Privateer Farms Mitigation Site Fact Sheet

Location: Cataloguing unit 03030005 of the Cape Fear River Basin, Cumberland and Bladen Counties

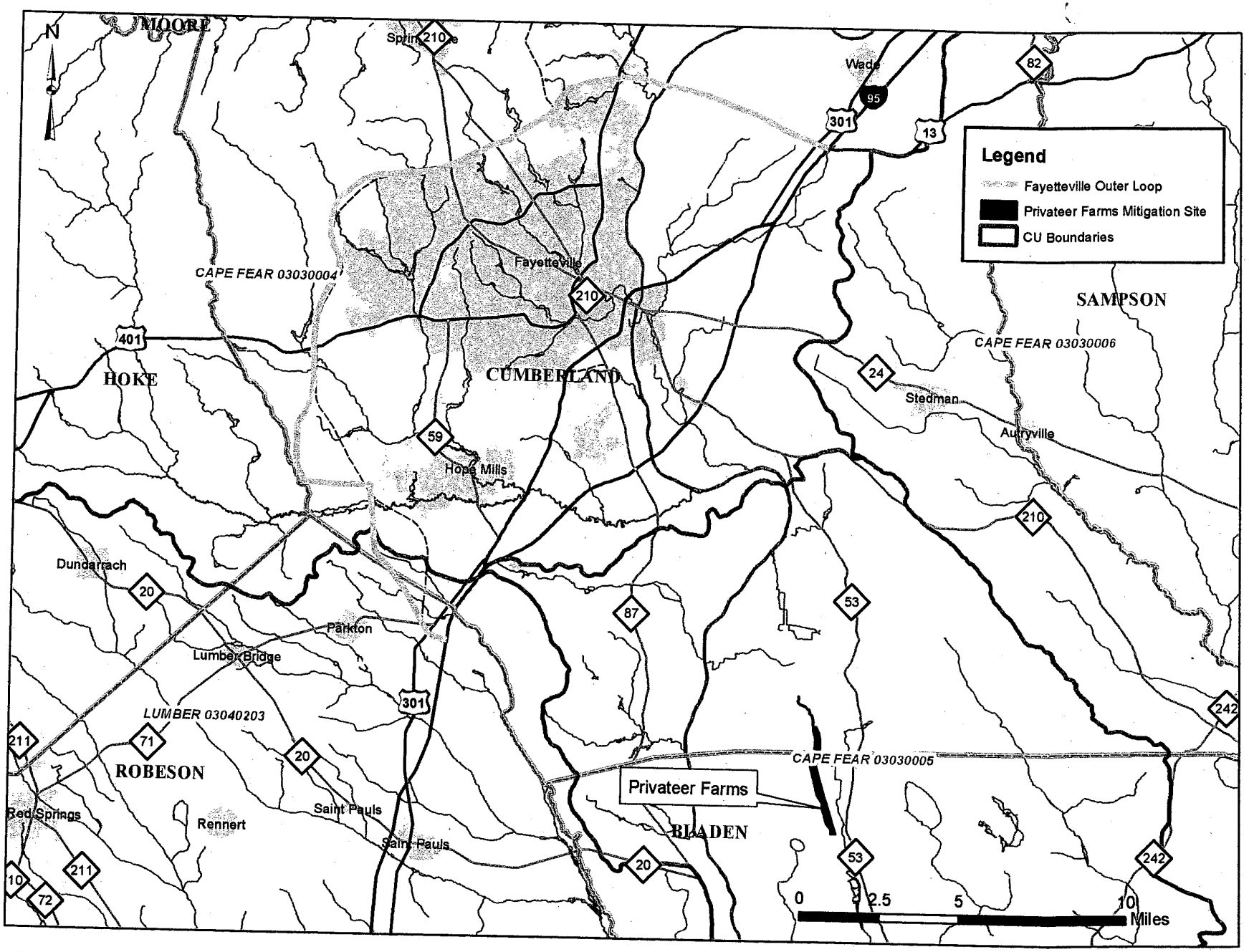
Mitigation Provided: Restoration of 402.5 acres of riparian wetlands, enhancement of 25 acres of riparian wetlands, and restoration of 34,005 feet of stream

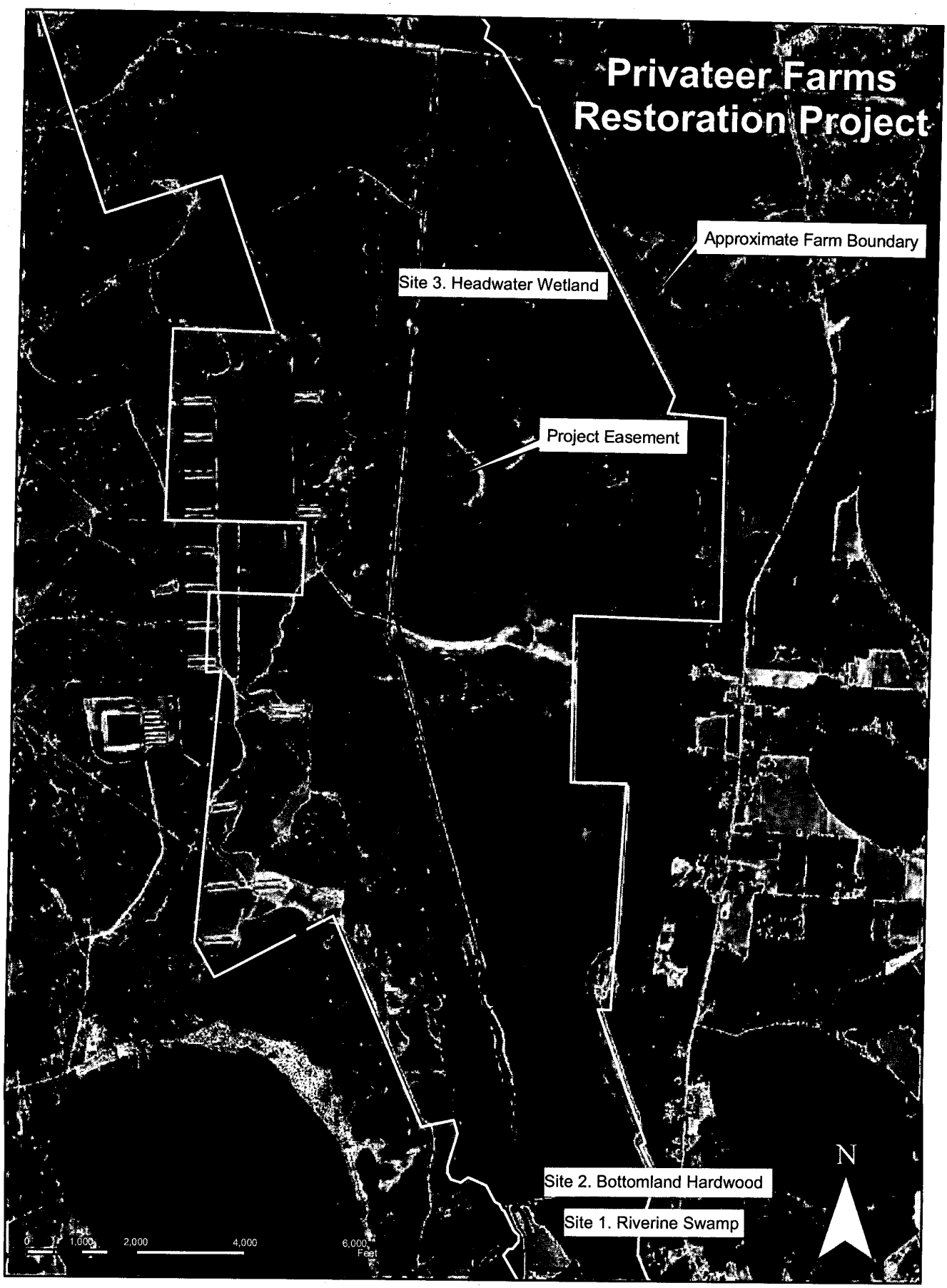
Site Overview: The Privateer Farms project restored 402.5 acres of riparian wetlands, enhanced 25 acres of riparian wetlands, and restored 34,005 feet of Harrison Creek, making it one of the largest ecosystem restoration projects in the Southeast. Stream flows from larger storms now spread onto the floodplain, which reduces the energy of the water and results in less erosion of stream banks. Structures placed within the streambed control its grade, reduce stress on stream banks, and create a more diverse habitat for fish and other aquatic organisms. Riparian wetlands were restored by reconnecting Harrison Creek with its original floodplain. The restoration of stream and wetland hydrology was particularly challenging given the low gradient of the site and extensive ditching of the existing agricultural fields. Historical aerial photography, detailed elevation data, information on nearby intact streams and wetlands, and other resources were used to mimic the original site hydrology.

