export of Detritus	NA	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	3	2-15
Contribution to Abundance and Diversity of Wetland Fauna	19	4-36

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands may occur as groundwater recharge or discharge areas. Because Wetland ZZ has no outlet, it accurately received a low score for this function.

Modification of Groundwater Recharge

The lack of flow from Wetland ZZ indicates that it functions primarily as a recharge area. Wetland ZZ received a moderately-high score for this function, based on seasonal flooding, glacial till soils, and no micro-relief. However, because of its very small size, the ability of Wetland ZZ to perform this function is severely limited.

Storm and Floodwater Storage

Wetland ZZ receives hydrologic input mainly from groundwater. Because Wetland ZZ has no outlet, it automatically received the highest score for this function. The depressional shape of Wetland ZZ allows it to detain some floodwaters prior to discharge. However, because of the very small size of this wetland, the actual ability of Wetland ZZ to perform this function is limited.

Modification of Stream Flow

Because Wetland ZZ has no outlet, it accurately received a “Not Applicable” rating for this function.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland ZZ has characteristics that are conducive to the retention of particulates, such as having no outlet, and having a depressional shape that facilitates the capture of sediment. However, because Wetland ZZ receives minimal surface water contributions, little sediment reaches the wetland. Wetland ZZ received a moderately-high score for this function.

Export of Detritus

Because Wetland ZZ has no outlet, it accurately received a “Not Applicable” rating for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland ZZ is seasonally ponded and therefore has adequate hydrology to support wetland vegetation during certain times of the year. However, very little vegetation was present in the wetland, which caused the wetland to receive a low score for this function. Also, the wetland is likely dry for several months of the year.

Contribution to Abundance and Diversity of Wetland Fauna

Wetland ZZ contained very little wetland vegetation, and it ponds for only short periods of time during the year. However, this wetland may act marginally as a vernal pool and may therefore have the ability to support some wetland fauna during certain periods of the year. Wetland ZZ received a moderate score for this function.

Special/pre-emptive Variables

Because Wetland ZZ is not regulated by the ACOE or the DEC, it received a negative result for this variable.

(23) Wetland BBB

**Table III.E-28
Wetland Functional Model Scores - Wetland BBB**

Wetland ID: Wetland BBB HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Special/Pre-Emptive Variables	no	NA

Wetland ID: Wetland BBB HGM Type: Depressional wetland	Site Score	Range
Function or Value		
Modification of Ground Water Discharge	7	3-18
Modification of Ground Water Recharge	14	4-21
Storm and Flood-Water Storage	17	4-27
Modification of Stream Flow	4	1-9
Modification of Water Quality	13	4-18
Export of Detritus	14	5-18
Contribution to Abundance and Diversity of Wetland Vegetation	7	2-15
Contribution to Abundance and Diversity of Wetland Fauna	27	4-36

NA - Not Applicable

Modification of Groundwater Discharge

Depressional wetlands with intermittent outlets are typically areas of groundwater discharge. Wetland BBB received a moderately-low score for this function, however, because the wetland has no seeps, and it is seasonally dry.

Modification of Groundwater Recharge

As discussed above, depressional wetlands with intermittent outlets typically are areas of groundwater discharge, not recharge. Wetland BBB is primarily an area of groundwater discharge but during periods of drought, portions of this wetland system may temporarily act as groundwater recharge areas. Wetland BBB received a moderately-high score for this function because it has seasonal flooding, well developed micro-relief, and glacial till soils.

Storm and Floodwater Storage

Wetland BBB receives hydrologic input mainly as groundwater discharge. The depressional shape of Wetland BBB, along with seasonal flooding, a low gradient, and medium vegetation density allow the wetland to detain floodwaters prior to discharge. Wetland BBB received a moderate score for this function.

Modification of Stream Flow

Modification of stream flow is based on the variables of storm and flood water storage, and modification of groundwater discharge. Because Wetland BBB received moderate scores for those variables, it also received a moderate score for this function. However, because Wetland BBB is essentially isolated, there are no actual stream nearby for the wetland to modify.

Modification of Water Quality

The potential of a wetland to modify water quality is dependent upon its ability to retain sediment, particulates, and dissolved elements transported within flowing surface water. Wetland BBB has characteristics that are conducive to the retention of particulates, such as a mainly forested cover, an intermittent outlet, and low-intensity wetland land use. Wetland BBB received a high score for this function. However, because Wetland BBB receives minimal surface water contributions, little sediment reaches the wetland.

