

Low/Minimal Impact Bridge Project Data Sheet

	TIP NO	
	WBS	17BP.6.R.60
	County	Columbus
	Bridge Number	230118
	Description	SR1317 over Gum Swamp
Stream	Basin	Lumber
	Classification	C;Sw
	SIN	15-17-1-12-3
	Type (Perennial/Intermittent)	Gum Swamp - Perennial
	Size (bankfull width)	Gum Swamp - 35'
Existing Structure	Type	
	Size	
	Suff. Rating	
Proposed Structure	Type	
	Size (width-out to out)	
Stream	USACE Impacts (Y/N)	Yes
	Non 404 Impacts (Y/N)	No
Wetlands	USACE Impacts (Y/N)	Yes
	Non 404 Impacts (Y/N)	No
	CAMA Impacts (Y/N)	
NC DWQ Buffers	Impacts (Y/N)	
Buffer Application Required (>40 ft) (Y/N)		
NC DWQ StormWater Permit R		Permit Required (Y/N)
T&E	Habitat (Y/N)	American alligator - Yes Wood stork - Yes Red-cockaded woodpecker - Yes Cooley's meadowrue - Yes Rough-leaved loosestrife - Yes
	Species Present	American alligator - Surveys not required due to T(S/A) designation Wood stork - No Red-cockaded woodpecker - No Cooley's meadowrue - Undetermined Rough-leaved loosestrife - Undetermined
	Bio Conclusion	American alligator - N/A Wood stork - No Effect Red-cockaded woodpecker - No Effect Cooley's meadowrue - Unresolved Rough-leaved loosestrife - Unresolved
Moratorium	Type	
	Dates	
Trout Waters	Native/Hatchery	
	Trout Species Present	
	Trout Conditions (Y/N)	
	WRC Reviewer	
CAMA	AECs	
Essential Fish	Habitat (Y/N)	
Nav.	Opening	
USCG	Permit	
Historic	Properties	
Archaeological	Resources	
Tribal	Lands	
4(f)	Resources	
6(f) [LWCF]	Resources	
Wild and	Scenic River	No
Forest Service	Lands	
TVA	Area	
FEMA	Buyout	
FEMA	Flood Study	
USTs	Haz Mats	
	Relocatees	
Location (decimal degrees)	LAT	34.215115
	LONG	-78.844002
Project Comments		Marginally suitable habitat for American alligator [T(S/A)] and wood stork (foraging) (T) exists within the study area within Gum Swamp and wetlands WA, WB, and WC. No wading birds were observed during field observations, and the understory within these wetlands is dense. Marginal foraging habitat for red-cockaded woodpecker (E) is present within the northeastern end of the corridor where tracts of planted pine plantation are present, which appear to be 10-20 years old. No individuals were observed, and no evidence of cavity excavation was noted within areas of marginally suitable habitat. Suitable habitat for Cooley's meadowrue (E) and rough-leaved loosestrife (E) is present along the roadside ditches along SR1317. Field investigation was conducted outside of the USFWS survey windows for these plant species. Kimley-Horn staff will conduct surveys for these species during the appropriate survey window. According to NCNHP records (updated July 2014), there are no recorded element occurrences of any of the listed species within the project study area of within 1.0 mile of the study area.
Completed by:	Beth Reed, PWS	
	Consultant Biologist	
Reviewed by:	Kimley-Horn and Associates	
	Consulting Firm	



Legend

- Field Notes
- Stream Points
- Wetland Points
- Streams
- Wetland Boundary
- Project Study Area

0 100 200
Feet

NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board



Figure 3: Aerial Image
Division 6 Bridges - Structure #230118
Columbus County, NC
August 2014

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Structure # 230118 City/County: Columbus County Sampling Date: 8/6/2014
 Applicant/Owner: NCDOT State: NC Sampling Point: WA/WB/WC-U
 Investigator(s): J. Hartshorn (KHA), R. Sullivan (KHA) Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1-2%
 Subregion (LRR or MLRA): LRR P Lat: 34.215895 Long: -78.843258 Datum: NAD 1983
 Soil Map Unit Name: Muckalee sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	Is the Sampled Area within a Wetland?	Yes ☐	No ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			
Remarks: WA-UP is located within a planted loblolly pine plantation just upslope from wetland WA. There are beds and rows present within the upland and portions of the wetland area.					

