

ATTACHMENT B

FUNCTION AND VALUE ASSESSMENT DATASHEETS FOR WETLANDS

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CONSIDERATIONS/QUALIFIERS OF FUNCTIONS AND VALUES APPLICABLE TO DEWA WETLANDS USED IN ANALYSIS:

NOTE: ~~strikeout~~ represents considerations/qualifiers that were not applicable to project.

GROUNDWATER RECHARGE/DISCHARGE— This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

CONSIDERATIONS/QUALIFIERS

- ~~1. Public or private wells occur downstream of the wetland.~~
- ~~2. Potential exists for public or private wells downstream of the wetland.~~
3. Wetland is underlain by stratified drift.
4. Gravel or sandy soils present in or adjacent to the wetland.
5. Fragipan does not occur in the wetland.
6. Fragipan, impervious soils, or bedrock does occur in the wetland.
7. Wetland is associated with a perennial or intermittent watercourse.
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.
9. Wetland is associated with a watercourse but lacks a defined outlet or contains a constricted outlet (such as a berm or dam).
10. Wetland contains only an outlet, no inlet.
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.
12. Quality of water associated with the wetland is high.
13. Signs of groundwater discharge are present (e.g., springs, seeps).
14. Water temperature suggests it is a discharge site.
15. Wetland shows signs of variable water levels.
- ~~16. Piezometer data demonstrates discharge.~~
17. Other

FLOODFLOW ALTERATION (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

CONSIDERATIONS/QUALIFIERS

1. Area of this wetland is large relative to its watershed.
2. Wetland occurs in the upper portions of its watershed.
3. Effective flood storage is small or non-existent upslope of or above the wetland.
4. Wetland watershed contains a high percent of impervious surfaces.
5. Wetland contains hydric soils which are able to absorb and detain water.
6. Wetland exists in a relatively flat area that has flood storage potential and/or a wide floodplain exists.
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.
8. During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions.
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.
10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse.
11. Valuable properties, structures, or resources are located in or near the floodplain

downstream from the wetland.

~~12. The watershed has a history of economic loss due to flooding.~~

13. This wetland is associated with one or more watercourses.

14. This wetland watercourse is sinuous or diffuse.

15. This wetland outlet is constricted.

16. Channel flow velocity is affected by this wetland.

17. Land uses downstream are protected by this wetland.

18. This wetland contains a high density of vegetation.

19. Other

FISH AND SHELLFISH HABITAT (FRESHWATER) — This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

CONSIDERATIONS/QUALIFIERS

1. Forest land dominant in the watershed above this wetland.

2. Abundance of cover objects present.

STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE

3. Size of this wetland is able to support large fish/shellfish populations.

4. Wetland is part of a larger, contiguous watercourse.

5. Wetland has sufficient size and depth in open water areas so as not to freeze solid and retain some open water during winter.

6. Stream width (bank to bank) is more than 50 feet.

7. Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.

8. Streamside vegetation provides shade for the watercourse.

9. Spawning areas are present (submerged vegetation or gravel beds).

10. Food is available to fish/shellfish populations within this wetland.

11. Barrier(s) to anadromous fish (such as dams, including beaver dams, waterfalls, road crossing) are absent from the stream reach associated with this wetland.

12. Evidence of fish is present.

13. Wetland is stocked with fish.

14. The watercourse is persistent.

15. Man-made streams are absent.

16. Water velocities are not too excessive for fish usage.

17. Defined stream channel is present.

18. Other

SEDIMENT/TOXICANT/PATHOGEN RETENTION — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

CONSIDERATIONS/QUALIFIERS

1. Potential sources of excess sediment are in the watershed above the wetland.

2. Potential or known sources of toxicants are in the watershed above the wetland.

3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.

4. Fine grained mineral or organic soils are present.

5. Long duration water retention time is present in this wetland.

6. Public or private water sources occur downstream.

7. The wetland edge is broad and intermittently aerobic.

8. The wetland is known to have existed for more than 50 years.

9. Drainage ditches have not been constructed in the wetland.
- STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.
10. Wetland is associated with an intermittent or perennial stream or a lake.
11. Channelized flows have visible velocity decreases in the wetland.
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.
13. No indicators of erosive forces are present. No high water velocities are present.
14. Diffuse water flows are present in the wetland.
15. Wetland has a high degree of water and vegetation interspersion.
16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present.
17. Other

NUTRIENT REMOVAL/RETENTION/TRANSFORMATION — This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

CONSIDERATIONS/QUALIFIERS

1. Wetland is large relative to the size of its watershed.
2. Deep water or open water habitat exists.
3. Overall potential for sediment trapping exists in the wetland.
4. Potential sources of excess nutrients are present in the watershed above the wetland.
5. Wetland saturated for most of the season. Pondered water is present in the wetland.
6. Deep organic/sediment deposits are present.
7. Slowly drained fine grained mineral or organic soils are present.
8. Dense vegetation is present.
9. Emergent vegetation and/or dense woody stems are dominant.
10. Opportunity for nutrient attenuation (or reduction) exists within wetland.
11. Vegetation diversity/abundance sufficient to utilize nutrients.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

12. Waterflow through this wetland is diffuse.
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.
14. Water moves slowly through this wetland.
15. Other

PRODUCTION EXPORT (Nutrient) — This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

CONSIDERATIONS/QUALIFIERS

1. Wildlife food sources grow within this wetland.
2. Detritus development is present within this wetland
3. Economically or commercially used products found in this wetland.
4. Evidence of wildlife use found within this wetland.
5. Higher trophic level consumers are utilizing this wetland.
6. Fish or shellfish develop or occur in this wetland.
7. High vegetation density is present.
8. Wetland exhibits high degree of plant community structure/species diversity.
9. High aquatic vegetative diversity/abundance is present.
10. Nutrients exported in wetland watercourses (permanent outlet present).

11. “Flushing” of relatively large amounts of organic plant material occurs from this wetland.
12. Wetland contains flowering plants that are used by nectar-gathering insects.
13. Indications of export are present.
14. High production levels occurring, however, no visible signs of export (assumes export is attenuated).
15. Other

SEDIMENT/SHORELINE STABILIZATION — This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

CONSIDERATIONS/QUALIFIERS

1. Indications of erosion or siltation are present.
2. Topographical gradient is present in wetland.
3. Potential sediment sources are present up-slope.
4. Potential sediment sources are present upstream.
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.
7. Wide wetland (>10') borders watercourse, lake, or pond.
8. High flow velocities in the wetland.
9. The watershed is of sufficient size to produce channelized flow.
10. Open water fetch is present.
11. Boating activity is present.
12. Dense vegetation is bordering watercourse, lake, or pond.
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.
16. Other

WILDLIFE HABITAT — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.

CONSIDERATIONS/QUALIFIERS

1. Wetland is not degraded by human activity.
2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.
3. Wetland is not fragmented by development.
4. Upland surrounding this wetland is undeveloped.
5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g., brushland, woodland, active farmland, or idle land) at least 500 feet in width.
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.
7. Wildlife overland access to other wetlands is present.
8. Wildlife food sources are within this wetland or are nearby.
9. Wetland exhibits a high degree of interspersed vegetation classes and/or open water.
10. Two or more islands or inclusions of upland within the wetland are present.
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.
12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland, are present.

13. Density of the wetland vegetation is high.
14. Wetland exhibits a high degree of plant species diversity.
15. Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/shrub/vine/grasses/mosses)
16. Plant/animal indicator species are present. (List species for project)
17. Animal signs observed (tracks, scats, nesting areas, etc.)
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.
19. Wetland supports known population of listed (rare, threatened, or endangered) species
20. Wetland contains or has potential to contain a high population of insects.
21. Wetland contains or has potential to contain large amphibian populations.
22. Wetland has a high avian utilization or its potential.
23. Indications of less disturbance-tolerant species are present.
24. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).
25. Other

RECREATION (Consumptive and Non-Consumptive) — This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish these resources of the wetland.

