

P.O. Box 548 Pittsboro, NC 27312 PHONE: (919) 545-8394

Fax: (919) 542-2698 • E-mail: drew.blake@chathamnc.org • Website: www.chathamnc.org

October 4, 2018

Soil & Environmental Consultants, PA Mr. Steven Ball 8412 Falls of Neuse Road, Suite 104 Raleigh, NC 27615

Project Name:	Morgan Ridge Phase 2 Subdivision Parcel #'s 69883 & 1435
Location:	Emily Lane, Chatham County
Subject Features:	Two (2) intermittent streams, two (2) perennial streams, and four (4) wetlands
Date of Determination:	<u>September 10, 2018</u>

Explanation:

The site visit was completed on September 10, 2018 by Drew Blake with the Chatham County Watershed Protection Department and Steven Ball of Soil and Environmental Consultants, PA (S&EC), on Parcel #'s 69883 and 1435 that are located within the Jordan Lake watershed. S&EC personnel completed a previous site visit which resulted in the identification of two (2) intermittent streams (streams B & C), two (2) perennial streams (streams A & D), and four (4) wetlands on the property. S&EC submitted a request for Chatham County to complete a formal review to determine if the features would be subject to riparian buffers according to Section 304 of the Chatham County Watershed Protection Ordinance. All points of origin, stream type transitions, and wetland boundaries were reviewed and agreed to in the field. Additionally, personnel from the U.S. Army Corps of Engineers (USACE) had previously completed an on-site review of the consultant's findings as depicted on the Stream & Wetland Delineation Sketch Map.

Required Riparian Buffers:

Streams B and C will require a 50-ft buffer from the top of bank landward on both sides of the features. Streams A and D will require a 100-ft buffer from the top of bank landward on both sides of the features. All jurisdictional wetlands (W1, W2, and W3) will require a 50-ft buffer proceeding landward from the flagged wetland boundary in accordance with Section 304 (A) of the Chatham County Watershed Protection Ordinance. Wetland 3 (W3) was determined to be an isolated wetland by the USACE and is proposed to be filled in by the developer pending 401/404 permitting requirements and approvals. It is recommended that you contact Jason Sullivan, Planning Department Director, regarding the Major Subdivision Process in relation to the proposed filling of Wetland 3.

This on-site determination shall expire five (5) years from the date of this letter. Landowners or affected parties that dispute a determination made by Chatham County, on parcels outside of the Jordan Lake watershed, may submit a request for appeal in writing to the Watershed Review Board. A request for a determination by the Watershed Review Board shall be made in accordance with Section 304 of the Chatham County Watershed Protection Ordinance. Landowners or affected parties that dispute a determination made by Chatham County, on parcels inside the Jordan Lake watershed, shall submit a



WATERSHED PROTECTION DEPARTMENT

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request for appeal in writing to NC DWR, 401 & Buffer Permitting Unit, 1650 Mail Service Center, Raleigh, NC 27669-1650 attention of the Director of the NC Division of Water Quality.

Should this project result in any direct impacts to surface water features (i.e., crossing and/or filling streams or wetlands) additional reviews may be necessary. Additionally, a Section 404/401 Permit may be required. Any inquiries regarding Section 404/401 permitting should be directed to the Division of Water Resources (Central Office) at (919)-807-6364 and the US Army Corp of Engineers (Raleigh Regulatory Field Office) at (919)-554-4884.

Respectfully,

Drew Blake

Drew Blake Watershed Specialist

- Enclosures: Riparian Buffer Review Application, submitted on 8/22/18 Agent Authorization Form S&EC Wetland Data Forms 1-3 S&EC Stream Determination Forms Post USACE Map provided by S&EC
- cc: Rachael Thorn, Chatham County Watershed Protection Director Kimberly Tyson, Planner II/Subdivision Administrator Angela Birchett, Chatham County Zoning Administrator Jason Sullivan, Chatham County Director of Planning



Date Received: 8/22/18

_{PL#} 2018-1778

Riparian Buffer Review Application Surface Water Identification Request for <u>Major Subdivisions</u>