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Water-Stained Leaves (B9)	☐ Aquatic Fauna (B13) ☐ Marl Deposits (B15) (LRR U) ☐ Hydrogen Sulfide Odor (C1) ☐ Oxidized Rhizospheres along Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Other (Explain in Remarks)	☐ Surface Soil Cracks (B6) ☐ Sparsely Vegetated Concave Surface (B8) ☐ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☐ FAC-Neutral Test (D5) ☐ Sphagnum moss (D8) (LRR T, U)	
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☒ No ☐ Depth (inches): <u>18"</u> (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No indicators of wetland hydrology were found at this location during the site visit.			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: WA/WB/WC-UP

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Morus alba</u>	<u>30%</u>	<u>Y</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60%</u> (A/B)																
2. <u>Pinus taeda</u>	<u>20%</u>	<u>Y</u>	<u>FAC</u>																	
3. <u>Liquidambar styraciflua</u>	<u>20%</u>	<u>Y</u>	<u>FAC</u>																	
4. <u>Liriodendron tulipifera</u>	<u>5%</u>	<u>N</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>75%</u> = Total Cover 50% of total cover: <u>37.5%</u> 20% of total cover: <u>15%</u>				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Ligustrum sinense</u>	<u>10%</u>	<u>Y</u>	<u>FAC</u>																	
2. <u>Morus alba</u>	<u>5%</u>	<u>Y</u>	<u>FACU</u>																	
3. <u>Callicarpa americana</u>	<u>5%</u>	<u>Y</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>20%</u> = Total Cover 50% of total cover: <u>10%</u> 20% of total cover: <u>4%</u>																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Phytolacca americana</u>	<u>30%</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <u>Microstegium vimineum</u>	<u>30%</u>	<u>Y</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>60%</u> = Total Cover 50% of total cover: <u>30%</u> 20% of total cover: <u>12%</u>																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. <u>Vitis rotundifolia</u>	<u>5%</u>	<u>Y</u>	<u>FAC</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.																
2. <u>Mikania scandens</u>	<u>5%</u>	<u>Y</u>	<u>FACW</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>10%</u> = Total Cover 50% of total cover: <u>5%</u> 20% of total cover: <u>2%</u>																				
Hydrophytic Vegetation Present?																				
Yes ☒ No ☐																				

Remarks: (If observed, list morphological adaptations below).

No morphological adaptations were observed on the vegetation within the upland area.

SOIL

Sampling Point: WA/WB/WC-UP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8"	5Y 2.5/1	100%					Silty loam	
8-18"	5Y 2.5/1	100%					Silty loam	30% UCS
18-24"	5Y 2.5/1	60%	5Y 6/2	40%	C	M	Fine sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Organic Bodies (A6) (LRR P, T, U)
☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
☐ Muck Presence (A8) (LRR U)
☐ 1 cm Muck (A9) (LRR P, T)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Coast Prairie Redox (A16) (MLRA 150A)
☐ Sandy Mucky Mineral (S1) (LRR O, S)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
☐ Thin Dark Surface (S9) (LRR S, T, U)
☐ Loamy Mucky Mineral (F1) (LRR O)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Marl (F10) (LRR U)
☐ Depleted Ochric (F11) (MLRA 151)
☐ Iron-Manganese Masses (F12) (LRR O, P, T)
☐ Umbric Surface (F13) (LRR P, T, U)
☐ Delta Ochric (F17) (MLRA 151)
☐ Reduced Vertic (F18) (MLRA 150A, 150B)
☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20)
 (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No indicators of hydric soils were observed during field visit. Soil saturation was observed at 18". The soil was dark with no concentrations until 18" in the soil profile. The water table was not observed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Structure # 230118 City/County: Columbus County Sampling Date: 8/6/2014
 Applicant/Owner: NCDOT State: NC Sampling Point: WA/WB/WC-W
 Investigator(s): J. Hartshorn (KHA), R. Sullivan (KHA) Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1-2%
 Subregion (LRR or MLRA): LRR P Lat: 34.215838 Long: -78.843385 Datum: NAD 1983
 Soil Map Unit Name: Muckalee sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	Is the Sampled Area within a Wetland?	Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐		
Wetland Hydrology Present?	Yes ☒ No ☐		
Remarks: The wetland data point was taken on a slight hillslope that drains toward stream SA. There was an abundance of hydrophytic vegetation observed within the wetland area during the site visit. The wetland data point was taken on the fringe of wetland A.			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
☒ Surface Water (A1)	☐ Aquatic Fauna (B13)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Marl Deposits (B15) (LRR U)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☐ Hydrogen Sulfide Odor (C1)	☒ Drainage Patterns (B10)
☐ Water Marks (B1)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Presence of Reduced Iron (C4)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Thin Muck Surface (C7)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)	☐ Other (Explain in Remarks)	☒ Geomorphic Position (D2)
☐ Inundation Visible on Aerial Imagery (B7)		☐ Shallow Aquitard (D3)
☐ Water-Stained Leaves (B9)		☐ FAC-Neutral Test (D5)
		☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes ☒ No ☐
Surface Water Present?	Yes ☐ No ☒ Depth (inches): _____	
Water Table Present?	Yes ☐ No ☒ Depth (inches): <u>>24"</u>	
Saturation Present? (includes capillary fringe)	Yes ☒ No ☐ Depth (inches): <u>4"</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The water table was not observed at the wetland data point, however saturation of the soil was observed at ~ 4". Surface water was observed in the wetland to depths of ~ 3". Hydrology for the wetlands likely occurs when stream SA floods, during precipitation events, and groundwater.