CONSIDERATIONS/QUALIFIERS

1. Wetland is part of a recreation area, park, forest, or refuge.
2. Fishing is available within or from the wetland.
3. Hunting is permitted in the wetland.
4. Hiking occurs or has potential to occur within the wetland.
5. Wetland is a valuable wildlife habitat.
6. The watercourse, pond, or lake associated with the wetland is unpolluted.
7. High visual/aesthetic quality of this potential recreation site.
8. Access to water is available at this potential recreation site for boating, kayaking, canoeing, or fishing.
9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing, kayaking, and/or non-powered boating.
10. Off-road public parking available at the potential recreation site.
11. Accessibility and travel ease is present at this site.
12. The wetland is within a short drive or safe walk from highly populated public and private areas.
13. Other

EDUCATIONAL/SCIENTIFIC VALUE — This value considers the suitability of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.

CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened, rare, or endangered species.
2. Little or no disturbance is occurring in this wetland.
3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible.
4. Potential educational site is undisturbed and natural.
5. Wetland is considered to be a valuable wildlife habitat.
6. Wetland is located within a nature preserve or wildlife management area or on NPS lands.
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.

9. Potential educational site is within safe walking distance or a short drive to schools.
10. Potential educational site is within safe walking distance to other plant communities.
11. Direct access to perennial stream at potential educational site is available.
12. Direct access to pond or lake at potential educational site is available.
13. No known safety hazards exist within the potential educational site.
14. Public access to the potential educational site is controlled.
15. Handicap accessibility is available.
16. Site is currently used for educational or scientific purposes.
17. Other

UNIQUENESS/HERITAGE — This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

CONSIDERATIONS/QUALIFIERS

1. Upland surrounding wetland is primarily urban.
2. Upland surrounding wetland is developing rapidly.
3. More than 3 acres of shallow permanent open water (less than 6.6 feet deep), including streams, occur in wetlands.
4. Three or more wetland classes are present.
5. Deep and/or shallow marsh or wooded swamp dominate.
6. High degree of interspersed vegetation and/or open water occur in this wetland.
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.
8. Potential educational site is within a short drive or a safe walk from schools.
9. Off-road parking at potential educational site is suitable for school buses.
10. No known safety hazards exist within this potential educational site.
11. Direct access to perennial stream or lake exists at potential educational site.
12. Two or more wetland classes are visible from primary viewing locations.
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) are visible from primary viewing locations.
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.
15. Large area of wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.
17. Overall view of the wetland is available from the surrounding upland.
18. Quality of the water associated with the wetland is high.
19. Opportunities for wildlife observations are available.
20. Historical buildings or historical dams are found within the wetland.
21. Presence of pond or pond site and remains of a dam occur within the wetland.
22. Wetland is within 50 yards of the nearest perennial watercourse.
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.
25. Wetland is known to be a study site for scientific research.
26. Wetland is a natural landmark or recognized by the state natural heritage inventory

authority as an exemplary natural community.

27. Wetland has local significance because it serves several functional values.

28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.

29. Wetland is known to contain an important archaeological site.

30. Wetland is hydrologically connected to a state or federally designated scenic river.

31. Wetland is located in an area experiencing a high wetland loss rate.

32. Other

VISUAL QUALITY/AESTHETICS — This value considers the visual and aesthetic quality or usefulness of the wetland.

CONSIDERATIONS/QUALIFIERS

1. Multiple wetland classes are visible from primary viewing locations.

2. Emergent marsh and/or open water are visible from primary viewing locations.

3. A diversity of vegetative species is visible from primary viewing locations.

4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.

5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.

6. Visible surrounding land use form contrasts with wetland.

7. Wetland views absent of trash, debris, and signs of disturbance.

8. Wetland is considered to be a valuable wildlife habitat.

9. Wetland is easily accessed.

10. Low noise level at primary viewing locations.

11. Unpleasant odors absent at primary viewing locations.

12. Relatively unobstructed sight line exists through wetland.

13. Other

ENDANGERED SPECIES HABITAT — This value considers the suitability of the wetland to support threatened or endangered species.

CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened or endangered species.

2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.

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WETLANDS LOCATED ALONG ALTERNATIVES 1, 2, AND 2B

Wetland Function-Value Evaluation Form

Wetland I.D: Wetland CC Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? No Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/2/2012 _____
 Adjacent land use: ROW/forested Distance to nearest roadway or other development: within ROW – portions of wetland have been previously disturbed due to original ROW clearing.
 Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present: No development but within ROW
 How many tributaries contribute to the wetlands?: None Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		4,6,8,12,13,14	Primary function – groundwater seeps provide hydrology for this wetland
Floodflow Alteration		X	3,5,9	
Fish and Shellfish Habitat		X	1	
Sediment/Toxicant Retention		X	9	No upstream sources except for overland flow from uplands
Nutrient Removal		X	5,9	No upstream sources known except for overland flow from uplands
Production Export	X		1,4,5	<i>Vaccinium</i> provides food source for wildlife
Sediment/Shoreline Stabilization		X	2,5	
Wildlife Habitat	X		5,8,9	Some very small pockets of open water provide microhabitats
Recreation		X	1,5,6	
Educational/Scientific Value		X	5,6	
Uniqueness/Heritage		X	17,18	
Visual Quality/Aesthetics		X	8,10,11	
Endangered Species Habitat		X		None known
Other				

* indicates the principle function or value

Wildlife Species Observed within Wetlands

Dominant Plant Species Observed

State Listed Species of Concern

Red-tailed hawk - above	ALSE	None known
Red-shouldered hawk - above	VACO	
Chipping sparrow – in wetland area	<i>Sphagnaceae</i>	
	EUVI	
	SPTO	

Wetland Function-Value Evaluation Form

Wetland I.D: Wetland BB Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? No Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/2/2012 _____
 Adjacent land use: ROW/forested Distance to nearest roadway or other development: partially within ROW _____
 Dominant wetland systems present PFO and PEM Contiguous undeveloped buffer zone present: Adjacent road exists and within ROW _____
 How many tributaries contribute to the wetlands?: 2 Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		6,7,8,9,12,13	
Floodflow Alteration*	X		5,7,9,10,13,18	Primary function - Bushkill Creek and unnamed tributary/small oxbow lake
Fish and Shellfish Habitat	X		1,2,4,6,7,8,10,12,14,16,17	
Sediment/Toxicant Retention	X		1,5,9,10,12,16	
Nutrient Removal		X	3,4,5,9,11,13	
Production Export	X		1,4,5,6,8,13	
Sediment/Shoreline Stabilization	X		2,4,7,13,14,15	Stable PEM and PFO vegetation along shorelines
Wildlife Habitat*	X		4,5,6,8,11,12,14,17,19,20,21,22	None observed but good potential due to diversity of wetland types
Recreation		X	1,5,6,10	
Educational/Scientific Value		X	1,5,6,11	
Uniqueness/Heritage*	X		3,5,7,13,14,17,18,19,22,26,27	Primary value - considered an Exceptional Value (EV) wetland - Bush Kill Creek is characterized as a wild trout stream and stocked trout stream
Visual Quality/Aesthetics		X	1,2,8,9,11,12	Site adjacent to roadway, obvious erosion occurring along Bush Kill Creek, and within ROW – detracts from aesthetics; near road and veg is disturbed from ROW clearing
Endangered Species Habitat*	X		1	Known to support endangered species habitat – none observed during survey
Other				

* indicates the principle function or value

Wildlife Species Observed within Wetlands

Dominant Plant Species Observed

State Listed Species of Concern

	PEM:	Known to support endangered species habitat
	SYFO	
	CAST	
	PFO:	
	ACRU	

Wetland Function-Value Evaluation Form

Wetland I.D: Arnott Fen (Wetland FB) Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? No Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/2/2012; 6/11/12
 Adjacent land use: ROW/forested Distance to nearest roadway or other development: Fen within ROW
 Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present: Adjacent road exists and within ROW
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: _____