Monitoring Results: Currently, the project is in its third year of monitoring. The five-year monitoring plan for the site includes criteria to evaluate the success of the wetland hydrology, vegetation community, and stream components of the project. Data collected during the 2006 (Monitoring Year 2) growing season by 15 automatic monitoring well gauges at the Privateer site showed that groundwater levels met hydrologic success criteria for 14 of the wells. The gauge that did meet the criteria exhibited a cumulative hydroperiod of 108 days or 45% of the 2006 growing season, indicating that the location experiences significant wetness, but the water table fluctuates very rapidly and does not experience surface saturated conditions for long periods of time. This is due to the close proximity to the restored stream channel. The vegetation monitoring for 2006 indicated an average survivability of over 532 stems per acre, which is on a trajectory to achieve an average vegetation survival criteria of 320 stems per acre surviving after the fifth growing season.

On-site streamflow gauges documented the occurrence of at least two bankfull flow events during the second year of the monitoring period. In-stream structures installed within the restored stream included constructed riffles, log vanes, log weirs, and root wads. Visual observations of structures throughout the Year 2 season indicated that the structures are functioning as designed. No areas of streambank erosion have been noted after numerous bankfull flow events since construction completion. Photographs were taken throughout the Year 2 growing season to document the evolution of the restored stream channel. Restored pools have maintained a variety of depths and habitat qualities, depending on the location and type of scour features (logs, root wads, etc.).

Awards: American Council of Engineering Companies of North Carolina 2005 Environmental Engineering Excellence Award


N
MOORE
Spring
210
Wade
82
95
301
13
Legend
Fayetteville Outer Loop
Privateer Farms Mitigation Site
CU Boundaries
CAPE FEAR 03030004
Fayetteville
210
SAMPSON
401
HOKE
CUMBERLAND
CAPE FEAR 03030006
24
Stedman
Autryville
59
Hope Mills
210
Dundarrach
20
87
53
Parkton
Lumber Bridge
301
242
LUMBER 03040203
211
71
ROBESON
20
CAPE FEAR 03030005
Privateer Farms
Red Springs
Rennert
Saint Pauls
BLADEN
Saint Pauls
20
53
242
10
211
72
0
2.5
5
10
Miles


Privateer Farms
Restoration Project
Approximate Farm Boundary
Site 3. Headwater Wetland
Project Easement
Site 2. Bottomland Hardwood
Site 1. Riverine Swamp
N
0
1,000
2,000
4,000
6,000
Feet

NC WAM Wetland Rating Sheet

Wetland Site Name	Privateer Site 1	Date of Assessment	9/6/07
Wetland Type	Riverine Swamp Forest	Assessor Name/Organization	

Presence of stressor affecting assessment area (Y/N)	NO
Notes on Field Assessment Form (Y/N)	~~NO~~ YES
Presence of regulatory considerations (Y/N)	NO
Wetland is intensively managed (Y/N)	NO
Wetland may be a high-quality riverine wetland (Y/N)	

Sub-function Rating Summary

Function	Sub-function	Metrics	Rating
Hydrology	Surface Storage and Retention	Condition	**HIGH**
	Sub-surface Storage and Retention	Condition	**MEDIUM**
Water Quality	Pathogen Change	Condition	**LOW**
		Condition/Opportunity	**LOW**
		Opportunity Presence (Y/N)	**NO**
	Particulate Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**YES**
	Soluble Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**YES**
	Physical Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**YES**
	Pollution Change	Condition	X
		Condition/Opportunity	X
		Opportunity Presence (Y/N)	X
Habitat	Physical Structure	Condition	**LOW**
	Landscape Patch Structure	Condition	**MEDIUM**
	Vegetation Composition	Condition	**LOW**
	Uniqueness	Condition	**NO**

Function Rating Summary

Function	Metrics	Rating
Hydrology	Condition	**HIGH**
Water Quality	Condition	**HIGH**
	Condition/Opportunity	**HIGH**
	Opportunity Presence (Y/N)	**YES**
Habitat	Condition	**LOW**

Overall Wetland Rating **HIGH**

NC WAM FIELD ASSESSMENT FORM
VERSION 3.13 (January 12, 2007)

Wetland Site Name	Privateer Site 1	**Date**	9/6/07
Wetland Type	Riverine Swamp Forest	**Assessor Name/Organization**	
Level III Ecoregion	Southeastern Plains	**Nearest Named Water Body**	
River Basin		**USGS 8-Digit Catalogue Unit**	
☐ Yes ☒ No	**Precipitation within 48 hrs?**	**Latitude/Longitude (deci-degrees)**	

Evidence of stressors affecting the assessment area (may not be within the assessment area)
Please circle and/or make note below if evidence of stressors is apparent. Consider departure from reference, if appropriate, in recent past (for instance, within 10 years). Noteworthy stressors include, but are not limited to the following.

- Hydrological modifications (examples: ditches, dams, beaver dams, dikes, berms, ponds, etc.)
- Surface and sub-surface discharges into the wetland (examples: discharges containing obvious pollutants, presence of nearby septic tanks, underground storage tanks (USTs), hog lagoons, etc.)
- Signs of vegetation stress (examples: vegetation mortality, insect damage, disease, storm damage, salt intrusion, etc.)
- Habitat/plant community alteration (examples: mowing, clear-cutting, exotics, etc.)

Is the assessment area intensively managed? ☐ Yes ☒ No

Describe effects of stressors that are present.

Regulatory Considerations
Select all that apply to the assessment area.

☐ Anadromous fish
☐ Federally protected species or State endangered or threatened species
☐ NCDWQ riparian buffer rule in effect
☐ Wetland adjacent to or associated stream drains to a Primary Nursery Area
☐ Publicly owned property
☐ N.C. Division of Coastal Management Area of Environmental Concern (AEC) (including buffer)
☐ N.C. Division of Water Quality best usage classification of SA or supplemental classifications of HQW, ORW, or Trout
☐ Designated NCNHP reference community

What type of natural stream is associated with the wetland, if any? (Check all that apply)

☒ Blackwater
☐ Brownwater
☐ Tidal (if tidal, check one of the following boxes) ☐ Lunar ☐ Wind ☐ Both

Is the assessment area on a coastal island? ☐ Yes ☒ No

Is the assessment area's surface water storage capacity or duration substantially altered by beaver? ☐ Yes ☒ No

1. **Ground Surface Condition/Vegetation Condition – assessment area condition metric**

Check a box in each column. Consider alteration to the ground surface (GS) in the assessment area and vegetation structure (VS) in the assessment area. Compare to reference wetland if applicable (see User Manual v1.0). If a reference is not applicable, then rate the assessment area based on evidence of alteration.

GS	VS	
☒A	☒A	Not severely altered
☐B	☐B	Severely altered over most of the assessment area (ground surface alteration examples: vehicle tracks, excessivesedimentation, fire-plow lanes, skidder tracks, bedding, fill, soil compaction, obvious pollutants) (vegetation structure alteration examples: mechanical disturbance, herbicides, salt intrusion [where appropriate], exotic species, grazing, less diversity [if appropriate], artificial hydrologic alteration)

2. **Surface and Sub-Surface Storage Capacity and Duration – assessment area condition metric**

Check a box in each column. Consider surface storage capacity and duration (Surf) and sub-surface storage capacity and duration (Sub). Consider both increase and decrease in hydrology. Refer to the NRCS Scope and Effect Guide (see User Manual v1.0 Appendix G) for North Carolina hydric soils for the zone of influence of ditches in hydric soils. A ditch ≤ 1 foot deep is considered to affect surface water only, while a ditch > 1 foot deep is expected to affect both surface and sub-surface water. Consider tidal flooding regime, if applicable.

Surf	Sub	
☒A	☒A	Water storage capacity and duration are not altered.
☐B	☐B	Water storage capacity or duration are altered, but not substantially (typically, not sufficient to change vegetation).
☐C	☐C	Water storage capacity or duration are substantially altered (typically, alteration sufficient to result in vegetation change) (examples: intensive ditching, fill, sedimentation, channelization, diversion, man-made berms, beaverdams, stream incision, sewer lines, soil compaction).