Tract Information
Parcel #: 69883 and 1435 Watershed District (and name of creek if known):
Property Owner: Warren Bruce Page, Robert Bruce Page and Douglas Page
Location/Physical Address of Tract: Emily Lane
Take 15/501 north to manns chapel Rd; turn leftthen right on Poythress Rd
Then take a left on Gilmore Rd, which turns into Emily Lane. Site will be on the gravel section, on right.
Subdivision Name (if applicable):
Owner's/Agent Contact Information (Agent: Consultant, Real Estate Agent, Surveyor, Other) Circle one
Name: Steven Ball, S&EC
Contact Phone Numbers: (h) (w) 919-846-5900 (c)
_{E-mail:} sball@sandec.com
Mailing Address: 8412 Falls of Neuse Road, Suite 104 Raleigh, NC 27615
Do you wish to be contacted prior to Chatham County staff visiting the property? 🗹 Yes 🗌 No
How much notice is required prior to arrival onsite? Will need to review site with County
How would you like to receive the completed review letter? (Please check one of the following) ☐ I would like to pick up the completed Riparian Buffer Review at the County Office ☐ I would like the completed Riparian Buffer Review mailed to me ☑ I would like the completed Riparian Buffer Review e-mailed to me
Please include the following items with this request
Completed consultant findings report including the following:
GIS generated or hand drawn sketch of surface water features found onsite (Buffer Plan Sheet)
No smaller than 1"=60' and paper size 11"x17" or larger
M NCD WQ Stream Identification Forms, version 4.11, wetland Determination Data Form –



Riparian Buffer Review Application Surface Water Identification Request

Eastern Mountains and Piedmont Region, digital photographs, notes, sketches, etc.

- ☑ NRCS map with property boundary depicted
- USGS map with property boundary depicted

Statement of Credentials (Training Certificate for NCDWQ/NC State University Surface Waters Classification course, 2 years of jurisdictional wetland delineation according to the Eastern Mountains and Piedmont Regional Supplement to the 1987 US Corps of **Engineers Wetland Delineation Manual**)

Signed Right to Enter Property Form

Signed Owner's Agent Designation Form

Fee (make checks payable to Chatham County) **<u>\$100 per feature confirmed onsite</u>**

Feature is defined as any surface water that is subject to Chatham County Riparian Buffers (streams, *wetlands*, *ponds*)

Total Number of Features: 7 Total Paid: \$ 700

I have read and understand the regulations of the Watershed Protection Ordinance, Section 304, and I agree to adhere to these associated policies and guidelines herein.

 Owner/Agent Signature:
 Steven Ball
 Digitally signed by Steven Ball

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Date: 8/22/18

Incl	Environmental Quality Department
ATHAM COUNTY	PHONE: (919) 545-8204
	Website: www.chathamnc.org
AUTHORIZED AGENT	FOR LEGAL REPRESENTATION FORM
PROPERTY LEGAL DESCRIPTION:	
LOT NO. NA PARCEL ID (PIN)	1435 PARCEL SIZE 24 AC
STREET ADDRESS: OFF JONE	S FEERY ROAD
Please print:	
Property Owner: _//////Am	BRUCE PAGE
Property Owner:	·
The undersigned, owner(s) of the above	e described property, do hereby authorize
Warren Mitchell	of Warren D. Mitchell, PE
(Contractor/Agent)	(Name of consulting firm if applicable)
to act on my/our behalf and take all act	tions, I/we could have taken if present, necessary for the
processing, issuance and acceptance of	reviews, inspections, or permits and any and all standard and any and all standard and any any and all standard and any
that apply):	
Building Permit	2
Floodplain Determination	
Soil Erosion and Sedimentation Co	ntrol Permit
Permits to install, repair, evaluate,	or expand onsite wastewater system(s)
X Riparian Buffer Review pursuant to	o §304 of the Chatham County Watershed Protection Ordinance
Other:	

We hereby certify the above information submitted in this application is true and accurate to the best of our knowledge.

Owner Authorized Signature

8/22/18

Agent Authorized Signature

8/1/18 Date:

8-16-18 Date: _

Applications can be mailed to: Planning Dept., PO Box 54, Pittsboro, NC 27312 For Questions, please contact: Lynn Richardson at 919-542-8207 Revised 3/2014