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: WA/WB/WC-WET

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Pinus taeda</i></u>	<u>50%</u>	<u>Y</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>87.5%</u> (A/B)																
2. <u><i>Liriodendron tulipifera</i></u>	<u>5%</u>	<u>N</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>55%</u> = Total Cover 50% of total cover: <u>27.5%</u> 20% of total cover: <u>11%</u>				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
<u>55%</u> = Total Cover 50% of total cover: <u>27.5%</u> 20% of total cover: <u>11%</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u><i>Liriodendron tulipifera</i></u>	<u>10%</u>	<u>Y</u>	<u>FACU</u>																	
2. <u><i>Persea palustris</i></u>	<u>5%</u>	<u>Y</u>	<u>FACW</u>																	
3. <u><i>Morella cerifera</i></u>	<u>5%</u>	<u>Y</u>	<u>FAC</u>																	
4. <u><i>Baccharis halimifolia</i></u>	<u>5%</u>	<u>Y</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>25%</u> = Total Cover 50% of total cover: <u>12.5%</u> 20% of total cover: <u>5%</u>																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u><i>Woodwardia virginica</i></u>	<u>10%</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: ☐ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☐ 3 - Prevalence Index is ≤3.0 ¹ ☐ Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <u><i>Woodwardia areolata</i></u>	<u>10%</u>	<u>Y</u>	<u>OBL</u>																	
3. <u><i>Osmunda spectabilis</i></u>	<u>5%</u>	<u>N</u>	<u>OBL</u>																	
4. <u><i>Saururus cernuus</i></u>	<u>5%</u>	<u>N</u>	<u>OBL</u>																	
5. <u><i>Microstegium vimineum</i></u>	<u>5%</u>	<u>N</u>	<u>FAC</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>35%</u> = Total Cover 50% of total cover: <u>17.5%</u> 20% of total cover: <u>7%</u>																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. <u><i>Vitis rotundifolia</i></u>	<u>5%</u>	<u>Y</u>	<u>FAC</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>5%</u> = Total Cover 50% of total cover: <u>2.5%</u> 20% of total cover: <u>1%</u>																				
Remarks: (If observed, list morphological adaptations below). <u>Buttressing was observed on trees within all of the wetlands.</u>																				