3. **Water Storage/Surface Relief – assessment area/wetland type condition metric**

Check a box in each column. Select the appropriate storage for the assessment area (AA) and the wetland type (WT).

AA	WT	
☐A	☐A	> 50% of the wetland type with depressions able to pond water > 2 feet
☐B	☐B	> 50% of the wetland type with depressions able to pond water 1 to 2 feet
☒C	☒C	> 50% of wetland type with depressions able to pond water 6 inches to 1 foot
☐D	☐D	> 50% of wetland type with depressions able to pond water 3- to 6-inches deep
☐E	☐E	Depressions able to pond water < 3-inches deep

4. **Soil Texture/Structure – assessment area condition metric**

Select all that apply. Dig soil profile in the dominant assessment area landscape feature. Make soil observations within the top foot. National Technical Committee for Hydric Soils regional indicators are noted (use most recent guidance).

- ☐A Sandy soil
- ☐B Predominantly characterized by mottled (redoxymorphic features), mineral soil (F6, F8, F12, TF10, S5, S6)
- ☐C Predominantly characterized by other, mineral soil (no mottling)
- ☐D Gleyed mineral soil (F2, S4)
- ☒E Soil ribbon < 1 inch
- ☐F Soil ribbon ≥ 1 inch
- ☐G No peat or muck presence
- ☐H A peat or muck presence (A6, A7, A8, A9, A10, F1, S1)
- ☒I Peat or muck soil (histosol or histic epipedon) (A1, A2, A3)

5. **Discharge into Wetland – opportunity metric**

Check a box in each column. Consider surface pollutants or discharges (Surf) and sub-surface pollutants or discharges (Sub). Examples of sub-surface discharges include presence of nearby septic tank, underground storage tank (UST), etc.

Surf	Sub	
☒A	☒A	Little or no evidence of pollutants or discharges entering the assessment area
☐B	☐B	Noticeable evidence of pollutants or discharges entering the wetland and stressing, but not overwhelming the treatment capacity of the assessment area
☐C	☐C	Noticeable evidence of pollutants or discharges (pathogen, particulate, or soluble) entering the assessment area and potentially overwhelming the treatment capacity of the wetland (water discoloration, dead vegetation, excessive sedimentation)

6. **Land Use – opportunity metric**

Check all that apply. Evaluation of this metric involves a GIS effort with field adjustment. Consider sources draining to assessment area within entire upstream watershed (WS), within 5 miles and within the watershed draining to the assessment area (5M), and within 2 miles and within the watershed draining to the assessment area (2M). Effective riparian buffers are considered to be 50 feet wide in the Coastal Plain and Piedmont and 30 feet wide in the Mountains.

WS	5M	2M	
☐A	☐A	☐A	> 30% impervious surfaces with stormwater Best Management Practices (BMPs) (land use examples: industrial, commercial, and high-density residential)
☐B	☐B	☐B	> 30% impervious surfaces without stormwater BMPs
☐C	☐C	☐C	10 to 30% impervious surfaces
☒D	☒D	☒D	< 10% impervious surfaces
☐E	☐E	☐E	Old urban development (pink areas on USGS 7.5-minute quadrangles)
☐F	☐F	☐F	New adjacent development
☐G	☐G	☐G	Confined animal operations (or other local, concentrated source of pollutants)
☐H	☐H	☐H	≥ 20% coverage of pasture without riparian buffer
☐I	☐I	☐I	≥ 20% coverage of pasture with effective riparian buffer
☒J	☒J	☒J	≥ 20% coverage of agricultural land (regularly plowed land) without riparian buffer
☐K	☐K	☐K	≥ 20% coverage of agricultural land (regularly plowed land) with effective riparian buffer
☐L	☐L	☐L	≥ 20% coverage of maintained grass/herb
☒M	☒M	☒M	Silvicultural land with disturbance < 5 years old
☐N	☐N	☐N	Little or no opportunity. Lack of opportunity may result from hydrologic modifications that prevent drainage or overbank flow from affecting the assessment area.

7. **Wetland Acting as Vegetated Buffer – assessment area condition metric**

Is the assessment area within 50 feet of a stream or other open water? ("open water" does not include man-made ditches or canals)

☒Yes ☐No · If No, Skip to next metric

Stream width (Stream width is normal flow width [ordinary high water to ordinary high water]). If the stream is anastomosed, combine widths of channels/braids for a total stream width.

☐≤ 15-feet wide ☒> 15-feet wide ☐Not Applicable

Do roots of assessment area vegetation extend into the bank of the adjacent stream/open water?

☒Yes ☐No

Is stream or other open water sheltered or exposed?

☒Sheltered – adjacent open water with width < 2500 feet and no regular boat traffic.

☐Exposed – adjacent open water with width ≥ 2500 feet or regular boat traffic.

8. Wetland/Riparian Buffer Width – assessment area/wetland type/wetland complex metric

Check a box in each column. Select the appropriate width for the wetland type at the assessment area (WT), the wetland complex (WC), and the riparian buffer at the assessment area (RB) (if applicable). Riparian buffer width is measured from top of bank and need only be present on one side of the water body. The riparian buffer is measured from the outside banks of the outer channels of an anastomosed system. Make buffer judgment based on dominant landscape feature. Record a note if a portion of the buffer has been removed or disturbed.

WT	WC	RB (if applicable)	
☒A	☒A	☒A	≥ 100 feet
☐B	☐B	☐B	From 80 to < 100 feet
☐C	☐C	☐C	From 50 to < 80 feet
☐D	☐D	☐D	From 40 to < 50 feet
☐E	☐E	☐E	From 30 to < 40 feet
☐F	☐F	☐F	From 15 to < 30 feet
☐G	☐G	☐G	From 5 to < 15 feet
☐H	☐H	☐H	< 5 feet

9. Inundation Duration – assessment area condition metric

Answer for assessment area dominant landform.

☐A Evidence of short-duration inundation (< 7 consecutive days)

☐B Evidence of saturation, without evidence of inundation

☒C Evidence of long-duration inundation (7 to 30 consecutive days or more)

10. Indicators of Deposition – assessment area condition metric

Consider recent deposition only (no plant growth since deposition).

☒A Sediment deposition is not excessive, but at approximately natural levels.

☐B Sediment deposition is excessive, but not overwhelming the wetland.

☐C Sediment deposition is excessive and is overwhelming the wetland.

11. Wetland Size – wetland type/wetland complex condition metric

Check a box in each column. Involves a GIS effort with field adjustment. This metric evaluates three aspects of the wetland area: the size of the wetland type (WT), the size of the contiguous wetland complex (WC), and the size of the contiguous, forested wetland (FW) (if applicable, see User Manual). Boundaries are formed by uplands, four-lane roads, or urban landscapes. An observed beaver pond forms a boundary if it extends across the entire width of the floodplain. Additionally, other wetland types are considered boundaries for column WT. If assessment area is clear-cut, select "K" for FW column.

WT	WC	FW (if applicable)	
☐A	☒A	☐A	≥ 500 acres
☐B	☐B	☐B	From 100 to < 500 acres
☐C	☐C	☐C	From 50 to < 100 acres
☒D	☐D	☐D	From 25 to < 50 acres
☐E	☐E	☐E	From 10 to < 25 acres
☐F	☐F	☐F	From 5 to < 10 acres
☐G	☐G	☐G	From 1 to < 5 acres
☐H	☐H	☐H	From 0.5 to < 1 acre
☐I	☐I	☐I	From 0.1 to < 0.5 acre
☐J	☐J	☐J	From 0.01 to < 0.1 acre
☐K	☐K	☒K	< 0.01 acre

12. Wetland Intactness – wetland type condition metric (evaluate for Pocosins only)

☒A Wetland type is the full extent (≥ 90%) of its natural landscape size.

☐B Wetland type is < 90% of the full extent of its natural landscape size.

13. Connectivity to Other Natural Areas – landscape condition metric

Check appropriate box(es). This metric refers to the landscape patch, the contiguous naturally vegetated area and open water (if appropriate) that includes the wetland type. Boundaries are formed by four-lane roads, urban landscapes, maintained fields (pasture and agriculture), or open water > 300 feet wide. Consider if the wetland type is well-connected (WC) or loosely-connected (LC) to the landscape patch.