	LAND & WATER RESOURCES DIVISION Environmental Quality Department
THAM COUNTY	PHONE: (919) 545-8204
	Website: www.chathamnc.org
AUTHORIZED AGENT F	OR LEGAL REPRESENTATION FORM
ROPERTY LEGAL DESCRIPTION:	
OT NO. NA PARCEL ID (PIN)	69883 PARCEL SIZE 56.25 ac.
TREET ADDRESS: OFF JONE	S FERRY ROAD
lease print:	LUCE PAGE
roperty Owner: DOUGLAS	PAGE
he undersigned, owner(s) of the above d	escribed property, do hereby authorize
Varcen Mitchell	Warren D. Mitchell .PE
Contractor/Agent)	(Name of consulting firm if applicable)
o act on my/our behalf and take all action rocessing, issuance and acceptance of rev pecial conditions attached to these approv hat apply): Building Permit Zoning Compliance Permits Eloodplain Determination	ns, I/we could have taken if present, necessary for the views, inspections, or permits and any and all standard and vals. The activities authorized include the following (initial all
Soil Erosion and Sedimentation Contro	ol Permit
Evaluation/inspection/permitting of a Riparian Buffer Review pursuant to §3	expand onsite wastewater system(s) private drinking water well(s) 304 of the Chatham County Watershed Protection Ordinance
roperty Owner's Address (if different t	than property above):
wner Telephone:	Email:dpage@hopnc.org
Ve hereby certify the above information su	ubmitted in this application is true and accurate to the best of
Ur Knowledgeorusigned by: Douglas E. Page	and lime sta
wner AuthoFized Signature	Agent Authorized Signature 8/22
8/20/2018 8.56.00 AM E	EDT $0 - 1/ - 10$

BAL REPRESENTATION FORM BB parcel SIZE 56.25 ac.
33 PARCEL SIZE 56.25 a.C.
33 PARCEL SIZE 56.25 ac.
ery ROAD
PAGE
roperty, do hereby authorize
arnen D. Mitchell, PE
uld have taken if present, necessary for the pections, or permits and any and all standard and activities authorized include the following (initial all
nsite wastewater system(s)
nking water well(s) Chatham County Watershed Protection Ordinance
erty above):
Email: Autopage C gol. com
n this application is true and accurate to the best of \mathcal{A}

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Page Property	City/County: Chatham	Sampling Date: 4/3/18
Applicant/Owner: Jones Ferry Properties, LLC	State: NC	_ Sampling Point: DP1
Investigator(s): S&EC - SB	_ Section, Township, Range: <u>N/A</u>	
Landform (hillslope, terrace, etc.): Hilltop	_ocal relief (concave, convex, none): Concave	Slope (%): 0%
Subregion (LRR or MLRA): MLRA 136 Lat: 35.85844	1Long:79.155782	Datum: NAD 83
Soil Map Unit Name: WOB	NWI classifica	ation: None
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes 🚺 No 🦲 (If no, explain in Re	emarks.)
Are Vegetation Soil , or Hydrology significant	tly disturbed? Are "Normal Circumstances" pi	resent? Yes 🗹 No 📃
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needed, explain any answer	s in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes V No Vo Yes V No Vo	Is the Sampled Area within a Wetland?	Yes 🖌 No 🦳
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	✓ Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living R	Roots (C3) Doss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
✓ Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No 🗹 Depth (inches):	
Water Table Present? Yes No 🖌 Depth (inches):	
Saturation Present? Yes ✓ No Depth (inches): 5"	Wetland Hydrology Present? Yes / No / No
Saturation Present? Yes 🖌 No Depth (inches): 5"	Wetland Hydrology Present? Yes No
Saturation Present? Yes ✓ No Depth (inches): 5" (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	Wetland Hydrology Present? Yes No
Saturation Present? Yes ✓ No Depth (inches): 5" (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	Wetland Hydrology Present? Yes Ves No
Saturation Present? Yes ✓ No Depth (inches): 5" (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	Wetland Hydrology Present? Yes No
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VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP1