Function/Value		Suitability		Rationale (Ref#)	Comments
		Y	N		
Groundwater Recharge/Discharge*	X			3,6,7,8,9,12,13 – bedrock constricted outlet	Primary function – due to groundwater seeps and calcareous limestone in area; bedrock constricted outlet
Floodflow Alteration*	X			1,2,3,5,6,8,9,10,13,15,18	Good storage capability
Fish and Shellfish Habitat	X			1,2,4,7,8,10,12,14,16,17	
Sediment/Toxicant Retention	X			3,4,5,7,8,9,10,11,12,13,14,15,16	
Nutrient Removal	X			1,2,3,5,6,7,8,9,10,11,12,13,14 – outlet	
Production Export	X			1,2,4,5,6,7,8,9,10	
Sediment/Shoreline Stabilization		X		9,15	
Wildlife Habitat*	X			2,3,4,5,6,7,8,9,11,12,13,14,15,16,18,19,20,21,22,23	Good wildlife use potential; possible beaver activity; fish, reptiles
Recreation		X		1,5,6,7,19	Too sensitive for recreational purposes
Educational/Scientific Value	X			1,3,5,6	Site may be too sensitive for educational purposes
Uniqueness/Heritage*	X			3,4,6,12,13,14,16,17,18,19,21,23 (trail road, dam),24, 26,27,28,30 (Delaware)	Primary value - considered an Exceptional Value (EV) wetland and a rare and unique community – viewing area from road
Visual Quality/Aesthetics	X			1,2,3,5,7,8,9,11	
Endangered Species Habitat*	X			1	
Other					

* indicates the principle function or value

Wildlife Species Observed within Wetlands

Dominant Plant Species Observed

State Listed Species of Concern

	TYLA	ACRU	
	CAST	ROPU	Yes
	ALSE		

Notes: Berm, gravel path: *Lonicera morrow*, silky dogwood, TORA (poison ivy), ROMU (multiflora rose), Allegheny blackberry
 Removal of gravel path would lower foot traffic and reduce illegal collection Perennial stream coming in and one outlet (small concrete dam out)—road through wetland.

Wetland Function-Value Evaluation Form

Wetland I.D: Hogback Ridge (Wetland FD) Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? No Evaluation based on: Office _____ Field X
 Project site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/2/2012
 Adjacent land use: ROW/forested Distance to nearest roadway or other development: partially within ROW - site is predominantly undisturbed with the exception of the existing ROW.
 Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present: within ROW
 How many tributaries contribute to the wetlands?: _____ Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		6,8,12,13,15	Primary function – due to groundwater seeps and open ponded area
Floodflow Alteration	X		3,5,6,7,9	Good storage capability – wetland within a topographic depression
Fish and Shellfish Habitat		X	1,2,9,10	Many standing/dead trees for cover but area isolated at higher elevations
Sediment/Toxicant Retention		X	4,5,8,9	Little to no upstream sources besides overland flow from upland
Nutrient Removal		X	3,5,7,10	No known sources; Little to no upstream sources besides overland flow from upland
Production Export*	X		1,2,4,5,14	Open water ponded area with dead, standing wood
Sediment/Shoreline Stabilization		X	3,6	
Wildlife Habitat*	X		1,4,5,8,9,16,17,19,22	Possible old beaver activity; wetland is unique at the high elevation
Recreation		X	1,4,5,6,7	Site is probably too remote for recreation with the exception of hiking in
Educational/Scientific Value	X		1,2,5,6	
Uniqueness/Heritage*	X		5,6,12,14,18,26,27,28	Primary value - considered an Exceptional Value (EV) wetland and a rare and unique community; area is unique due to the high elevation-ROW does degrade view
Visual Quality/Aesthetics		X	2,8,10,11	ROW detracts from view
Endangered Species Habitat*	X		1	Known to support RTE species in vicinity
Other				

* indicates the principle function or value

<u>Wildlife Species Observed within Wetlands</u>	<u>Dominant Plant Species Observed</u>	<u>State Listed Species of Concern</u>
Amphibian eggs in water	ACRU	Yes
	ALSE	
	<i>Sphagnaceae</i>	
	CAST	

Notes: Site is predominantly undisturbed with exception of existing ROW

Wetland Function-Value Evaluation FormWetland I.D: VanCampens (Wetland 44) – portion affected by alt 2 only Corps manual wetland delineation: Northcentral and Northeast RegionWetland Human made? No Evaluation based on: Office _____ Field XProject site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/3/2012Adjacent land use: ROW/forested Distance to nearest roadway or other development: partially within ROW – portions of wetland have been previously disturbed due to original ROW clearing.Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present: within ROW and adjacent road existsHow many tributaries contribute to the wetlands?: 1 Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		4,6,8,12,13,14	Primary function – groundwater seeps provide hydrology for this wetland
Floodflow Alteration		X	3,5,9	
Fish and Shellfish Habitat		X	1	
Sediment/Toxicant Retention		X	9	
Nutrient Removal		X	59	
Production Export	X		1,4,5	
Sediment/Shoreline Stabilization		X	2,5	
Wildlife Habitat	X		5,8,9	
Recreation		X	1,5,6	
Educational/Scientific Value		X	5,6	
Uniqueness/Heritage*	X		26,27	Primary value - considered an Exceptional Value (EV) wetland and a rare and unique community
Visual Quality/Aesthetics		X	8,10,11	
Endangered Species Habitat*	X		1	Known to support endangered species habitat for one plant species (Reed meadow grass)
Other				

* indicates the principle function or value

Wildlife Species Observed within WetlandsDominant Plant Species ObservedState Listed Species of Concern

	44.1:	44.2:	Yes
	LYLI	LYLI	
	COSE	ALSE	
	CALU	CALU	
	SPTO	SPTO	
	JUEF	EUVI	

Wetland Function-Value Evaluation Form

Wetland I.D: Wetland 45 Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? No Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/3/2012 _____
 Adjacent land use: ROW/forested Distance to nearest roadway or other development: partially within ROW – portions of wetland have been previously disturbed due to original ROW clearing.
 Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present: within ROW
 How many tributaries contribute to the wetlands?: _____ Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		4,6,8,12,13,14	Primary function – groundwater seeps provide hydrology for this wetland
Floodflow Alteration		X	3,5,9,	
Fish and Shellfish Habitat		X	1	
Sediment/Toxicant Retention		X	9	
Nutrient Removal		X	5,9	
Production Export	X		1,4,5	
Sediment/Shoreline Stabilization		X	2,5	
Wildlife Habitat	X		5,8,9	
Recreation		X	1,5,6	
Educational/Scientific Value		X	5,6	
Uniqueness/Heritage		X	17,18	
Visual Quality/Aesthetics		X	8,10,11	
Endangered Species Habitat		X		None known
Other				

* indicates the principle function or value

Wildlife Species Observed within Wetlands

Dominant Plant Species Observed

State Listed Species of Concern

	ROMU	
	VACO	
	BETH	
	OSCI	
	EUVI	

Wetland Function-Value Evaluation Form

Wetland I.D: Wetland 42 Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? No Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/3/2012
 Adjacent land use: ROW/forested Distance to nearest roadway or other development: partially within ROW – portions of PEM/PSS
wetland have been previously disturbed due to original ROW clearing.
 Dominant wetland systems present PEM/PSS + PFO Contiguous undeveloped buffer zone present: within ROW
 How many tributaries contribute to the wetlands?: seeps only Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		4,6,8,12,13,14	Primary function – groundwater seeps provide hydrology for this wetland and form two small free-flowing stream channels (12” wide).
Floodflow Alteration		X	3,5,9,	
Fish and Shellfish Habitat		X	1	
Sediment/Toxicant Retention		X	9	
Nutrient Removal		X	5,9	
Production Export	X		1,4,5	
Sediment/Shoreline Stabilization		X	2,5	
Wildlife Habitat*	X		5,8,9	Primary value – forested wetland supports mature trees; black bear and two cubs previously observed in area
Recreation		X	1,5,6	
Educational/Scientific Value		X	5,6	
Uniqueness/Heritage		X	17,18	
Visual Quality/Aesthetics		X	8,10,11	
Endangered Species Habitat		X		None known
Other				