WC	LC	
☒A	☒A	≥ 500 acres
☐B	☐B	From 100 to < 500 acres

☐C ☐C From 50 to < 100 acres
☐D ☐D From 10 to < 50 acres
☐E ☐E < 10 acres
☐F ☐F Wetland type has a poor or no connection to other natural habitats

Check Yes or No.

☐Yes ☒No Does wetland type have a surface hydrology connection to open waters or tidal wetlands? (evaluate for marshes only)

☒Yes ☐ No Is the assessment area subject to overbank flooding during normal conditions?

14. Edge Effect – wetland type condition metric

Estimate distance from wetland type boundary to artificial edges. Artificial edges include permanent features such as fields, development, two-lane or larger roads (≥ 40-feet wide), utility line corridors wider than a two-lane road, and clear-cuts < 10 years old. Consider the eight main points of the compass.

☐A No artificial edge within 150 feet in all directions
☐B No artificial edge within 150 feet in four to seven directions
☒C An artificial edge occurs within 150 feet in more than four directions or assessment area is clear-cut

15. Vegetative Composition – assessment area condition metric (skip for marshes and Pine Flat)

☐A Vegetation is close to reference condition in species present and their proportions. Lower strata composed of appropriate species, with exotic plants absent or sparse within the assessment area.

☐B Vegetation is different from reference condition in species diversity or proportions, but still largely composed of native species characteristic of the wetland type. This may include communities of weedy native species that develop after clearcutting or clearing. It also includes communities with exotics present, but not dominant, over a large portion of the expected strata.

☒C Vegetation severely altered from reference in composition. Expected strata are unnaturally absent or dominated by exotic species or composed of planted stands of non-characteristic species or inappropriately composed of a single species.

16. Vegetative Diversity – assessment area condition metric (evaluate for Non-tidal Freshwater Marsh only)

☒A Vegetation diversity is high and is composed primarily of native species.
☐B Vegetation diversity is low or has > 10% cover of exotics.
☐C Vegetation is dominated by exotic species.

17. Vegetative Structure – assessment area/wetland type condition metric

☒ **Vegetation present**

Evaluate percent coverage of vegetation for marshes only

☒A ≥ 25% coverage of vegetation
☐B < 25% coverage of vegetation

Check a box in each column for each stratum. Evaluate this portion of the metric for non-marsh wetlands. Consider structure in airspace above the assessment area (AA) and the wetland type (WT) separately.

AA	WT	
☐A	☐A	Canopy closed, or nearly closed, with natural gaps associated with natural processes
☐B	☐B	Canopy present, but opened more than natural gaps
☒C	☒C	Canopy sparse or absent
☐A	☐A	Dense mid-story/sapling layer
☐B	☐B	Moderate density mid-story/sapling layer
☒C	☒C	Mid-story/sapling layer sparse or absent
☐A	☐A	Dense shrub layer
☒B	☒B	Moderate density shrub layer
☐C	☐C	Shrub layer sparse or absent
☒A	☒A	Dense herb layer
☐B	☐B	Moderate density herb layer
☐C	☐C	Herb layer sparse or absent

☐ **Vegetation absent**

18. Snags – wetland type condition metric

☐A Large snags (more than one) are present (> 12-inches DBH, or large relative to species present and landscape stability).

☒B Not A

19. Diameter Class Distribution – wetland type condition metric

☐A Most canopy trees have stems > 6-inches in diameter at breast height (DBH); many large trees (> 12-inches DBH) are present.

☐B Most canopy trees have stems between 6- and 12-inches DBH, few are > 12-inch DBH.

☒C Most canopy trees are < 6-inches DBH or no trees.

20. Large Woody Debris – wetland type condition metric

Include both man-made and natural debris piles.

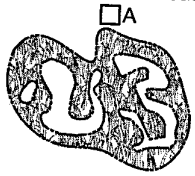
☐A Large logs (more than one) are present (> 12-inches in diameter, or large relative to species present and landscape stability).

☒B Not A

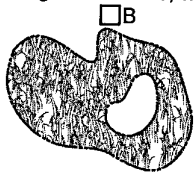
21. Vegetation/Open Water Dispersion – wetland type/open water condition metric (evaluate for Non-Tidal Freshwater Marsh only)

Select the figure that best describes the amount of interspersion between vegetation and open water in the growing season. Patterned areas indicate vegetated areas, while solid white areas indicate open water.

☐A



☐B



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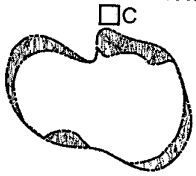
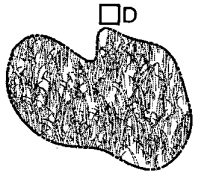


☐D



22. Habitat Uniqueness – wetland type condition metric

☐Yes ☒No Has the N.C. Environmental Management Commission classified the assessment area as "Unique Wetlands" (UWL)?"

Notes

Site is a three year old restoration project. Woody species are planted in buffer and wetland areas, only about shoulder high Herb. cover mostly hydrophytic

NC WAM Wetland Rating Sheet

Wetland Site Name	Privateer Site 2	Date of Assessment	9/6/07
Wetland Type	Bottomland Hardwood Forest	Assessor Name/Organization	

Presence of stressor affecting assessment area (Y/N)	NO
Notes on Field Assessment Form (Y/N)	~~NO~~ yes
Presence of regulatory considerations (Y/N)	NO
Wetland is intensively managed (Y/N)	NO
Wetland may be a high-quality riverine wetland (Y/N)	

Sub-function Rating Summary

Function	Sub-function	Metrics	Rating
Hydrology	Surface Storage and Retention	Condition	**HIGH**
	Sub-surface Storage and Retention	Condition	**MEDIUM**
Water Quality	Pathogen Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**NO**
	Particulate Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**YES**
	Soluble Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**YES**
	Physical Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**YES**
	Pollution Change	Condition	X
		Condition/Opportunity	X
		Opportunity Presence (Y/N)	X
Habitat	Physical Structure	Condition	**LOW**
	Landscape Patch Structure	Condition	**MEDIUM**
	Vegetation Composition	Condition	**LOW**
	Uniqueness	Condition	**NO**

Function Rating Summary

Function	Metrics	Rating
Hydrology	Condition	**HIGH**
Water Quality	Condition	**HIGH**
	Condition/Opportunity	**HIGH**
	Opportunity Presence (Y/N)	**YES**
Habitat	Condition	**LOW**

Overall Wetland Rating **HIGH**

NC WAM FIELD ASSESSMENT FORM
VERSION 3.13 (January 12, 2007)

Wetland Site Name	Privateer Site 2	**Date**	9/6/07
Wetland Type	Bottomland Hardwood Forest	**Assessor Name/Organization**	
Level III Ecoregion	Southeastern Plains	**Nearest Named Water Body**	
River Basin		**USGS 8-Digit Catalogue Unit**	
☐ Yes ☒ No	**Precipitation within 48 hrs?**	**Latitude/Longitude (deci-degrees)**	

Evidence of stressors affecting the assessment area (may not be within the assessment area)
Please circle and/or make note below if evidence of stressors is apparent. Consider departure from reference, if appropriate, in recent past (for instance, within 10 years). Noteworthy stressors include, but are not limited to the following.

- Hydrological modifications (examples: ditches, dams, beaver dams, dikes, berms, ponds, etc.)
- Surface and sub-surface discharges into the wetland (examples: discharges containing obvious pollutants, presence of nearby septic tanks, underground storage tanks (USTs), hog lagoons, etc.)
- Signs of vegetation stress (examples: vegetation mortality, insect damage, disease, storm damage, salt intrusion, etc.)
- Habitat/plant community alteration (examples: mowing, clear-cutting, exotics, etc.)

Is the assessment area intensively managed? ☐ Yes ☒ No

Describe effects of stressors that are present.

Regulatory Considerations
Select all that apply to the assessment area.

☐ Anadromous fish
☐ Federally protected species or State endangered or threatened species
☐ NCDWQ riparian buffer rule in effect
☐ Wetland adjacent to or associated stream drains to a Primary Nursery Area
☐ Publicly owned property
☐ N.C. Division of Coastal Management Area of Environmental Concern (AEC) (including buffer)
☐ N.C. Division of Water Quality best usage classification of SA or supplemental classifications of HQW, ORW, or Trout
☐ Designated NCNHP reference community

What type of natural stream is associated with the wetland, if any? (Check all that apply)

☒ Blackwater
☐ Brownwater
☐ Tidal (if tidal, check one of the following boxes) ☐ Lunar ☐ Wind ☐ Both

Is the assessment area on a coastal island? ☐ Yes ☒ No

Is the assessment area's surface water storage capacity or duration substantially altered by beaver? ☐ Yes ☒ No

1. **Ground Surface Condition/Vegetation Condition – assessment area condition metric**

Check a box in each column. Consider alteration to the ground surface (GS) in the assessment area and vegetation structure (VS) in the assessment area. Compare to reference wetland if applicable (see User Manual v1.0). If a reference is not applicable, then rate the assessment area based on evidence of alteration.