, , ,	Abaaluta	Deminant	la d'anten	Deminence Test worksheet
Tree Stratum (Plot size: 30' Radius	ADSOIUTE %	Species?	Indicator Status	Dominance Test worksneet:
Pinus taeda	60%	Ves	FAC	Number of Dominant Species
	200/	Vee		That Are OBL, FACW, or FAC: (A)
2. Liquidambar styraciliua	30%	res	FAC	Total Number of Dominant
3				Species Across All Strata: 7 (B)
4.				
5				Percent of Dominant Species
<u> </u>				That Are OBL, FACW, or FAC: 7176 (A/B)
0	0.00/			Prevalence Index worksheet:
	90%	= Total Cov	er	Total % Covor of: Multiply by:
50% of total cover: 45%	20% of	total cover:	18%	
Sapling Stratum (Plot size: 30' Radius				OBL species x 1 =
Liquidambar styraciflua	10%	Yes	FAC	FACW species x 2 =
	200/	Vee	EAC	FAC species x 3 =
	20%	res	FAC	FACU species x 4 =
3. Juniperus virginiana	20%	Yes	FACU	
4. Fagus grandifolia	10%	No	FACU	
5				Column Totals: (A) (B)
6	0.00/			Prevalence Index = B/A =
	90%	= Total Cov	er	Hydrophytic Vegetation Indicators:
50% of total cover: 45%	20% of	total cover	18%	1 - Rapid Test for Hydrophytic Vegetation
Shruh Stratum (Plat aiza: 30' Badius				\checkmark 2 - Dominance Test is >50%
	200/	Vaa	FACU	\square 2 Deminiario Foot is Foot β
1. <u>liex opaca</u>	30%	Yes	FACU	
2				4 - Morphological Adaptations' (Provide supporting
3.				data in Remarks or on a separate sneet)
1				Problematic Hydrophytic Vegetation ¹ (Explain)
-				
5				¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
	30%	= Total Cov	er	Definitions of Five Vegetation Strata
50% of total anyon 15%	200/ of	total any ar	6%	Deminions of the Vegetation officia.
50% of total cover. 1070	20% 01	total cover.	070	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size:)				approximately 20 ft (6 m) or more in height and 3 in.
1				(7.6 cm) or larger in diameter at breast height (DBH).
2.				Sepling Weedy plante evoluting weedy vince
3				approximately 20 ft (6 m) or more in height and less
				than 3 in. (7.6 cm) DBH.
4				
5				Shrub – Woody plants, excluding woody vines,
6.				approximately 3 to 20 ft (1 to 6 m) in height.
7				Harb All borbaccous (non woody) plants including
·· <u> </u>				herbaceous vines, regardless of size, and woody
8				plants, except woody vines, less than approximately 3
9				ft (1 m) in height.
10				
11.				Woody vine – All woody vines, regardless of height.
		- Total Cov	or	
	·	- 10101 000	CI	
50% of total cover:	20% of	total cover:		
Woody Vine Stratum (Plot size: 30' Radius				
1 Smilax rotundifolia	20%	Yes	FAC	
2				
3				
4				
5				
	20%	Tatal Cau		Hydrophytic
				Present? Ves Ves
50% of total cover: 10%	20% of	total cover:	4%	
Remarks: (Include photo numbers here or on a separate s	heet.)			1
	,			

Profile Desc	ription: (Describe	to the dep	h needed to docu	ment the i	ndicator	or confirm	n the absence	of indicators.)
Depth	Matrix		Redo	x Features	6			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-20"	2.5Y 6/2	85%	2.5Y 6/8	15%	D	Μ	CL	
·								
						. <u> </u>		
		lation DM	Deduced Metrix M	C Maakad	Cand Cr		² Location: D	L Doro Lipipa M Motrix
	Indicators	neuon, RM=	Reduced Matrix, M	S=IVIASKED	Sand Gr	allis.		
	inulcators:		—					ators for Problematic Hydric Solis":
Histosol	(A1)		Dark Surface	e (S7)			<u> </u>	cm Muck (A10) (MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Be	elow Surfac	ce (S8) (I	VILRA 147,	148) 🗌 C	Coast Prairie Redox (A16)
Black Hi	stic (A3)		🔲 Thin Dark Su	urface (S9)	(MLRA	147, 148)		(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (I	F2)		🗆 P	Piedmont Floodplain Soils (F19)
Stratified	Lavers (A5)		Depleted Ma	trix (F3)	,			(MLRA 136, 147)
2 cm Mi	ick (A10) (I RR N)		Redox Dark	Surface (F	6)			(erv Shallow Dark Surface (TE12)
	Below Dark Surfac	e (A11)	Depleted Da	rk Surface	(F7)			ther (Explain in Remarks)
	ark Surface (A12)			ecione (E	(i /) B)			
	under Minoral (S1) () 20 (E12) (
		LKK N,			es (F12) (LKK N,		
	A 147, 148)			()			3.	
	eleyed Matrix (S4)			ace (F13) (MLRA 13	36, 122)	°Ind	licators of hydrophytic vegetation and
Sandy F	ledox (S5)		Piedmont Flo	podplain So	oils (F19)	(MLRA 14	18) we	etland hydrology must be present,
Stripped	Matrix (S6)		Red Parent I	Material (F	21) (MLR	A 127, 147	7) un	less disturbed or problematic.
Restrictive	_ayer (if observed)	:						
Type:								
Dopth (in	abaa).						Hudria Sail	Brocont2 You V No
Deptil (III							Hydric 30ii	
Remarks:								