* indicates the principle function or value

Wildlife Species Observed within Wetlands

Dominant Plant Species Observed

State Listed Species of Concern

	<u>PEM/PSS:</u>	
	SASE	
	ALSE	
	ONSE	
	TYLA	
	<u>PFO:</u>	
	LITU	
	BEAL	
	FAGR	

Wetland Function-Value Evaluation Form

Wetland I.D: Wetland 46 Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? No Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/3/2012 _____
 Adjacent land use: ROW/forested Distance to nearest roadway or other development: partially within ROW – portions of wetland have been previously disturbed due to original ROW clearing.
 Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present: within ROW and adjacent road exists
 How many tributaries contribute to the wetlands?: _____ Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		4,6,8,12,13,14	Primary function – groundwater seeps provide hydrology for this wetland and man-made berm allows water to pool and form a small pond
Floodflow Alteration		X	3,5,9	
Fish and Shellfish Habitat		X	1	
Sediment/Toxicant Retention		X	9	
Nutrient Removal		X	5,9	
Production Export	X		1,4,5	
Sediment/Shoreline Stabilization		X	2,5	
Wildlife Habitat*	X		5,8,9	Primary value – sunfish, American bullfrog tadpoles, and Eastern newt utilize open water habitat which is unique in along the ROW
Recreation		X	1,5,6	
Educational/Scientific Value		X	5,6	
Uniqueness/Heritage		X	17,18	
Visual Quality/Aesthetics		X	8,10,11	
Endangered Species Habitat		X		None known
Other				

* indicates the principle function or value

Wildlife Species Observed within WetlandsDominant Plant Species ObservedState Listed Species of Concern

	KALA	
	ALSE	
	LYLI	
	<i>Sphagnaceae</i>	

Wetland Function-Value Evaluation Form

Wetland I.D: Wetland 47 Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? No Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: STK/DRC Date 4/3/2012 _____
 Adjacent land use: ROW/forested Distance to nearest roadway or other development: partially within ROW – portions of wetland have been previously disturbed due to original ROW clearing.
 Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present: within ROW
 How many tributaries contribute to the wetlands?: _____ Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		4,6,8,12,13,14	Primary function – groundwater seeps provide hydrology for this wetland
Floodflow Alteration		X	3,5,9	
Fish and Shellfish Habitat		X	1	
Sediment/Toxicant Retention		X	9	No upstream sources except for overland flow from uplands
Nutrient Removal		X	5,9	No upstream sources known except for overland flow from uplands
Production Export	X		1,4,5	<i>Vaccinium</i> provides food source for wildlife
Sediment/Shoreline Stabilization		X	2,5	
Wildlife Habitat	X		5,8,9	Some very small pockets of open water provide microhabitats
Recreation		X	1,5,6	
Educational/Scientific Value		X	5,6	
Uniqueness/Heritage		X	17,18	
Visual Quality/Aesthetics		X	8,10,11	
Endangered Species Habitat		X		None known
Other				

* indicates the principle function or value

Wildlife Species Observed within Wetlands

Dominant Plant Species Observed

State Listed Species of Concern

	VACO	None known
	RUAL	
	OSCI	
	<i>Sphagnaceae</i>	

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge		X	4,7,12,15	
Floodflow Alteration	X		3,5,9,10	
Fish and Shellfish Habitat*	X		1,3,4,5,6,7,8,9,10,12,14,15,16,17	Primary function due to proximity to Delaware River
Sediment/Toxicant Retention	X		1,4,8,9,10	
Nutrient Removal	X		2,3,11	
Production Export	X		1,4,5,6	Recreation fishing
Sediment/Shoreline Stabilization*	X		1,2,3,4,6,9,11,14	Primary function – riparian buffer stabilizes Delaware River shoreline
Wildlife Habitat*	X		1,6,8,12,16,17	Primary value due to proximity to DE River
Recreation*	X		1,2,5,6,7,8,9	Primary value due to proximity to DE River – recreational fishing
Educational/Scientific Value		X	5,6	
Uniqueness/Heritage	X		3,7,12,18,19,22,26	Portions of the DE River are considered “scenic”
Visual Quality/Aesthetics	X		6,7,8,10	Portions of the DE River are considered “scenic”
Endangered Species Habitat		X		None known, but bald eagle nest along river further downstream
Other				

Dominant Plant Species Observed

State Listed Species of Concern

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WETLANDS LOCATED ALONG ALTERNATIVES 3, 4, AND 5

Wetland Function-Value Evaluation Form

Wetland I.D: 3 Corps manual wetland delineation: Northcentral and Northeast regional Supplement
 Wetland Human made? NO Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: DRC Date 17 Aug 2010
 Adjacent land use: _____ Distance to nearest roadway or other development: _____
 Dominant wetland systems present PEM Contiguous undeveloped buffer zone present: _____
 How many tributaries contribute to the wetlands?: 0 Total area of wetlands: 0.176 acres

Function/Value	Suitability		Comments
	Y	N	
Groundwater Recharge/Discharge	X		
Floodflow Alteration		X	
Fish and Shellfish Habitat		X	
Sediment/Toxicant Retention		X	
Nutrient Removal		X	
Production Export	X		
Sediment/Shoreline Stabilization		X	
Wildlife Habitat	X		
Recreation		X	
Educational/Scientific Value		X	
Uniqueness/Heritage		X	
Visual Quality/Aesthetics	X		
Endangered Species Habitat		X	
Other			

* indicates the principle function or value

<u>Wildlife Species Observed within Wetlands</u>	<u>Dominate Plant Species Observed</u>	<u>State Listed Species of Concern</u>
Carolina wren	Japanese barberry	N/A
Gray catbird	Steeplebush	
	Silky dogwood	
	New York fern	
	Cinnamon fern	
	Water speedwell	
	Bog chickweed	

Wetland I.D.: 5 Corps manual wetland delineation: Northcentral and Northeast regional Supplement
Wetland Human made? NO Evaluation based on: Office _____ Field X
Project site Latitude _____ Longitude _____ Prepared by: DRC Date 18 Aug 2010
Adjacent land use: _____ Distance to nearest roadway or other development: _____
Dominant wetland systems present PEM Contiguous undeveloped buffer zone present: _____
How many tributaries contribute to the wetlands?: 0 Total area of wetlands: 0.218 acres

Function/Value	Suitability		Comments
	Y	N	
Groundwater Recharge/Discharge	X		
Floodflow Alteration		X	
Fish and Shellfish Habitat		X	
Sediment/Toxicant Retention		X	
Nutrient Removal		X	
Production Export	X		
Sediment/Shoreline Stabilization		X	
Wildlife Habitat	X		
Recreation		X	
Educational/Scientific Value		X	
Uniqueness/Heritage		X	
Visual Quality/Aesthetics	X		
Endangered Species Habitat		X	
Other			

* indicates the principle function or value

[illegible]

pg 26 sta 30

Alt 415

Wetland Function-Value Evaluation Form

Wetland I.D.: Wet 1 - Alt 415Wetland Human made? NoProject site Latitude 40°57'21" N Longitude 75°09'53" WAdjacent land use: Utility ROW - undeveloped parklandDominant wetland systems present ForestedHow many tributaries contribute to the wetlands?: 1Corps manual wetland delineation: 87 manualEvaluation based on: Office _____ Field XPrepared by: TK Date 8/6/10Distance to nearest roadway or other development: 50 feetContiguous undeveloped buffer zone present: yes - 3 sidesTotal area of wetlands: 0.83

→ residential homes nearby

Function/Value	Suitability		Comments
	Y	N	
Groundwater Recharge/Discharge	X*		bowl shaped depression - collects surface flow from surrounding land large depression along stream bank
Floodflow Alteration	X*		
Fish and Shellfish Habitat		X	
Sediment/Toxicant Retention		X	
Nutrient Removal		X	
Production Export		X	
Sediment/Shoreline Stabilization		X	
Wildlife Habitat	X		see list below
Recreation		X	
Educational/Scientific Value	X		
Uniqueness/Heritage	X		NPS land
Visual Quality/Aesthetics	X		
Endangered Species Habitat		X	
Other		X	