GS	VS	
☒A	☐A	Not severely altered
☐B	☒B	Severely altered over most of the assessment area (ground surface alteration examples: vehicle tracks, excessive sedimentation, fire-plow lanes, skidder tracks, bedding, fill, soil compaction, obvious pollutants) (vegetation structure alteration examples: mechanical disturbance, herbicides, salt intrusion [where appropriate], exotic species, grazing, less diversity [if appropriate], artificial hydrologic alteration)

2. **Surface and Sub-Surface Storage Capacity and Duration – assessment area condition metric**

Check a box in each column. Consider surface storage capacity and duration (Surf) and sub-surface storage capacity and duration (Sub). Consider both increase and decrease in hydrology. Refer to the NRCS Scope and Effect Guide (see User Manual v1.0 Appendix G) for North Carolina hydric soils for the zone of influence of ditches in hydric soils. A ditch ≤ 1 foot deep is considered to affect surface water only, while a ditch > 1 foot deep is expected to affect both surface and sub-surface water. Consider tidal flooding regime, if applicable.

Surf	Sub	
☒A	☒A	Water storage capacity and duration are not altered.
☐B	☐B	Water storage capacity or duration are altered, but not substantially (typically, not sufficient to change vegetation).
☐C	☐C	Water storage capacity or duration are substantially altered (typically, alteration sufficient to result in vegetation change) (examples: intensive ditching, fill, sedimentation, channelization, diversion, man-made berms, beaver dams, stream incision, sewer lines, soil compaction).

3. **Water Storage/Surface Relief – assessment area/wetland type condition metric**

Check a box in each column. Select the appropriate storage for the assessment area (AA) and the wetland type (WT).

AA	WT	
☐A	☐A	> 50% of the wetland type with depressions able to pond water > 2 feet
☐B	☐B	> 50% of the wetland type with depressions able to pond water 1 to 2 feet
☐C	☐C	> 50% of wetland type with depressions able to pond water 6 inches to 1 foot
☒D	☒D	> 50% of wetland type with depressions able to pond water 3- to 6-inches deep
☐E	☐E	Depressions able to pond water < 3-inches deep

4. **Soil Texture/Structure – assessment area condition metric**

Select all that apply. Dig soil profile in the dominant assessment area landscape feature. Make soil observations within the top foot. National Technical Committee for Hydric Soils regional indicators are noted (use most recent guidance).

- ☐A Sandy soil
- ☐B Predominantly characterized by mottled (redoxymorphic features), mineral soil (F6, F8, F12, TF10, S5, S6)
- ☒C Predominantly characterized by other, mineral soil (no mottling)
- ☐D Gleyed mineral soil (F2, S4)
- ☒E Soil ribbon < 1 inch
- ☐F Soil ribbon ≥ 1 inch
- ☒G No peat or muck presence
- ☐H A peat or muck presence (A6, A7, A8, A9, A10, F1, S1)
- ☐I Peat or muck soil (histosol or histic epipedon) (A1, A2, A3)

5. **Discharge into Wetland – opportunity metric**

Check a box in each column. Consider surface pollutants or discharges (Surf) and sub-surface pollutants or discharges (Sub). Examples of sub-surface discharges include presence of nearby septic tank, underground storage tank (UST), etc.

Surf	Sub	
☒A	☒A	Little or no evidence of pollutants or discharges entering the assessment area
☐B	☐B	Noticeable evidence of pollutants or discharges entering the wetland and stressing, but not overwhelming the treatment capacity of the assessment area
☐C	☐C	Noticeable evidence of pollutants or discharges (pathogen, particulate, or soluble) entering the assessment area and potentially overwhelming the treatment capacity of the wetland (water discoloration, dead vegetation, excessive sedimentation)

6. **Land Use – opportunity metric**

Check all that apply. Evaluation of this metric involves a GIS effort with field adjustment. Consider sources draining to assessment area within entire upstream watershed (WS), within 5 miles and within the watershed draining to the assessment area (5M), and within 2 miles and within the watershed draining to the assessment area (2M). Effective riparian buffers are considered to be 50 feet wide in the Coastal Plain and Piedmont and 30 feet wide in the Mountains.

WS	5M	2M	
☐A	☐A	☐A	> 30% impervious surfaces with stormwater Best Management Practices (BMPs) (land use examples: industrial, commercial, and high-density residential)
☐B	☐B	☐B	> 30% impervious surfaces without stormwater BMPs
☐C	☐C	☐C	10 to 30% impervious surfaces
☒D	☒D	☒D	< 10% impervious surfaces
☐E	☐E	☐E	Old urban development (pink areas on USGS 7.5-minute quadrangles)
☐F	☐F	☐F	New adjacent development
☐G	☐G	☐G	Confined animal operations (or other local, concentrated source of pollutants)
☐H	☐H	☐H	≥ 20% coverage of pasture without riparian buffer
☐I	☐I	☐I	≥ 20% coverage of pasture with effective riparian buffer
☒J	☒J	☒J	≥ 20% coverage of agricultural land (regularly plowed land) without riparian buffer
☐K	☐K	☐K	≥ 20% coverage of agricultural land (regularly plowed land) with effective riparian buffer
☐L	☐L	☐L	≥ 20% coverage of maintained grass/herb
☒M	☒M	☒M	Silvicultural land with disturbance < 5 years old
☐N	☐N	☐N	Little or no opportunity. Lack of opportunity may result from hydrologic modifications that prevent drainage or overbank flow from affecting the assessment area.

7. **Wetland Acting as Vegetated Buffer – assessment area condition metric**

Is the assessment area within 50 feet of a stream or other open water? ("open water" does not include man-made ditches or canals)

☒Yes ☐No If No, Skip to next metric

Stream width (Stream width is normal flow width [ordinary high water to ordinary high water]). If the stream is anastomosed, combine widths of channels/braids for a total stream width.

☐≤ 15-feet wide ☒> 15-feet wide ☐Not Applicable

Do roots of assessment area vegetation extend into the bank of the adjacent stream/open water?

☒Yes ☐No

Is stream or other open water sheltered or exposed?

☒Sheltered – adjacent open water with width < 2500 feet and no regular boat traffic.

☐Exposed – adjacent open water with width ≥ 2500 feet or regular boat traffic.

8. **Wetland/Riparian Buffer Width – assessment area/wetland type/wetland complex metric**

Check a box in each column. Select the appropriate width for the wetland type at the assessment area (WT), the wetland complex (WC), and the riparian buffer at the assessment area (RB) (if applicable). Riparian buffer width is measured from top of bank and need only be present on one side of the water body. The riparian buffer is measured from the outside banks of the outer channels of an anastomosed system. Make buffer judgment based on dominant landscape feature. Record a note if a portion of the buffer has been removed or disturbed.

WT	WC	RB (if applicable)	
☒A	☒A	☒A	≥ 100 feet
☐B	☐B	☐B	From 80 to < 100 feet
☐C	☐C	☐C	From 50 to < 80 feet
☐D	☐D	☐D	From 40 to < 50 feet
☐E	☐E	☐E	From 30 to < 40 feet
☐F	☐F	☐F	From 15 to < 30 feet
☐G	☐G	☐G	From 5 to < 15 feet
☐H	☐H	☐H	< 5 feet

9. Inundation Duration – assessment area condition metric

Answer for assessment area dominant landform.

- ☒A Evidence of short-duration inundation (< 7 consecutive days)
- ☐B Evidence of saturation, without evidence of inundation
- ☐C Evidence of long-duration inundation (7 to 30 consecutive days or more)

10. Indicators of Deposition – assessment area condition metric

Consider recent deposition only (no plant growth since deposition).

- ☒A Sediment deposition is not excessive, but at approximately natural levels.
- ☐B Sediment deposition is excessive, but not overwhelming the wetland.
- ☐C Sediment deposition is excessive and is overwhelming the wetland.