SOIL

Sampling Point: WA/WB/WC-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4"	2.5Y 2.5/1	100%					Sandy loam	
4-8"	2.5Y 6/1	95%	2.5Y 5/6	5%	C	M	Sandy loam	
8-18"	2.5Y 6/1	80%	2.5Y 5/6	20%	C	M	Sandy loam	
18-24"	2.5Y 6/1	70%	2.5Y 5/6	30%	C	M	Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Organic Bodies (A6) (LRR P, T, U)
☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
☐ Muck Presence (A8) (LRR U)
☐ 1 cm Muck (A9) (LRR P, T)
☒ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Coast Prairie Redox (A16) (MLRA 150A)
☐ Sandy Mucky Mineral (S1) (LRR O, S)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
☐ Thin Dark Surface (S9) (LRR S, T, U)
☐ Loamy Mucky Mineral (F1) (LRR O)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Marl (F10) (LRR U)
☐ Depleted Ochric (F11) (MLRA 151)
☐ Iron-Manganese Masses (F12) (LRR O, P, T)
☐ Umbric Surface (F13) (LRR P, T, U)
☐ Delta Ochric (F17) (MLRA 151)
☐ Reduced Vertic (F18) (MLRA 150A, 150B)
☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20)
 (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Soil saturation was observed at 4" in the soil profile. The water table was not observed within 24" of the soil profile.

WETLAND RATING WORKSHEET Fourth version

STR #230118
WA

Project Name: Structure #230118 Nearest road: Clarendon-Chadbourn Rd
 County: Columbus Wetland area: 0.22 acres Wetland width: 500 feet
 Name of Evaluator: J. Hartshorn, R. Sullivan Date: 9/2/2014

Wetland Location

☐ on pond or lake
☒ on perennial stream
☐ on intermittent stream
☐ within interstream divide
☐ other: _____

Soil Series

☐ predominantly organic
 (humus, muck, or peat)
☒ predominantly mineral
 (non-sandy)
☐ predominantly sandy

Hydrolic factors

☐ steep topography
☐ ditched or channelized
☒ total riparian wetland width $\geq$ 100 ft

Adjacent land use (within ½ mile upstream, upslope, or radius)

☒ forested/natural vegetation 65 %
☒ agriculture, urban/suburban 30 %
☒ impervious service 5 %

Dominant vegetation

1) *Pinus taeda*
 2) *Liriodendron tulipifera*
 3) *Woodwardia areolata*

Flooding and wetness

☐ semipermanently to permanently flooded
 or inundated
☒ seasonally flooded or inundated
☐ intermittently flooded or temporary
 surface water
☐ no evidence of flooding or surface water

Wetland type (select one)

☒ Bottomland hardwood forest	☐ Pine savanna
☐ Headwater forest	☐ Freshwater marsh
☐ Swamp forest	☐ Bog/fen
☐ Wet flat	☐ Ephemeral wetland
☐ Pocosin	☐ Carolina Bay
☐ Bog forest	☐ Other _____

*The rating system cannot be applied to salt or brackish marshes or stream channels

				weight		
R	Water Storage	<u>5</u>	x	<u>4.00</u>	=	<u>12</u>
A	Bank/Shoreline stabilization	<u>3</u>	x	<u>4.00</u>	=	<u>12</u>
T	Pollutant removal	<u>5</u>	x	<u>5.00</u>	=	<u>25</u>
I	Wildlife habitat	<u>5</u>	x	<u>2.00</u>	=	<u>10</u>
N	Aquatic life	<u>3</u>	x	<u>4.00</u>	=	<u>12</u>
G	Recreation/Education	<u>1</u>	x	<u>1.00</u>	=	<u>1</u>

Total Score¹ 72

¹Add 1 point if in sensitive watershed and >10% nonpoint disturbance within ½ mile radius.

WETLAND RATING WORKSHEET Fourth version

STR #230118
WB

Project Name: Structure #230118 Nearest road: Clarendon-Chadbourn Rd
 County: Columbus Wetland area: 0.11 acres Wetland width: 300 feet
 Name of Evaluator: J. Hartshorn, R. Sullivan Date: 9/2/2014

Wetland Location

☐ on pond or lake
☒ on perennial stream
☐ on intermittent stream
☐ within interstream divide
☐ other: _____

Soil Series

☐ predominantly organic
 (humus, muck, or peat)
☒ predominantly mineral
 (non-sandy)
☐ predominantly sandy

Hydrolic factors

☐ steep topography
☐ ditched or channelized
☒ total riparian wetland width $\geq$ 100 ft