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Page Property	_ City/County: Chatham	Sampling Date: 4/3/18
Applicant/Owner: Jones Ferry Properties, LLC	State: NC	Sampling Point: DP2
Investigator(s): S&EC - SB	_ Section, Township, Range: <u>N/A</u>	
Landform (hillslope, terrace, etc.): Flat	Local relief (concave, convex, none): Concave	Slope (%): 0
Subregion (LRR or MLRA): MLRA 136 Lat: 35.85875	5 Long: -79.155796	Datum: NAD 83
Soil Map Unit Name: WOB	NWI classific	ation: None
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes 🚺 No 🛄 (If no, explain in R	emarks.)
Are Vegetation Soil , or Hydrology significan	tly disturbed? Are "Normal Circumstances" p	oresent? Yes 🖌 No 📃
Are Vegetation, Soil, or Hydrology naturally	problematic? (If needed, explain any answe	rs in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Image: Constraint of the second	Is the Sampled Area within a Wetland?	Yes No
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	✓ Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living F	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No 🖌 Depth (inches):	
Water Table Present? Yes No 🖌 Depth (inches):	
Saturation Present? Yes No 🗸 Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)	iene) if evelople.
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions), if available:
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(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	ions), if available:

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

Sampling Point: DP2

	Abaaluta	Deminent	Indiantan	Deminence Test worksheet:
Tree Stratum (Plot size: 30' Radius	Absolute % Cover	Species?	Indicator Status	Dominance Test worksneet:
Liquidambar styraciflua	20%	Yes	FAC	Number of Dominant Species
1. Elquidambal stylaoliida	600/	Vee		That Are OBL, FACW, or FAC: (A)
	00%	res		Total Number of Dominant
3. Acer rubrum	20%	Yes	FAC	Species Across All Strata: 8 (B)
4				
5.				That Are OBL_EACW_or EAC: 75% (A/B)
6				
0	100%	Tatal Car		Prevalence Index worksheet:
	10070	= Total Cov	/er	Total % Cover of: Multiply by:
50% of total cover: <u>50%</u>	20% of	total cover:	20%	
Sapling Stratum (Plot size: 30' Radius				
1. Juniperus virginiana	20%	Yes	FACU	FACW species x z =
2 Acer rubrum	30%	Yes	FAC	FAC species x 3 =
2. Liquidambar styraciflua	30%	Yes	FAC	FACU species x 4 =
	4.00/	Ne		UPL species x 5 =
4. Comus nonda	10%	INO	FACU	Column Totals: (A) (B)
5				
6				Prevalence Index = B/A =
	90%	= Total Cov	/er	Hydrophytic Vegetation Indicators:
450/			100/	1. Banid Toot for Hydronbytic Vegetetion
50% of total cover: 43%	20% of	total cover	10%	
Shrub Stratum (Plot size: <u>30' Radius</u>)				2 - Dominance Test is >50%
1. Ilex opaca	10%	Yes	FACU	3 - Prevalence Index is ≤3.0 ¹
2.				4 - Morphological Adaptations ¹ (Provide supporting
2			·	data in Remarks or on a separate sheet)
<u>.</u>			·	Problematic Hydrophytic Vegetation ¹ (Explain)
4			·	
5				¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
	10%	= Total Cov	ver	Definitions of Five Vegetation Strata
E0% of total cover: 5%	200/ of	total anyor	.2%	Dominiono en rico rogonation estatal
50% of total cover. <u></u>	20 % 01			Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size:)				approximately 20 ft (6 m) or more in height and 3 in.
<u> 1. </u>				(7.6 cm) or larger in diameter at breast height (DBH).
2				Sapling – Woody plants, excluding woody vines,
3				approximately 20 ft (6 m) or more in height and less
4.				than 3 in. (7.6 cm) DBH.
5				Shruh - Woody plants, excluding woody vines
			·	approximately 3 to 20 ft (1 to 6 m) in height.
6			·	
7				Herb – All herbaceous (non-woody) plants, including
8				herbaceous vines, regardless of size, and woody
9				ft (1 m) in height.
10.				
11				Woody vine – All woody vines, regardless of height.
		Total Cau		
	·		ei	
50% of total cover:	20% of	total cover	: <u> </u>	
Woody Vine Stratum (Plot size: 30' Radius				
1. Smilax rotundifolia	20%	Yes	FAC	
2				
2			·	
			·	
4			·	
5				Hydrophytic
	20%	= Total Cov	ver	Vegetation
EQU of total aquary 10%				
	20% of	total cover	- 4%	Present? Yes Ves No
S0% Of Iotal Cover. 1070	20% of	total cover	4%	Present? Yes V No