11. Wetland Size – wetland type/wetland complex condition metric

Check a box in each column. Involves a GIS effort with field adjustment. This metric evaluates three aspects of the wetland area: the size of the wetland type (WT), the size of the contiguous wetland complex (WC), and the size of the contiguous, forested wetland (FW) (if applicable, see User Manual). Boundaries are formed by uplands, four-lane roads, or urban landscapes. An observed beaver pond forms a boundary if it extends across the entire width of the floodplain. Additionally, other wetland types are considered boundaries for column WT. If assessment area is clear-cut, select "K" for FW column.

WT	WC	FW (if applicable)	
☐A	☒A	☐A	≥ 500 acres
☒B	☐B	☐B	From 100 to < 500 acres
☐C	☐C	☐C	From 50 to < 100 acres
☐D	☐D	☐D	From 25 to < 50 acres
☐E	☐E	☐E	From 10 to < 25 acres
☐F	☐F	☐F	From 5 to < 10 acres
☐G	☐G	☐G	From 1 to < 5 acres
☐H	☐H	☐H	From 0.5 to < 1 acre
☐I	☐I	☐I	From 0.1 to < 0.5 acre
☐J	☐J	☐J	From 0.01 to < 0.1 acre
☐K	☐K	☒K	< 0.01 acre

12. Wetland Intactness – wetland type condition metric (evaluate for Pocosins only)

- ☒A Wetland type is the full extent (≥ 90%) of its natural landscape size.
- ☐B Wetland type is < 90% of the full extent of its natural landscape size.

13. Connectivity to Other Natural Areas – landscape condition metric

Check appropriate box(es). This metric refers to the landscape patch, the contiguous naturally vegetated area and open water (if appropriate) that includes the wetland type. Boundaries are formed by four-lane roads, urban landscapes, maintained fields (pasture and agriculture), or open water > 300 feet wide. Consider if the wetland type is well-connected (WC) or loosely-connected (LC) to the landscape patch.

WC	LC	
☒A	☒A	≥ 500 acres
☐B	☐B	From 100 to < 500 acres
☐C	☐C	From 50 to < 100 acres
☐D	☐D	From 10 to < 50 acres
☐E	☐E	< 10 acres
☐F	☐F	Wetland type has a poor or no connection to other natural habitats

Check Yes or No.

- ☐Yes ☒No Does wetland type have a surface hydrology connection to open waters or tidal wetlands? (evaluate for marshes only)
- ☒Yes ☐ No Is the assessment area subject to overbank flooding during normal conditions?

14. Edge Effect – wetland type condition metric

Estimate distance from wetland type boundary to artificial edges. Artificial edges include permanent features such as fields, development, two-lane or larger roads (≥ 40-feet wide), utility line corridors wider than a two-lane road, and clear-cuts < 10 years old. Consider the eight main points of the compass.

- ☐A No artificial edge within 150 feet in all directions
- ☐B No artificial edge within 150 feet in four to seven directions
- ☒C An artificial edge occurs within 150 feet in more than four directions or assessment area is clear-cut

15. Vegetative Composition – assessment area condition metric (skip for marshes and Pine Flat)

- ☐A Vegetation is close to reference condition in species present and their proportions. Lower strata composed of appropriate species, with exotic plants absent or sparse within the assessment area.
- ☐B Vegetation is different from reference condition in species diversity or proportions, but still largely composed of native species characteristic of the wetland type. This may include communities of weedy native species that develop after clearcutting or clearing. It also includes communities with exotics present, but not dominant, over a large portion of the expected strata.
- ☒C Vegetation severely altered from reference in composition. Expected strata are unnaturally absent or dominated by exotic species or composed of planted stands of non-characteristic species or inappropriately composed of a single species.

16. Vegetative Diversity – assessment area condition metric (evaluate for Non-tidal Freshwater Marsh only)

- ☒A Vegetation diversity is high and is composed primarily of native species.
- ☐B Vegetation diversity is low or has > 10% cover of exotics.
- ☐C Vegetation is dominated by exotic species.

17. **Vegetative Structure – assessment area/wetland type condition metric**

☒ **Vegetation present**

Evaluate percent coverage of vegetation for marshes only

☒A ≥ 25% coverage of vegetation
☐B < 25% coverage of vegetation

Check a box in each column for each stratum. Evaluate this portion of the metric for non-marsh wetlands. Consider structure in airspace above the assessment area (AA) and the wetland type (WT) separately.

AA	WT	
☐A	☐A	Canopy closed, or nearly closed, with natural gaps associated with natural processes
☐B	☐B	Canopy present, but opened more than natural gaps
☒C	☒C	Canopy sparse or absent
☐A	☐A	Dense mid-story/sapling layer
☐B	☐B	Moderate density mid-story/sapling layer
☒C	☒C	Mid-story/sapling layer sparse or absent
☐A	☐A	Dense shrub layer
☒B	☒B	Moderate density shrub layer
☐C	☐C	Shrub layer sparse or absent
☒A	☒A	Dense herb layer
☐B	☐B	Moderate density herb layer
☐C	☐C	Herb layer sparse or absent

☐ **Vegetation absent**

18. **Snags – wetland type condition metric**

☐A Large snags (more than one) are present (> 12-inches DBH, or large relative to species present and landscape stability).
☒B Not A

19. **Diameter Class Distribution – wetland type condition metric**

☐A Most canopy trees have stems > 6-inches in diameter at breast height (DBH); many large trees (> 12-inches DBH) are present.
☐B Most canopy trees have stems between 6- and 12-inches DBH, few are > 12-inch DBH.
☒C Most canopy trees are < 6-inches DBH or no trees.

20. **Large Woody Debris – wetland type condition metric**

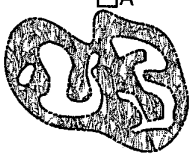
Include both man-made and natural debris piles.

☐A Large logs (more than one) are present (> 12-inches in diameter, or large relative to species present and landscape stability).
☒B Not A

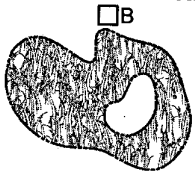
21. **Vegetation/Open Water Dispersion – wetland type/open water condition metric (evaluate for Non-Tidal Freshwater Marsh only)**

Select the figure that best describes the amount of interspersion between vegetation and open water in the growing season. Patterned areas indicate vegetated areas, while solid white areas indicate open water.

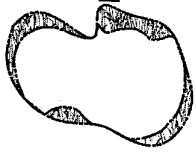
☐A



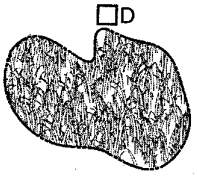
☐B



☐C



☐D



22. **Habitat Uniqueness – wetland type condition metric**

☐Yes ☒No Has the N.C. Environmental Management Commission classified the assessment area as "Unique Wetlands" (UWL)?"

Notes

same veg concerns as Riverine Swamp

NC WAM Wetland Rating Sheet

Wetland Site Name	Privateer Site 3	Date of Assessment	9/6/07
Wetland Type	Headwater Wetland	Assessor Name/Organization	

Presence of stressor affecting assessment area (Y/N)	NO
Notes on Field Assessment Form (Y/N)	~~NO~~ YES
Presence of regulatory considerations (Y/N)	NO
Wetland is intensively managed (Y/N)	NO
Wetland may be a high-quality riverine wetland (Y/N)	

Sub-function Rating Summary

Function	Sub-function	Metrics	Rating
Hydrology	Surface Storage and Retention	Condition	**HIGH**
	Sub-surface Storage and Retention	Condition	**HIGH**
Water Quality	Pathogen Change	Condition	**MEDIUM**
		Condition/Opportunity	**MEDIUM**
		Opportunity Presence (Y/N)	**NO**
	Particulate Change	Condition	**HIGH**
		Condition/Opportunity	X
		Opportunity Presence (Y/N)	X
	Soluble Change	Condition	**MEDIUM**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**YES**
	Physical Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence (Y/N)	**YES**
	Pollution Change	Condition	X
		Condition/Opportunity	X
		Opportunity Presence (Y/N)	X
Habitat	Physical Structure	Condition	**HIGH**
	Landscape Patch Structure	Condition	**HIGH**
	Vegetation Composition	Condition	**MEDIUM**
	Uniqueness	Condition	**NO**

Function Rating Summary

Function	Metrics	Rating
Hydrology	Condition	**HIGH**
Water Quality	Condition	**HIGH**
	Condition/Opportunity	**HIGH**
	Opportunity Presence (Y/N)	**YES**
Habitat	Condition	**HIGH**

Overall Wetland Rating **HIGH**

NC WAM FIELD ASSESSMENT FORM
VERSION 3.13 (January 12, 2007)

Wetland Site Name	Privateer Site 3	**Date**	9/6/07
Wetland Type	Headwater Wetland	**Assessor Name/Organization**	
Level III Ecoregion	Southeastern Plains	**Nearest Named Water Body**	
River Basin		**USGS 8-Digit Catalogue Unit**	
☐ Yes ☒ No	**Precipitation within 48 hrs?**	**Latitude/Longitude (deci-degrees)**	

Evidence of stressors affecting the assessment area (may not be within the assessment area)
Please circle and/or make note below if evidence of stressors is apparent. Consider departure from reference, if appropriate, in recent past (for instance, within 10 years). Noteworthy stressors include, but are not limited to the following.