* indicates the principle function or value

Wildlife Species Observed within wetlands

red breasted nuthatch
red bellied woodpecker
American Coot
wood thrush
catbird (gray)
gold finch
red backed salamander

Dominate Plant Species Observed

see wetland 1
Alt 415 data form

Federal/State Listed Species of Concern

None observed

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POTENTIAL WETLAND MITIGATION SITES

Wetland Function-Value Evaluation Form

Wetland I.D: Watergates #6-9 (VanCampens Brook) Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X
 Project site Latitude _____ Longitude _____ Prepared by: DRC/JM Date: 8 May 2012; 13 June 2012
 Adjacent land use: Park recreational facility Distance to nearest roadway or other development: immediately adjacent
 Dominant wetland systems present PEM/LOW Contiguous undeveloped buffer zone present: n/a
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: _____

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge		X	4,6,7,12	groundwater discharge not observed
Floodflow Alteration	X		5,6,8,9,13,18	Wide floodplain in some areas; some banks armored from old dams
Fish and Shellfish Habitat	X		1,2,4,7,8,9,10,12,14,16,17	Was principle function, but all dams are breached
Sediment/Toxicant Retention		X	8,10	
Nutrient Removal		X		Little to no u/s sources of nutrients
Production Export		X	1,4,5,6	
Sediment/Shoreline Stabilization		X	12	Dense veg along shoreline; some areas disconnected from FP due to dams
Wildlife Habitat*	X		3,4,5,6,7,8,11,12,13,14,16,19,20	
Recreation	X		1,2,5,6,10,11	Fishing, hiking, wildlife viewing
Educational/Scientific Value		X	1,5,6,8,11,12	*Restoration will provide this function → easy parking and hiking access
Uniqueness/Heritage		X	7,9,11,12,13,14,18,19,22,23,26,28,30	*Restoration will provide this function
Visual Quality/Aesthetics		X	2,6,8,9,10,11	*Restoration will provide this function
Endangered Species Habitat	X			*Restoration will enhance this function
Other				

****PLEASE note the principle function or value****

Wildlife Species Observed within Wetlands		Dominant Plant Species Observed		State Listed Species of Concern
Great blue heron	Green frog	American Sycamore (along streambank)		Yes
Tree swallow	Northern water snake	Winterberry	Autumn olive	
Eastern kingbird	Salamanders	Sugar maple	Bush honeysuckle	
Canada goose	Mudpuppy	Red cedar	<i>Juncus effusus</i>	
Gray catbird	Evidence of fish	Multiflora rose	<i>Carex lurida</i>	
Northern oriole				
Red-winged blackbird				

*Removal of in-line dams will facilitate fish passage and restore VanCampens Brook to more natural conditions; right streambank could possibly be restored as forested wetland; could create a PFO wetland along inside of bend to reconnect with the floodplain; can also add emergent wetland areas – majority of streambanks have no associated wetlands or very narrow wetland (1-2' wide).

Wetland Function-Value Evaluation Form

Wetland I.D: Watergate #10 Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X
 Project site Latitude _____ Longitude _____ Prepared by: DRC/JM Date: 8 May 2012; 13 June 2012.
 Adjacent land use: Park recreational facility Distance to nearest roadway or other development: immediately adjacent
 Dominant wetland systems present PEM/LOW Contiguous undeveloped buffer zone present: n/a
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: _____.

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge	X		4,6,7,8,9,10,13	
Floodflow Alteration		X	1,6,9,13	
Fish and Shellfish Habitat*	X		1,3,4,7,8,10,12,14,16,17	Mussels in pond
Sediment/Toxicant Retention		X	3,8,10,12,13	Canada goose use of waterbody
Nutrient Removal		X	2,3,5,10,13,14	
Production Export		X	1,2,4,5,6,10	SAV for consumption by avian species, mussels as well
Sediment/Shoreline Stabilization		X	6	Steep banks along NW shoreline; very narrow emergent wetland fringe
Wildlife Habitat	X		4,6,7,8,12,16,19,20,22	
Recreation *	X		1,2,4,5,6,9,10,11	Fishing, wading, picnicking, hiking
Educational/Scientific Value		X	1,2,4,5,6,9,10,11	*Restoration could provide this value
Uniqueness/Heritage		X	1,5,6,8,11,12, 22, 23	*Restoration would improve this value
Visual Quality/Aesthetics		X	3,9,11,12,13,14,17,19,21	*Restoration would improve this value
Endangered Species Habitat	X		2,5,6,8,9,10,11,12	
Other				

****PLEASE note the principle function or value****

<u>Wildlife Species Observed within Wetlands</u>	<u>Dominant Plant Species Observed</u>	<u>State Listed Species of Concern</u>
Great blue heron	American Sycamore	Yes
Eastern bluebird	Winterberry	
Eastern kingbird	Sugar maple	
Canada goose	Red cedar	
Gray catbird	Multiflora rose	
Northern oriole	Autumn olive	
Red-winged blackbird	Bush honeysuckle	
Mussels; fish	Some small pockets of broad-leave cattail (2' wide)	

*Existing pond at #10 is separated from VanCampens Brook but outfalls to the brook; pond is spring fed, connection to brook through pipe is broken; very narrow existing wetland fringe (if at all) along shoreline (IMCA, JUEF, polygonum, sensitive fern, LOMO, Eleag., *Carex stipata*) ; associated with Van Campens Brook perennial going out of dam #10. GW seeps; removal of Dam #10 (with road over it) would restore functions/values to stream- no floodplain on right bank, steep bank dominated by invasive plant species.

Wetland Function-Value Evaluation Form

Wetland I.D: Upper Watgate Ponds #1,2,3 Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: DRC/JM Date: 14 June 2012.
 Adjacent land use: Park recreational facility Distance to nearest roadway or other development: immediately adjacent.
 Dominant wetland systems present PEM/LOW Contiguous undeveloped buffer zone present: n/a
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: _____.

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge	X		6,8,7,9,13	Outlet to Van campens appears partially-fully blocked, seeps most likely occur along steep banks.
Floodflow Alteration	X		5,6,7,9,15	May detain water from adjacent/upslope parking lot.
Fish and Shellfish Habitat*	X		1,10,12,16	Water appears stagnant, SAV present
Sediment/Toxicant Retention	X		2,3,4,5,8,9	Possibly toxins in parking lot runoff, Canada good defecation
Nutrient Removal		X	2,3,5,7,9,10	No known U/S sources of nutrients
Production Export		X	1,4,5,6,9	SAV sources – <i>Myriophyllum</i> , <i>Lemna minor</i> , <i>Anacharis</i>
Sediment/Shoreline Stabilization		X	3,4,6	
Wildlife Habitat*	X		4,7,8,9,12,16,19,20,22	Observation of small fish, tadpoles butterflies, and dragonflies
Recreation*	X		1,2,4,5,10,11	Fishing/bird viewing via NPS grass trail; large adjacent parking lot
Educational/Scientific Value		X	1,5,6,8,10,11,12	Restoration will enhance/improve this value
Uniqueness/Heritage		X	3,9,11,12,13,14,17,19,22,23	Berms surrounding all three ponds detracts from uniqueness and aesthetics
Visual Quality/Aesthetics		X	2,5,6,8,9,10,11,12	Berms surrounding all three ponds detracts from uniqueness and aesthetics
Endangered Species Habitat	X		1	
Other				

****PLEASE note the principle function or value****

Wildlife Species Observed within Wetlands	Dominant Plant Species Observed		State Listed Species of Concern
Redwing black bird	Acorus	Multiflora Rose	Yes
Fritillary	Woolgrass	Red Maple	
Dragonflies	Jewelweed (IMCA)	Common rush (JUEF)	
Snapping turtle	Reed Canary Grass	<i>Carex stipata</i>	
Painted turtle	Autumn Olive	<i>Carex lupulina</i>	
Northern water snake	Honeysuckle (LOMO)	Creeping potentilla	
Canada goose	Texas greeneyes (BEBE)	Fescue	
Tadpoles	Fox grape	Norway spruce	
	Sensitive fern	polygonum	