Profile Desc	cription: (Describe	to the dept	th needed to docu	ment the indic	ator or confir	m the absence	of indicators.)
Depth	Matrix		Redo	ox Features			
(inches)	Color (moist)	%	Color (moist)	<u>%</u> Ty	/pe ¹ Loc ²	Texture	Remarks
0-20"	2.5Y 6/3	70%	2.5Y 6/6	30%			
						·	
·				<u> </u>			
<u> </u>				·	·		
				<u> </u>			
				<u> </u>		<u> </u>	
·						·	
<u> </u>				<u> </u>		·	
¹ Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked Sar	nd Grains.	² Location: P	L=Pore Lining, M=Matrix.
Hydric Soil	Indicators:					Indica	ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			cm Muck (A10) (MLRA 147)
Histic F	oipedon (A2)		Polyvalue Be	elow Surface (9	S8) (MLRA 147	7. 148) 🗖 🖸	Coast Prairie Redox (A16)
Black Hi	istic (A3)		Thin Dark Su	urface (S9) (MI	RA 147 148)	,,	(MI RA 147 148)
	an Sulfide ($\Delta 4$)			and Matrix (F2)			Viedmont Floodplain Soils (F19)
	d Lavers (A5)			riv (E3)			(MI PA 136 147)
	u Layers (AS)			Surface (EG)			(MERA 130, 147)
	d Rolow Dark Surfac	$(\Lambda 11)$		Sunace (FO)	\		ther (Evolution in Remarks)
		e (ATT))		aner (Explain in Remarks)
	ark Surface (ATZ)						
		LRR N,		iese Masses (F	(LKK N,		
	A 147, 148)			56) (E40) (111 E		3.	
	Bleyed Matrix (S4)			ace (F13) (MLF	RA 136, 122)	°Ind	icators of hydrophytic vegetation and
Sandy F	Redox (S5)		Piedmont Fl	oodplain Soils	(F19) (MLRA 1	48) we	etland hydrology must be present,
Stripped	I Matrix (S6)		Red Parent	Material (F21)	(MLRA 127, 14	1 7) un	less disturbed or problematic.
Restrictive	Layer (if observed)						
Type:							
Depth (in	ches):					Hydric Soil	Present? Yes No V
Remarks:						-	
riomanio.							

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Page Property	City/County: Chatham	Sampling Date: <u>6/27/18</u>
Applicant/Owner: Jones Ferry Properties, LLC	State: NC	Sampling Point: DP3
Investigator(s): S&EC - SB	Section, Township, Range: <u>N/A</u>	
Landform (hillslope, terrace, etc.): Sideslope depression Lo	cal relief (concave, convex, none): Concave	Slope (%): <u>0%</u>
Subregion (LRR or MLRA): MLRA 136 Lat: 35.858420	Long: <u>-79.155891</u>	Datum: NAD 83
Soil Map Unit Name: WoB	NWI classi	fication: None
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🖌 No 🦲 (If no, explain in	Remarks.)
Are Vegetation Soil , or Hydrology significantly	v disturbed? Are "Normal Circumstances"	" present? Yes 🚺 No 🦲
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No No Yes Yes No No Yes No No	Is the Sampled Area within a Wetland?	Yes No
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living F	Roots (C3) 🖌 Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No 🗸 Depth (inches):	
Water Table Present? Yes No Vo Depth (inches):	
Saturation Present? Yes No 🖌 Depth (inches):	Wetland Hydrology Present? Yes Ve
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions), if available:
Remarks:	
Hydrology is weak; no Primary indicators currently	