- Hydrological modifications (examples: ditches, dams, beaver dams, dikes, berms, ponds, etc.)
- Surface and sub-surface discharges into the wetland (examples: discharges containing obvious pollutants, presence of nearby septic tanks, underground storage tanks (USTs), hog lagoons, etc.)
- Signs of vegetation stress (examples: vegetation mortality, insect damage, disease, storm damage, salt intrusion, etc.)
- Habitat/plant community alteration (examples: mowing, clear-cutting, exotics, etc.)

Is the assessment area intensively managed? ☐ Yes ☒ No

Describe effects of stressors that are present.

Regulatory Considerations
Select all that apply to the assessment area.

☐ Anadromous fish
☐ Federally protected species or State endangered or threatened species
☐ NCDWQ riparian buffer rule in effect
☐ Wetland adjacent to or associated stream drains to a Primary Nursery Area
☐ Publicly owned property
☐ N.C. Division of Coastal Management Area of Environmental Concern (AEC) (including buffer)
☐ N.C. Division of Water Quality best usage classification of SA or supplemental classifications of HQW, ORW, or Trout
☐ Designated NCNHP reference community

What type of natural stream is associated with the wetland, if any? (Check all that apply)

☒ Blackwater
☐ Brownwater
☐ Tidal (if tidal, check one of the following boxes) ☐ Lunar ☐ Wind ☐ Both

Is the assessment area on a coastal island? ☐ Yes ☒ No

Is the assessment area's surface water storage capacity or duration substantially altered by beaver? ☐ Yes ☒ No

1. **Ground Surface Condition/Vegetation Condition – assessment area condition metric**

Check a box in each column. Consider alteration to the ground surface (GS) in the assessment area and vegetation structure (VS) in the assessment area. Compare to reference wetland if applicable (see User Manual v1.0). If a reference is not applicable, then rate the assessment area based on evidence of alteration.

GS	VS	
☒A	☒A	Not severely altered
☐B	☐B	Severely altered over most of the assessment area (ground surface alteration examples: vehicle tracks, excessive sedimentation, fire-plow lanes, skidder tracks, bedding, fill, soil compaction, obvious pollutants) (vegetation structure alteration examples: mechanical disturbance, herbicides, salt intrusion [where appropriate], exotic species, grazing, less diversity [if appropriate], artificial hydrologic alteration)

2. **Surface and Sub-Surface Storage Capacity and Duration – assessment area condition metric**

Check a box in each column. Consider surface storage capacity and duration (Surf) and sub-surface storage capacity and duration (Sub). Consider both increase and decrease in hydrology. Refer to the NRCS Scope and Effect Guide (see User Manual v1.0 Appendix G) for North Carolina hydric soils for the zone of influence of ditches in hydric soils. A ditch ≤ 1 foot deep is considered to affect surface water only, while a ditch > 1 foot deep is expected to affect both surface and sub-surface water. Consider tidal flooding regime, if applicable.

Surf	Sub	
☒A	☒A	Water storage capacity and duration are not altered.
☐B	☐B	Water storage capacity or duration are altered, but not substantially (typically, not sufficient to change vegetation).
☐C	☐C	Water storage capacity or duration are substantially altered (typically, alteration sufficient to result in vegetation change) (examples: intensive ditching, fill, sedimentation, channelization, diversion, man-made berms, beaver dams, stream incision, sewer lines, soil compaction).

3. **Water Storage/Surface Relief – assessment area/wetland type condition metric**

Check a box in each column. Select the appropriate storage for the assessment area (AA) and the wetland type (WT).

AA	WT	
☐A	☐A	> 50% of the wetland type with depressions able to pond water > 2 feet
☐B	☐B	> 50% of the wetland type with depressions able to pond water 1 to 2 feet
☐C	☐C	> 50% of wetland type with depressions able to pond water 6 inches to 1 foot
☒D	☒D	> 50% of wetland type with depressions able to pond water 3- to 6-inches deep
☐E	☐E	Depressions able to pond water < 3-inches deep

4. **Soil Texture/Structure – assessment area condition metric**

Select all that apply. Dig soil profile in the dominant assessment area landscape feature. Make soil observations within the top foot. National Technical Committee for Hydric Soils regional indicators are noted (use most recent guidance).

- ☐A Sandy soil
- ☐B Predominantly characterized by mottled (redoxymorphic features), mineral soil (F6, F8, F12, TF10, S5, S6)
- ☒C Predominantly characterized by other, mineral soil (no mottling)
- ☐D Gleyed mineral soil (F2, S4)
- ☒E Soil ribbon < 1 inch
- ☐F Soil ribbon ≥ 1 inch
- ☒G No peat or muck presence
- ☐H A peat or muck presence (A6, A7, A8, A9, A10, F1, S1)
- ☐I Peat or muck soil (histosol or histic epipedon) (A1, A2, A3)

5. **Discharge into Wetland – opportunity metric**

Check a box in each column. Consider surface pollutants or discharges (Surf) and sub-surface pollutants or discharges (Sub). Examples of sub-surface discharges include presence of nearby septic tank, underground storage tank (UST), etc.

Surf	Sub	
☒A	☒A	Little or no evidence of pollutants or discharges entering the assessment area
☐B	☐B	Noticeable evidence of pollutants or discharges entering the wetland and stressing, but not overwhelming the treatment capacity of the assessment area
☐C	☐C	Noticeable evidence of pollutants or discharges (pathogen, particulate, or soluble) entering the assessment area and potentially overwhelming the treatment capacity of the wetland (water discoloration, dead vegetation, excessive sedimentation)

6. **Land Use – opportunity metric**

Check all that apply. Evaluation of this metric involves a GIS effort with field adjustment. Consider sources draining to assessment area within entire upstream watershed (WS), within 5 miles and within the watershed draining to the assessment area (5M), and within 2 miles and within the watershed draining to the assessment area (2M). Effective riparian buffers are considered to be 50 feet wide in the Coastal Plain and Piedmont and 30 feet wide in the Mountains.

WS	5M	2M	
☐A	☐A	☐A	> 30% impervious surfaces with stormwater Best Management Practices (BMPs) (land use examples: industrial, commercial, and high-density residential)
☐B	☐B	☐B	> 30% impervious surfaces without stormwater BMPs
☐C	☐C	☐C	10 to 30% impervious surfaces
☒D	☒D	☒D	< 10% impervious surfaces
☐E	☐E	☐E	Old urban development (pink areas on USGS 7.5-minute quadrangles)
☐F	☐F	☐F	New adjacent development
☐G	☐G	☐G	Confined animal operations (or other local, concentrated source of pollutants)
☐H	☐H	☐H	≥ 20% coverage of pasture without riparian buffer
☐I	☐I	☐I	≥ 20% coverage of pasture with effective riparian buffer
☒J	☒J	☒J	≥ 20% coverage of agricultural land (regularly plowed land) without riparian buffer
☐K	☐K	☐K	≥ 20% coverage of agricultural land (regularly plowed land) with effective riparian buffer
☐L	☐L	☐L	≥ 20% coverage of maintained grass/herb
☒M	☒M	☒M	Silvicultural land with disturbance < 5 years old
☐N	☐N	☐N	Little or no opportunity. Lack of opportunity may result from hydrologic modifications that prevent drainage or overbank flow from affecting the assessment area.

7. **Wetland Acting as Vegetated Buffer – assessment area condition metric**

Is the assessment area within 50 feet of a stream or other open water? ("open water" does not include man-made ditches or canals)

☒Yes ☐No If No, Skip to next metric

Stream width (Stream width is normal flow width [ordinary high water to ordinary high water]). If the stream is anastomosed, combine widths of channels/braids for a total stream width.