Export of Detritus

The seasonal flooding within Wetland BBB, along with the mineral soil, and unrestricted outflow provides opportunity for the export of detritus from this wetland. Wetland BBB received a high score for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Wetland BBB has well-developed wetland vegetation with medium vegetation density and diversity. The flat topography in Wetland BBB allows it to trap and retain water for long-enough periods of time to support wetland plants and typical vernal pool hydrology. Wetland BBB received a moderate score for this function.

Contribution to Abundance and Diversity of Wetland Fauna

The presence of persistent wetness for a period throughout the year sufficient to maintain the plants that provide food and cover to wetland animals, as well as the standing water that is required by some species, is correlated with the capacity of the wetland to trap and retain water. The seasonal ponding of water in Wetland BBB very-likely provides breeding habitat for amphibians. This capacity along with the diversity and distribution of wetland vegetation contributed to Wetland BBB receiving a moderately-high score for this function.

Special/pre-emptive Variables

Because Wetland BBB is not regulated by the ACOE or the DEC, it received a negative result for this variable.

c. *Flooding Impacts*

Development within the 100-Year Floodplain will generally be avoided; however, some portion of the parking lot to the rear of the existing Storehouse and Powerhouse may experience some flooding during extreme storm events. New homes and commercial buildings will either be constructed at elevations to avoid flooding in these areas or flood proofed in accordance with FEMA guidelines. (Areas of the proposed development within the 100-year flood zone are indicated on Exhibit III-I-5.) All utilities and critical mechanical

systems will be designed so as to minimize disruptions in service during flood events.

4. Mitigation Measures

Mitigation measures are provided for the proposed impacts to ACOE and DEC-regulated wetlands and to DEC-regulated 100-foot wetland-adjacent areas (buffers). Impacts were minimized to the maximum extent practicable by keeping the majority of the development activities outside of the wetlands and wetland buffers, and by utilizing already-existing wetland crossings, instead of creating new ones. Mitigation measures were designed to compensate for the remaining impacts.

Several wetland and wetland buffer creation and enhancement areas have been identified as potential mitigation for the proposed wetland and wetland buffer disturbances. These mitigation areas are shown on Exhibits III.E-3 and III.E-4, Potential Wetland Mitigation Areas. The general categories for wetland mitigation include: i) wetland creation in upland areas impacted by previous development, ii) wetland enhancement (enhancement and restoration of wetlands that have previously been disturbed or altered), and iii) wetland buffer enhancement (enhancement and restoration of wetland buffers that have previously been disturbed or altered). Included in the potential wetland creation and wetland buffer enhancement areas is the area to the east and west of Marble Knoll No.10, identified in the report *Amphibians and Reptiles of the Proposed Dover Knolls Development Site*, prepared by Michael W. Klemens, PhD, dated February 2005.

A total of 8.11 acres of the property have been identified for wetland creation. A 1.2-acre area of the property has been identified as suitable for enhancement of existing, but presently disturbed or degraded, wetlands. Finally, 2.4 acres of wetland buffer have been identified as potential enhancement/restoration areas. Wetland and wetland buffer mitigation areas are located in previously-disturbed or sparsely-vegetated areas adjacent to existing wetlands. Wetland creation areas will be regraded to achieve grades which are similar to the adjacent wetlands, in order to obtain necessary hydrology to support the new wetlands. Fill or debris will be removed where present in these areas. The mitigation areas will be planted with a diverse mix of tree, shrub and herbaceous species that are native to the area of Dutchess County. Prior to development of a full planting plan, a field survey will be made of the mitigation sites to determine the appropriate species composition for the wetlands and restored buffer areas.

In addition to the above-listed mitigation efforts, other forms of mitigation include the implementation of a sediment and erosion control plan designed in accordance with the New York State Standards and Specification for Erosion and Sediment Control, and a stormwater quality management plan designed in accordance with the New York State Stormwater Management Design Manual. Together, these plans will minimize the potential for impacts to the wetlands during construction

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activities, and insure that all runoff from disturbed portions of the site will be treated prior to release to a wetland or watercourse. In addition, these plans will avoid and minimize the indirect impacts which can be associated with development near wetlands, such as transport of excess nutrients to wetlands or watercourses, increases in temperature of receiving waters, and deposition of suspended solids in wetlands and watercourses.

Overall, the avoidance of wetland impacts and the mitigation measures that were described above will adequately compensate for any wetland functions that will potentially be impacted by the proposed development.