Wetland Function-Value Evaluation Form

Wetland I.D: Miller Wetland Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X
 Project site Latitude _____ Longitude _____ Prepared by: DRC/JM Date: 9 May 2012; 13 June 2012
 Adjacent land use: Old Mine Rd/abandoned farm/ag fields Distance to nearest roadway or other development: 300'
 Dominant wetland systems present PEM/LOW Contiguous undeveloped buffer zone present: 40'
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: unk

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge	X		6,7,8,9,10,12,13	
Floodflow Alteration	X		1,5,6,7,8,9,13,14,15,18	Adjacent to roadway & upland of ag fields
Fish and Shellfish Habitat	X		1,2,4,7,8,10,14,16,17	
Sediment/Toxicant Retention*	X		1,2,3,4,5,7,8,10,12,14,15,16	Principle function – runoff from ag fields
Nutrient Removal* (adjacent to ag field)	X		1,2,3,4,5,6,7,8,9,10,11,12,14	Intercepts drainage from Old mine rd and ag fields
Production Export	X		1,2,4,5,6,7,8,10	
Sediment/Shoreline Stabilization		X	7,12,13	
Wildlife Habitat*	X		1,6,7,8,9,11,13,14,16,17,19,20,22	Diversity of wildlife species observed due to numerous wetland classes (OW, PEM, PFO)
Recreation		X	1,5,6,7	Bird viewing from road; parking across street; birding opportunity along roadway
Educational/Scientific Value		X	1,5,6	Along a road; dangerous viewing location
Uniqueness/Heritage		X	4,5,6,7,17,18,22,23	Understory has many invasives
Visual Quality/Aesthetics		X	7,8,9,11	Easy access but along dangerous roadway
Endangered Species Habitat	X		N/A	
Other				

****PLEASE note the principle function or value****

<u>Wildlife Species Observed within Wetlands</u>	<u>Dominant Plant Species Observed</u>	<u>State Listed Species of Concern</u>
Red-winged blackbird + nest with hatchlings	Tussock sedge	Yes
Spotted turtle	Spicebush	
White-tailed deer	Skunk cabbage	
Black bear	Sensitive fern	
Common yellowthroat	Red osier dogwood	
Northern water snake	woolgrass	
Oriole	sofrush	
Evidence of bear (scat)	Broad-leaved cattail	
Painted turtle in open pond area	<i>Epilobium</i>	
Red-wing blackbird nest	<i>Polygonum spp.</i>	
	<i>Carex lupulina</i>	
	<i>Ludwigia palustris</i>	

S-R TRANSMISSION LINE – DEWA, MDSR, APPA

	Marsh fern	
	Cinnamon fern	

*existing pond to stay, expand PEM to FP of VanCampens Brook; adjacent forested wetland beyond 2nd *Acorus* cell – good PFO (restoration unnecessary at that location, dominated by red maple and tussock sedge); a second adjacent forested wetland is located in vicinity (understory is dominated by invasive plant species, including ROMU, BETH, has stable channel thru from open water pond- grade banks and restore forested wetland – grade down & remove invasives already forested with black locust and sycamore, black walnut, spicebush, very dark fertile old floodplain soil has mottles, qualifies as wetland soil + gw hydrology; include the upland berm area that could be restored adjacent to Miller wetland (dominated by Canada thistle, *Rubus occidentalis*, fox grape, Eleagnus, ROMU, many invasives, *Polygonum* spp., *Solidago* spp., some tussock sedge, mugwort, large elevation change, immediately adjacent to ag land (soybeans); 2nd wetland cell- also a second berm area that could be removed – had some wetland area within- reed canary, IMCA, tussock sedge, acorus, sensitive fern. Part of area a borderline wetland but has functions/values that could be enhanced; Acorus, marsh fern, reed canary grass, sensitive fern, skunk cabbage, LOMO, Fox grape, some large trees surrounding wetland (PLOC, ACRU)

Wetland Function-Value Evaluation Form

Wetland I.D: Peters Valley Millpond Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X _____
 Project site Latitude _____ Longitude _____ Prepared by: DRC/JM Date: 10 May 2012, 14 June 2012.
 Adjacent land use: Craft village Distance to nearest roadway or other development: 100'
 Dominant wetland systems present PEM/LOW Contiguous undeveloped buffer zone present: 40'
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: unk

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		4,6,7,8,9,12,13,14	Groundwater seeps flowing out of emergent wetland dominated by sphagnum and ferns
Floodflow Alteration	X		1,5,6,7,8,9,10,13,15,18	Wetland has ability to accept and store floodwaters – very dense emergent vegetation
Fish and Shellfish Habitat	X		1,2,4,7,8,9,10,12,14,15,16,17	Very high benthic diversity/distribution at site
Sediment/Toxicant Retention*	X		3,4,5,7,8,10,11,12,13,14,15,16	Principle function
Nutrient Removal		X	1,2,3,5,6,7,8,9,10,11,12,13,14	Little to no nutrient sources U/S
Production Export		X	1,2,4,5,7,8,9,10	Provides wildlife food sources only
Sediment/Shoreline Stabilization		X	7,12,13	Excellent emergent marsh floatation mat surrounding wetland
Wildlife Habitat *	X		1,3,4,5,6,7,8,9,11,12,13,14,15,16,18,19,20,23 (stonefly larvae)	*Principle value; too shallow to fish, but near historic site, wildlife viewing could be enhanced with restoration. Increase diversity of emergent vegetation species
Recreation		X	1,5,6,7	To shallow to fish, but near historic site. Good access to site but no direct access. Too sensitive. Wildlife viewing could be enhanced with restoration
Educational/Scientific Value	X		1,3,5,6	
Uniqueness/Heritage	X		4,7,18,20,21,22,23,24	
Visual Quality/Aesthetics		X	7,8,10,11	Could be enhanced with better viewing areas
Endangered Species Habitat*	X		1	
Other				

****PLEASE note the principle function or value****

<u>Wildlife Species Observed within Wetlands</u>	<u>Dominant Plant Species Observed</u>		<u>State Listed Species of Concern</u>
Red-winged blackbird	Tussock sedge	<i>Myosotis scorpioides</i>	Yes
Yellow warbler	Spicebush	Water speedwell	
White-tailed deer	Skunk cabbage	Reed canarygrass	
Black bear	Sensitive fern	Arrowhead	
Canada goose	Red osier dogwood	<i>Carex lupulina</i>	
Spotted sandpiper	woolgrass	<i>Carex stipata</i>	
Rough-winged swallow	softrush	<i>Solidago</i> spp.	
Red spotted newt	Broad-leaved cattail	Marsh fern	

*Existing pond is very shallow, conversion of open water to PEM/SS would be easy and low cost

Wetland Function-Value Evaluation Form

Wetland I.D: Peters Valley east of 615 (herp crossing) Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X
 Project site Latitude _____ Longitude _____ Prepared by: DRC/JM Date: 10 May 2012, 14 June 2012.
 Adjacent land use: Craft village/county road Distance to nearest roadway or other development: 20'
 Dominant wetland systems present PEM/SS Contiguous undeveloped buffer zone present: 200'
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: unk

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge	X		6,7,8,12	
Floodflow Alteration	X		5,6,8,9,10,13,18	
Fish and Shellfish Habitat		X	1,2,4,7,8,12,14,17	
Sediment/Toxicant Retention*	X		3,4,5,7,8,10,12,14,15,16	Principle function, due to proximity to road
Nutrient Removal		X	6,7,8,9	Little to no nutrient sources
Production Export		X	4,5,6,7,8	
Sediment/Shoreline Stabilization		X	12	
Wildlife Habitat	X		4,5,6,8,9,11,13,14,15,16,20	Road adjacent to PEM wetland; wildlife access needs improvement
Recreation		X	1,5,10,11	Good site access, but limited parking available
Educational/Scientific Value		X	1,5,6,11	
Uniqueness/Heritage		X	4,7,11,12,14,19,23,24	Culvert visible from roads
Visual Quality/Aesthetics		X	2,8,9,11	Site visible from road
Endangered Species Habitat*	X		1	
Other				