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

Sampling Point: DP3

	Absoluto	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30' Radius	% Cover	Species?	Status	Number of Dominant Species
1. Pinus taeda	25%	Yes	FAC	That Are OBL, FACW, or FAC: 4 (A)
2 Liquidambar styraciflua	25%	Yes	FAC	
3 Fraxinus pennsylvanica	10%	No	FACW	Total Number of Dominant
A Carva tomentosa	20%	Yes	FACU	Species Across All Strata: (B)
4. Oalya tomontooa	2070	100	17100	Percent of Dominant Species
5			·	That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
6	0.00/		·	Prevalence Index worksheet
	80%	= Total Cov	/er	Total % Cover of: Multiply by:
50% of total cover: <u>40%</u>	20% of	total cover	<u>.</u> 16%	
Sapling Stratum (Plot size: 30' Radius				$\frac{1}{20} = \frac{1}{20} $
1. Liquidambar styraciflua	10%	No	FAC	FACTV species $\frac{20}{100}$ $x_2 = \frac{100}{200}$
2. Acer rubrum	10%	No	FAC	FAC species $100 \times 3 = 500$
3 Juniperus virginiana	30%	Yes	FACU	FACU species 130 $x 4 = 520$
A Carva tomentosa	35%	Yes	FACU	UPL species x 5 =
r Ouercus alba	15%	No	FACU	Column Totals: <u>250</u> (A) <u>880</u> (B)
	1070	110	1700	
6	4000/		·	Prevalence Index = $B/A = 3.52$
	100%	= Total Cov	/er	Hydrophytic Vegetation Indicators:
50% of total cover: 50%	20% of	total cover	20%	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size: 30' Radius)				2 - Dominance Test is >50%
1 llex opaca	30%	Yes	FACU	3 - Prevalence Index is ≤3.0 ¹
2				4 - Morphological Adaptations ¹ (Provide supporting
2				data in Remarks or on a separate sheet)
3			·	Problematic Hydrophytic Vegetation ¹ (Explain)
4			·	
5			·	¹ Indicators of hydric soil and wetland hydrology must
6	·			be present, unless disturbed or problematic.
	30%	= Total Cov	/er	Definitions of Five Vegetation Strata:
50% of total cover: 15%	20% of	total cover	: 6%	
Herb Stratum (Plot size: 30' Radius)				Tree – Woody plants, excluding woody vines,
1 Carex sp	10%	Yes	FACW	(7.6 cm) or larger in diameter at breast height (DBH).
1. <u></u>				
2				Sapling – Woody plants, excluding woody vines,
3				than 3 in. (7.6 cm) DBH.
4				
5				Shrub – Woody plants, excluding woody vines,
6			·	approximately 3 to 20 ft (1 to 6 m) in height.
7	-			Herb – All herbaceous (non-woody) plants, including
8				herbaceous vines, regardless of size, and woody
9.				plants, except woody vines, less than approximately 3
10.				
11				Woody vine – All woody vines, regardless of height.
	10%	- Total Ca		
F0/				
50% of total cover: 5%	20% of	total cover	: Z%	
Woody Vine Stratum (Plot size: 30' Radius)				
1. Smilax rotundifolia	5%	No	FAC	
2. Vitis rotundifolia	20%	Yes	FAC	
3. Toxicodendron radicans	5%	No	Fac	
4.				
5.				
	30%	- Total Cov	/er	Hydrophytic
4.50/			60/	Present? Yes No
50% of total cover: <u>15%</u>	20% of	total cover	0%	
Remarks: (Include photo numbers here or on a separate s	heet.)			

Profile Desc	ription: (Describe	to the dept	h needed to docun	nent the i	ndicator	or confirm	the absence	e of indicators.)
Depth	Matrix		Redox	K Features	8			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-20"	2.5Y 6/2	85%	2.5Y 6/8	15%	D	М	CL	
						·		
						·		
						·		
						·		
							-	
	·					·	. <u> </u>	·
$\frac{1}{1}$ Type: C-C		lotion PM-	Poducod Matrix MS	-Mackad	Sand Gr	aine	² Location: E	PL-Pore Liping M-Matrix
	Indicators:		Reduced Matrix, Mc	eiviaskeu	Sanu Gr	airis.		eators for Problematic Hydric Soils ³ :
	(4.4)			(07)				
	(A1)		Dark Surface	(57)	(00) (7			2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be	ow Surfac	ce (S8) (N	ILRA 147,	148) 🔟 🤇	Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Su	rtace (S9)	(MLRA 1	47, 148)		(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gleye	d Matrix (I	F2)		L_ F	Piedmont Floodplain Soils (F19)
Stratified	d Layers (A5)		✓ Depleted Mat	rix (F3)			_	(MLRA 136, 147)
2 cm Mu	ick (A10) (LRR N)		Redox Dark S	Surface (F	6)			Very Shallow Dark Surface (TF12)
Depleted	d Below Dark Surfac	e (A11)	Depleted Dar	k Surface	(F7)			Other (Explain in Remarks)
L Thick Da	ark Surface (A12)		Redox Depre	ssions (F8	3)			
Sandy M	1ucky Mineral (S1) (I	LRR N,	Iron-Mangane	ese Masse	es (F12) (LRR N,		
	A 147, 148)		MLRA 136	5)			2	
Sandy G	Bleyed Matrix (S4)		Umbric Surfa	ce (F13) (MLRA 13	6, 122)	°Ind	dicators of hydrophytic vegetation and
Sandy R	Redox (S5)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14	8) w	etland hydrology must be present,
Stripped	Matrix (S6)		Red Parent M	laterial (F	21) (MLR	A 127, 147	') ur	nless disturbed or problematic.
Restrictive I	Layer (if observed)	:						
Туре:								
Depth (in	ches):						Hydric Soi	I Present? Yes 🔽 No 🛄
Remarks:							-	
r tomanto.								