Adjacent land use (within ½ mile upstream, upslope, or radius)

☒ forested/natural vegetation 60 %
☒ agriculture, urban/suburban 35 %
☒ impervious service 5 %

Dominant vegetation

1) Liquidambar styraciflua
 2) Liriodendron tulipifera
 3) Acer rubrum

Flooding and wetness

☐ semipermanently to permanently flooded
 or inundated
☒ seasonally flooded or inundated
☐ intermittently flooded or temporary
 surface water
☐ no evidence of flooding or surface water

Wetland type (select one)

☒ Bottomland hardwood forest	☐ Pine savanna
☐ Headwater forest	☐ Freshwater marsh
☐ Swamp forest	☐ Bog/fen
☐ Wet flat	☐ Ephemeral wetland
☐ Pocosin	☐ Carolina Bay
☐ Bog forest	☐ Other _____

*The rating system cannot be applied to salt or brackish marshes or stream channels

				weight			
R	Water Storage	<u>5</u>	x	<u>4.00</u>	=	<u>12</u>	
A	Bank/Shoreline stabilization	<u>3</u>	x	<u>4.00</u>	=	<u>12</u>	
T	Pollutant removal	<u>5</u>	x	<u>5.00</u>	=	<u>25</u>	
I	Wildlife habitat	<u>5</u>	x	<u>2.00</u>	=	<u>10</u>	
N	Aquatic life	<u>5</u>	x	<u>4.00</u>	=	<u>20</u>	
G	Recreation/Education	<u>1</u>	x	<u>1.00</u>	=	<u>1</u>	

Total Score¹ 80

¹Add 1 point if in sensitive watershed and >10% nonpoint disturbance within ½ mile radius.

WETLAND RATING WORKSHEET Fourth version

STR #230118
WC

Project Name: Structure #230118 Nearest road: Clarendon-Chadbourn Rd
 County: Columbus Wetland area: 0.09 acres Wetland width: 400 feet
 Name of Evaluator: J. Hartshorn, R. Sullivan Date: 9/2/2014

Wetland Location

☐ on pond or lake
☒ on perennial stream
☐ on intermittent stream
☐ within interstream divide
☐ other: _____

Soil Series

☐ predominantly organic
 (humus, muck, or peat)
☒ predominantly mineral
 (non-sandy)
☐ predominantly sandy

Hydrolic factors

☐ steep topography
☐ ditched or channelized
☒ total riparian wetland width $\geq$ 100 ft

Adjacent land use (within ½ mile upstream, upslope, or radius)

☒ forested/natural vegetation 30 %
☒ agriculture, urban/suburban 65 %
☒ impervious service 5 %

Dominant vegetation

- 1) Liquidambar styraciflua
- 2) Liriodendron tulipifera
- 3) Acer rubrum

Flooding and wetness

☐ semipermanently to permanently flooded
 or inundated
☒ seasonally flooded or inundated
☐ intermittently flooded or temporary
 surface water
☐ no evidence of flooding or surface water

Wetland type (select one)

☒ Bottomland hardwood forest	☐ Pine savanna
☐ Headwater forest	☐ Freshwater marsh
☐ Swamp forest	☐ Bog/fen
☐ Wet flat	☐ Ephemeral wetland
☐ Pocosin	☐ Carolina Bay
☐ Bog forest	☐ Other _____

*The rating system cannot be applied to salt or brackish marshes or stream channels

				weight		
R	Water Storage	<u>5</u>	x	<u>4.00</u>	=	<u>12</u>
A	Bank/Shoreline stabilization	<u>3</u>	x	<u>4.00</u>	=	<u>12</u>
T	Pollutant removal	<u>5</u>	x	<u>5.00</u>	=	<u>25</u>
I	Wildlife habitat	<u>4</u>	x	<u>2.00</u>	=	<u>8</u>
N	Aquatic life	<u>4</u>	x	<u>4.00</u>	=	<u>16</u>
G	Recreation/Education	<u>1</u>	x	<u>1.00</u>	=	<u>1</u>

Total Score¹ 74

¹Add 1 point if in sensitive watershed and >10% nonpoint disturbance within ½ mile radius.