****PLEASE note the principle function or value****

<u>Wildlife Species Observed within Wetlands</u>	<u>Dominant Plant Species Observed</u>	<u>State Listed Species of Concern</u>
Red-winged blackbird	Multiflora rose (ROMU)	Acorus
Yellow warbler	Spicebush	Broad-leaved cattail
White-tailed deer	Skunk cabbage	Sensitive fern
Black bear	Ostrich fern	Carex sp.
Common yellowthroat	Red osier dogwood	Black Walnut
	Woolgrass	RUOC
	softrush	Honeysuckle (LOMO)
	Autumn olive	

Wetland Function-Value Evaluation Form

Wetland I.D: Camp Kittatinny Pond Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X
 Project site Latitude see GPS pts Longitude _____ Prepared by: DRC/JM Date: 7 May 2012, 6/12/12.
 Adjacent land use: Forest and ag fields Distance to nearest roadway or other development: 250' to single lane park road
 Dominant wetland systems present PEM/LOW-shallow open water Contiguous undeveloped buffer zone present: 200'
 How many tributaries contribute to the wetlands?: 1 main* Total area of wetlands: _____
 *5-6 seeps along northern fringe also contribute

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge	X		6,7,9,12	Berm
Floodflow Alteration	X		1,5,6,7,8,9,10,13,15,18	
Fish and Shellfish Habitat	X		1,4,7,8,10,14,16,17	
Sediment/Toxicant Retention	X		3,4,5,7,8,9,10,11,12,14,15,16	*Principle function
Nutrient Removal		X	1,2,3,5,6,7,8,12,13,14	No adjacent sources of nutrients
Production Export	X		1,2,4,5,6,7,8,9,10,14	Birds; 14 because outlet is a berm/dam; avian species utilizing wetland
Sediment/Shoreline Stabilization		X	12,13	Wetland fringe (emergent) along majority of shoreline
Wildlife Habitat	X		1,3,4,5,6,7,8,9,11,12,13,14,16,20,21,22	
Recreation	X		1,2,5,6,10,11	Public fishing; access via NPS road (single lane)
Educational/Scientific Value		X	2,5,6	Site accessible via NPS road (single lane)
Uniqueness/Heritage		X	5,12,13,14,19,23	
Visual Quality/Aesthetics		X	2,3,6,7,8,9,10,11,12	Old dock and berm structures still remain, tire ruts (old) can park very close to wetland and observe
Endangered Species Habitat	X		Potential habitat	
Other				

****PLEASE note the principle function or value****

Wildlife Species Observed within Wetlands		Dominant Plant Species Observed		State Listed Species of Concern
Killdeer	Meadow vole	Red osier dogwood	Soft rush	Potential
Spotted sandpiper	Spotted newt	Broad leaved cattail	Highbush blueberry	
White tailed deer	Canada goose	Tussock sedge	Jewelweed	
Yellow warbler	Wood duck	Autumn olive	Blunt spikerush	
Northern oriole		Soft stem bulrush	Am sycamore seedlings	
		Wool grass		

*Based on comments from P.Sharpe, consider existing fringe as current wetland and open water area as restored wetlands after construction; within pond area a shallow pond floating mat – extremely mucky: (*Nasturticum officinalis*, smartweed, *Eleocharis* (weak stemmed), woolgrass, IMCA, *Carex comosa*, *Leersia oryzoides*, *Potamogeton sp.*); old piers can be removed from emergent wetland ; pond has flow from perennial stream & a berm (dam) of veg/soil; invasives inhabit (remove berm and connect tussock sedge habitat below w/pond, ROMU, LOMO, Autumn olive); Upper Kittatinny Pond has a berm/beaver dam/old roadbed dominated by Autumn olive, some wetland species, silky dogwood, ROMU, LOMO; fringe of emergents at upper pond tussock sedge, IMCA; *Acorus* in PEM/PSS wetland below beaver dam, some cattails; old ballfield (approx 3 acres), -orchard grass, Autumn olive, timothy, *Potentilla simplex*.

Wetland Function-Value Evaluation Form

Wetland I.D: Birchenough Pond Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X _____
 Project site Latitude see GPS pts Longitude _____ Prepared by: DRC/JM Date 7 May 2012; 13 June 2012
 Adjacent land use: forested and old field / agland Distance to nearest roadway or other development: 200'
 Dominant wetland systems present PEM/LOW, PSS in fringe Contiguous undeveloped buffer zone present: _____
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: _____.

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge	X		6,7,9,12	No gw seeps/springs observed but gw recharge potential exists
Floodflow Alteration	X		1,3,5,6,7,8,9,10,13,15,18	Wetland can accept & store floodwaters & gradually release due to dam
Fish and Shellfish Habitat *	X		1,2,3,7,8,9,10,12,14,15,16,17	Size of pond & open water provide fish habitat; no shellfish observed
Sediment/Toxicant Retention	X		3,4,5,7,8,9,10,12,14,15,16	Undisturbed nature of site precludes sediment source from reaching site
Nutrient Removal	X		1,2,3,5,6,7,8,9,10,11,12,13,14	Same as above
Production Export	X		1,2,4,5,6,7,8,9,10	Provides wildlife food sources only
Sediment/Shoreline Stabilization	X		4,7,9,12,13,15	Excellent emergent marsh/floating mat surrounding wetland
Wildlife Habitat *	X		1,3,4,5,6,7,8,9,11,12,13,14,16,20,22	Variety of features provide wildlife habitat
Recreation	X		1,2,5,6,7,10,11	Possible fishing, very shallow water. Water level fluctuations may prohibit other recreation; site is sensitive unless passive rec
Educational/Scientific Value		X	2,3,5,6	Restoration could provide good site access
Uniqueness/Heritage		X	3,7,12,13,14,16,18,19,21,23	Abandoned farm house is a safety issue; no large parking area
Visual Quality/Aesthetics *	X		2,3,5,6,7,8,9,10,11,12	Very scenic site- exposed boulders
Endangered Species Habitat	X		N/A	Potential
Other				

****PLEASE note the principle function or value****

	<u>Wildlife Species Observed within Wetlands</u>	<u>Dominant Plant Species Observed</u>		<u>State Listed Species of Concern</u>
White	Red-winged blackbird	Tussock sedge	<i>Carex stricta</i>	Unknown – potential exists
	White-tailed deer	Soft rush	<i>Carex comosa</i>	
	Green frog	Red osier dogwoog	<i>Polygonum sagittatum</i>	
	Yellow warbler	Wool grass	<i>Potamogeton nodosus</i>	
		Broad leaved cattail	Skunk cabbage	

*Functions after restoration will be similar, restoration will restore PEM habitats. Based on comments from P.Sharpe, consider existing fringe as current wetland and open water area as restored wetlands after construction; very mucky wetland soils. Perennial stream located off earthen dam/beaver dam. UNT flowing into pond—not on topo map at all.

Wetland Function-Value Evaluation Form

Wetland I.D: Sussex VoTech Pond Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X
 Project site Latitude see GPS pts Longitude _____ Prepared by: DRC/JM Date 7 May 2012; 12 June 2012
 Adjacent land use: forest and ag field to east Distance to nearest roadway or other development: 500'
 Dominant wetland systems present PEM/LOW Contiguous undeveloped buffer zone present: _____
 How many tributaries contribute to the wetlands?: 1 Total area of wetlands: _____.