Date: 4/6/18	Project/Site:	inter la	Latitude:		
Evaluator:	County: Cha	than	Longitude: Other e.g. Quad Name:		
Total Points: Stream is at least intermittent $f \ge 19$ or perennial if $\ge 30^*$	Stream Determin Ephemeral Inter	nation (circle one) rmittent Perennial			
A. Geomorphology (Subtotal = 11)	Absent	Weak	Moderate	Strong	
^a . Continuity of channel bed and bank	0	1	B	3	
2. Sinuosity of channel along thalweg	0	B	2	3	
 In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 	0	a	2	3	
4. Particle size of stream substrate	0	3	2	3	
5. Active/relict floodplain	0	B	2	3	
6. Depositional bars or benches	0	C	2	3	
7. Recent alluvial deposits	0	Ø	2	3	
3. Headcuts	0	Q	2	3	
9. Grade control	0	65	1	1.5	
0. Natural valley	0	0.5	1`	1.5	
1. Second or greater order channel	No	=0	Yes = 3		
artificial ditches are not rated; see discussions in manual					
3. Hydrology (Subtotal =b)					
2. Presence of Baseflow	6	1	2	3	
3. Iron oxidizing bacteria	0	Ð	2	3	
4. Leaf litter	1.5	Q	0.5	0	
5. Sediment on plants or debris	0	0.5	1	1.5	
6. Organic debris lines or piles	0	0.5	1	1.5	
Soil-based evidence of high water table?	No	= 0	Yes =	3	
C. Biology (Subtotal =)					
8. Fibrous roots in streambed	3	Q	1	0	
9. Rooted upland plants in streambed	3	\bigcirc	1	0	
0. Macrobenthos (note diversity and abundance)	Ø	1	2	3	
1. Aquatic Mollusks	8	1	2	3	
2. Fish	\bigcirc	0.5	1	1.5	
3. Crayfish	0	03	1	1.5	
4. Amphibians	Ø	0.5	1	1.5	
5. Algae	\bigcirc	0.5	1	1.5	
6. Wetland plants in streambed		FACW = 0.75; OBL	= 1.5 Other = 0	G	
*perennial streams may also be identified using other metho	ds. See p. 35 of manual.		Xi (-		
lotes:					
oketch:					



NC DWQ Stream Identification Form Version 4.11

Date: 4/5/16	Project/Site:		Latitude:	Latitude:		
Evaluator: PM	County: Cha,	then	Longitude:			
Total Points:Stream is at least intermittent $if \ge 19$ or perennial if $\ge 30^*$ $2Z_15$	Stream Determin Ephemeral Inter	nation (circle one)	Other e.g. Quad Name:			
A. Geomorphology (Subtotal = 11)	Absent	Weak	Moderate	Strong		
1 ^{a.} Continuity of channel bed and bank	0	1	3	3		
2. Sinuosity of channel along thalweg	0	a	2	3		
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	0	2	3		
4. Particle size of stream substrate	0	Ø	2	3		
5. Active/relict floodplain	0	O	2	3		
6. Depositional bars or benches	0	\odot	2	3		
7. Recent alluvial deposits	0	0	2	3		
8. Headcuts	0	0	2	3		
9. Grade control	0	0.5	1	1,5		
10. Natural valley	0	0.5	1	1.5		
11. Second or greater order channel	No	€	Yes = 3			
B. Hydrology (Subtotal =)						
12. Presence of Baseflow	0	1	2	3		
13. Iron oxidizing bacteria	0	3	2	3		
14. Leaf litter	1.5	0	0.5	0		
15. Sediment on plants or debris	0	0.3	1	1.5		
16. Organic debris lines or piles	0	0.5	1	1.5		
17. Soil-based evidence of high water table?	No	= 0	Yes	3		
C. Biology (Subtotal = <u>5.5</u>)						
18. Fibrous roots in streambed	3	3	1	0		
19. Rooted upland plants in streambed	3	(2)	1	0		
20. Macrobenthos (note diversity and abundance)	0	1	2	3		
21. Aquatic Mollusks	0	1	2	3		
22. Fish	0	0.5	1	1.5		
23. Crayfish	0	0.5	1	1.5		
24. Amphibians	0	0.9	1	1.5		
25. Algae	0	0.3	1	1.5		
26. Wetland plants in streambed		FACW = 0.75; OBL	. = 1.5 Other = 40			
*nerennial streams may also be identified using other method	ds. See p. 35 of manual.					
percinital streams may also be identified using other method	and the second					