☒≤ 15-feet wide ☐> 15-feet wide ☐Not Applicable

Do roots of assessment area vegetation extend into the bank of the adjacent stream/open water?

☒Yes ☐No

Is stream or other open water sheltered or exposed?

☒Sheltered – adjacent open water with width < 2500 feet and no regular boat traffic.

☐Exposed – adjacent open water with width ≥ 2500 feet or regular boat traffic.

8. **Wetland/Riparian Buffer Width – assessment area/wetland type/wetland complex metric**

Check a box in each column. Select the appropriate width for the wetland type at the assessment area (WT), the wetland complex (WC), and the riparian buffer at the assessment area (RB) (if applicable). Riparian buffer width is measured from top of bank and need only be present on one side of the water body. The riparian buffer is measured from the outside banks of the outer channels of an anastomosed system. Make buffer judgment based on dominant landscape feature. Record a note if a portion of the buffer has been removed or disturbed.

WT	WC	RB (if applicable)	
☒A	☒A	☒A	≥ 100 feet
☐B	☐B	☐B	From 80 to < 100 feet
☐C	☐C	☐C	*From 50 to < 80 feet*
☐D	☐D	☐D	From 40 to < 50 feet
☐E	☐E	☐E	From 30 to < 40 feet
☐F	☐F	☐F	From 15 to < 30 feet
☐G	☐G	☐G	From 5 to < 15 feet
☐H	☐H	☐H	< 5 feet

9. Inundation Duration – assessment area condition metric

Answer for assessment area dominant landform.

☐A Evidence of short-duration inundation (< 7 consecutive days)
☒B Evidence of saturation, without evidence of inundation
☐C Evidence of long-duration inundation (7 to 30 consecutive days or more)

10. Indicators of Deposition – assessment area condition metric

Consider recent deposition only (no plant growth since deposition).

☒A Sediment deposition is not excessive, but at approximately natural levels.
☐B Sediment deposition is excessive, but not overwhelming the wetland.
☐C Sediment deposition is excessive and is overwhelming the wetland.

11. Wetland Size – wetland type/wetland complex condition metric

Check a box in each column. Involves a GIS effort with field adjustment. This metric evaluates three aspects of the wetland area: the size of the wetland type (WT), the size of the contiguous wetland complex (WC), and the size of the contiguous, forested wetland (FW) (if applicable, see User Manual). Boundaries are formed by uplands, four-lane roads, or urban landscapes. An observed beaver pond forms a boundary if it extends across the entire width of the floodplain. Additionally, other wetland types are considered boundaries for column WT. If assessment area is clear-cut, select "K" for FW column.

WT	WC	FW (if applicable)	
☐A	☒A	☐A	≥ 500 acres
☒B	☐B	☐B	From 100 to < 500 acres
☐C	☐C	☒C	From 50 to < 100 acres
☐D	☐D	☐D	From 25 to < 50 acres
☐E	☐E	☐E	From 10 to < 25 acres
☐F	☐F	☐F	From 5 to < 10 acres
☐G	☐G	☐G	From 1 to < 5 acres
☐H	☐H	☐H	From 0.5 to < 1 acre
☐I	☐I	☐I	From 0.1 to < 0.5 acre
☐J	☐J	☐J	From 0.01 to < 0.1 acre
☐K	☐K	☐K	< 0.01 acre

12. Wetland Intactness – wetland type condition metric (evaluate for Pocosins only)

☒A Wetland type is the full extent (≥ 90%) of its natural landscape size.
☐B Wetland type is < 90% of the full extent of its natural landscape size.

13. Connectivity to Other Natural Areas – landscape condition metric

Check appropriate box(es). This metric refers to the landscape patch, the contiguous naturally vegetated area and open water (if appropriate) that includes the wetland type. Boundaries are formed by four-lane roads, urban landscapes, maintained fields (pasture and agriculture), or open water > 300 feet wide. Consider if the wetland type is well-connected (WC) or loosely-connected (LC) to the landscape patch.

WC	LC	
☒A	☒A	≥ 500 acres
☐B	☐B	From 100 to < 500 acres
☐C	☐C	From 50 to < 100 acres
☐D	☐D	From 10 to < 50 acres
☐E	☐E	< 10 acres
☐F	☐F	Wetland type has a poor or no connection to other natural habitats

Check Yes or No.

☐Yes ☒No Does wetland type have a surface hydrology connection to open waters or tidal wetlands? (evaluate for marshes only)
☒Yes ☐ No Is the assessment area subject to overbank flooding during normal conditions?

14. Edge Effect – wetland type condition metric

Estimate distance from wetland type boundary to artificial edges. Artificial edges include permanent features such as fields, development, two-lane or larger roads (≥ 40-feet wide), utility line corridors wider than a two-lane road, and clear-cuts < 10 years old. Consider the eight main points of the compass.

☒A No artificial edge within 150 feet in all directions
☐B No artificial edge within 150 feet in four to seven directions
☐C An artificial edge occurs within 150 feet in more than four directions or assessment area is clear-cut

15. Vegetative Composition – assessment area condition metric (skip for marshes and Pine Flat)

☐A Vegetation is close to reference condition in species present and their proportions. Lower strata composed of appropriate species, with exotic plants absent or sparse within the assessment area.
☒B Vegetation is different from reference condition in species diversity or proportions, but still largely composed of native species characteristic of the wetland type. This may include communities of weedy native species that develop after clearcutting or clearing. It also includes communities with exotics present, but not dominant, over a large portion of the expected strata.
☐C Vegetation severely altered from reference in composition. Expected strata are unnaturally absent or dominated by exotic species or composed of planted stands of non-characteristic species or inappropriately composed of a single species.

16. Vegetative Diversity – assessment area condition metric (evaluate for Non-tidal Freshwater Marsh only)

☒A Vegetation diversity is high and is composed primarily of native species.
☐B Vegetation diversity is low or has > 10% cover of exotics.
☐C Vegetation is dominated by exotic species.

17. **Vegetative Structure – assessment area/wetland type condition metric**

☒ **Vegetation present**

Evaluate percent coverage of vegetation for marshes only

☒A ≥ 25% coverage of vegetation
☐B < 25% coverage of vegetation

Check a box in each column for each stratum. Evaluate this portion of the metric for non-marsh wetlands. Consider structure in airspace above the assessment area (AA) and the wetland type (WT) separately.

AA	WT	
☒A	☒A	Canopy closed, or nearly closed, with natural gaps associated with natural processes
☐B	☐B	Canopy present, but opened more than natural gaps
☐C	☐C	Canopy sparse or absent
☐A	☐A	Dense mid-story/sapling layer
☒B	☒B	Moderate density mid-story/sapling layer
☐C	☐C	Mid-story/sapling layer sparse or absent
☐A	☐A	Dense shrub layer
☒B	☒B	Moderate density shrub layer
☐C	☐C	Shrub layer sparse or absent
☐A	☐A	Dense herb layer
☒B	☒B	Moderate density herb layer
☐C	☐C	Herb layer sparse or absent

☐ **Vegetation absent**

18. **Snags – wetland type condition metric**

☐A Large snags (more than one) are present (> 12-inches DBH, or large relative to species present and landscape stability).
☒B Not A

19. **Diameter Class Distribution – wetland type condition metric**

☐A Most canopy trees have stems > 6-inches in diameter at breast height (DBH); many large trees (> 12-inches DBH) are present.
☒B Most canopy trees have stems between 6- and 12-inches DBH, few are > 12-inch DBH.
☐C Most canopy trees are < 6-inches DBH or no trees.

20. **Large Woody Debris – wetland type condition metric**

Include both man-made and natural debris piles.

☒A Large logs (more than one) are present (> 12-inches in diameter, or large relative to species present and landscape stability).
☐B Not A

21. **Vegetation/Open Water Dispersion – wetland type/open water condition metric (evaluate for Non-Tidal Freshwater Marsh only)**

Select the figure that best describes the amount of interspersion between vegetation and open water in the growing season. Patterned areas indicate vegetated areas, while solid white areas indicate open water.

☐A ☐B ☐C ☐D

22. **Habitat Uniqueness – wetland type condition metric**

☐Yes ☒No Has the N.C. Environmental Management Commission classified the assessment area as "Unique Wetlands" (UWL)?"

Notes

Restoration site, stream relocated back through forested system (in year 3) of monitoring