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		6,7,8,9,12,13	Seep; mucky wetland – 1' deep of muck
Floodflow Alteration	X		1,5,6,7,8,9,10,13,15	
Fish and Shellfish Habitat	X		1,4,7,10,12	Water depth is very shallow
Sediment/Toxicant Retention*	X		3,4,5,8,9,10,11,12,13,14,15,16	High organic matter (>1' deep muck) w/ emergent veg/floating mat
Nutrient Removal	X		1,2,3,5,6,7,9,10,13,14	
Production Export		X	1,2,4,5	
Sediment/Shoreline Stabilization	X		1,2,4,10,12,13,15	Fringe of emergent veg/floating mat stabilizes shoreline
Wildlife Habitat	X		3,4,5,6,7,8,9,11,12,13,14,16,20,22	
Recreation	X		1,2,5,6	Possible fishing, though water level much below normal due to breach of dam
Educational/Scientific Value		X	5,6	Berm breached – disturbed condition
Uniqueness/Heritage		X	3,7,2,3	Open water dominant habitat
Visual Quality/Aesthetics		X	7,8,10,11	
Endangered Species Habitat		X		None known
Other				

****PLEASE note the principle function or value****

<u>Wildlife Species Observed within Wetlands</u>	<u>Dominant Plant Species Observed</u>	<u>State Listed Species of Concern</u>
Spotted sandpiper	Tussock sedge	
White-tailed deer	Soft rush	n/a
Painted turtle	Purple loosestrife	
	Wool grass	
	Broad leaved cattail	

*Functions after restoration will be similar, restoration will restore PEM habitats. Based on comments from P.Sharpe, consider existing fringe as current wetland and open water area as restored wetlands after construction; dam breached – flows to perennial stream; inlet = perennial stream feeding pond upstream; emergent wetland fringe: JUEF, *Nusturntium officinalis*, *Polygonum hydropiperoides*, *Leersia oryzoides*, *Carex stipata*, lady's thumb, *Carex scoparia*, *Carex lurida*, *Polygonum sagittatum*, *Carex lupulina*, wool grass; berm is partially breached, remove berm and create meandering channel in open water area; plant with emergents and restore stream d/s of berm; narrow emergent wetland fringe along shoreline.

Wetland Function-Value Evaluation Form

Wetland I.D: Blaufarb pond Corps manual wetland delineation: Northcentral and Northeast Region
 Wetland Human made? Yes Evaluation based on: Office _____ Field X
 Project site Latitude see GPS pts Longitude _____ Prepared by: DRC/JM Date: 10 May 2012; 11 June 2012.
 Adjacent land use: mature hemlock forest Distance to nearest roadway or other development: 2800'
 Dominant wetland systems present PEM/LOW Contiguous undeveloped buffer zone present: 2000'
 How many tributaries contribute to the wetlands?: 1 main* Total area of wetlands: _____
 *seeps along fringe also contribute

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge*	X		3,6,7,8,9,10 (?), 12,13	Groundwater seeps (secondary function) known only in-flow to wetland
Floodflow Alteration		X	1,5,6,8,9,15,18	No inlet observed – gw seeps only
Fish and Shellfish Habitat	X		3,5,8,10,12,14,15	*Principle function – manmade and beaver dam
Sediment/Toxicant Retention		X	3,4,5,8,9,10,12	Sediment runoff very little with the exception of surrounding uplands
Nutrient Removal		X	1,2,3,5,7,14	No nutrient runoff from adjacent sites
Production Export		X	2,4,5,6	
Sediment/Shoreline Stabilization		X	6	Fringe of emergent veg in some but not entire shoreline of pond
Wildlife Habitat*	X		1,2,4,5,6,7	Heron rookery d/s of pond in another wetland area w/open water
Recreation		X	1,5,6,7	No easy access in or parking at site
Educational/Scientific Value		X	2,4,5,6	
Uniqueness/Heritage		X	3,5,22,23	
Visual Quality/Aesthetics		X	5,6,7,8,10,11	
Endangered Species Habitat		X		None known
Other				

****PLEASE note the principle function or value****

<u>Wildlife Species Observed within Wetlands</u>	<u>Dominant Plant Species Observed</u>	<u>State Listed Species of Concern</u>
Osprey	Sweet fern	Wool grass
Barred owl	Eastern hemlock	Soft rush
White tailed deer	Blunt spikerush	Black birch
Yellow warbler	sphagnum	Bristly dewberry
Pumpkinseed sunfish	Common blackberry	
Red-eyed vireo		
Spotted newt		

*minimal fringe restoration possible with waterlevel reduction. Existing fringe will most likely migrate to meet new surface elevation; no inlet observed-seeps only; no perennial stream flow in, flows to perennial stream; there is an outlet at beaver dam where the water flows out of the pond; 5-10' wide emergent wetland fringe; berm and barberry could be removed – invasive species, removal immediately adjacent to wetland; Dominant veg in water = water shield, *Brasenia schreberi*, *sparganium* (all along water edge), tussock sedge; dominant veg in mixed forest upland adjacent = *Lycopodium*, *Vaccinium*, may apple, hay-scented fern, bristly dewberry; dominant veg in wetland fringe = *Carex scoparia*, *C. stipata*, *C. lurida*? *lupulina*? *C. intumescens*, *C. stricta*.

PLEASE NOTE: THIS SITE IS NO LONGER BEING CONSIDERED FOR RESTORATION

due to the sensitive and unique fringe wetland habitat and high quality open water habitat.

S-R TRANSMISSION LINE – DEWA, MDSR, APPA

Wetland Function-Value Evaluation Form

Wetland I.D: Hemlock pond Bedrock & gravelrock is substrate in pond _____ Corps manual wetland delineation: Northcentral and Northeast Region

Wetland Human made? Yes Evaluation based on: Office _____ Field X

Project site Latitude see GPS pts Longitude _____ Prepared by: DRC/JM Date: 9 May 2012; 12 June 2012

Adjacent land use: mature hemlock forest Distance to nearest roadway or other development: 4700'

Dominant wetland systems present PEM/LOW dominant open water _____ Contiguous undeveloped buffer zone present: 4000'

How many tributaries contribute to the wetlands?: 1 main* Total area of wetlands: _____

*seeps along fringe also contribute

Function/Value	Suitability		Rationale (Ref#)	Comments
	Y	N		
Groundwater Recharge/Discharge	X		4,6,7,9,12	Beaver dam; gw seeps
Floodflow Alteration		X	1,6,7,13,15	Bedrock/gravel substrate prevent water retention
Fish and Shellfish Habitat*	X		1,2,3,4,7,8,10,12,14,15,16,17	Deep areas with much submerged woody debris
Sediment/Toxicant Retention	X		3,5,8,9,10,11,12	No u/s sources due to undeveloped lands & remoteness of site
Nutrient Removal		X	1,2,5,14	No u/s sources due to undeveloped lands & remoteness of site
Production Export		X	4,5,6	
Sediment/Shoreline Stabilization		X	6	Some emergent veg along portion of shoreline but gravel & lack of organic matter preclude more recruitment
Wildlife Habitat	X		1,3,4,5,6,7,8,9,12,16,17,19,20,22,23	Watercourse
Recreation	X		1,2,4,5,6,7	Public fishing but must hike over 1 mile to site
Educational/Scientific Value		X	2,5,6	No easy access
Uniqueness/Heritage		X	3,18,21,22,23	
Visual Quality/Aesthetics	X		5,6,7,8,10,11	Site has a high scenic quality due to exposed boulder of bedrock
Endangered Species Habitat		X	N/A	Not within wetland, but within adjacent upland
Other				

****PLEASE note the principle function or value****

Wildlife Species Observed within Wetlands		Dominant Plant Species Observed		State Listed Species of Concern
Osprey	Red-eyed vireo	Sweet fern	Blunt spikerush	Yes, adjacent to wetland
Barred owl	Spotted newt	Eastern hemlock	Black birch	
White tailed deer	Canada goose	Tussock sedge	<i>Comptonia peregrina</i>	
Yellow warbler	Northern water snake	sphagnum	Round-leaved sundew	
Pumpkinseed sunfish		Common blackberry	Bristly dewberry	
		Wool grass	Upland: hay-scented	
		Soft rush	fern, Canadian hemlock,	
		Sheep laurel	mountain laurel	

*minimal fringe restoration possible with waterlevel reduction. Existing fringe will most likely migrate to meet new surface elevation. Associated with a watercourse d/s of the earthen dam-perennial stream flows to Flat Brook. Water totally clear, many downed trees. Very narrow (ranges from 0-10' wide) wetland fringe, clear water, no soil for rooting medium, rocky/gravel submerged along shoreline. GPS point: round-leaved sundew along shoreline; many downed logs and sphagnum moss along shoreline.