



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

June 18, 2012

U. S. Army Corps of Engineers  
Regulatory Field Office  
3331 Heritage Trade Drive Suite 105  
Wake Forest, NC 27587

ATTN: Mr. Monte Matthews  
NCDOT Coordinator

Subject: **Application for Modification to Individual Section 404 Permit and 401 Certification** for the widening of US 321 from SR 1500 (Blackberry Road) to US 221 at Blowing Rock; Watauga and Caldwell Counties; State Project No. 6.739001T; NCDOT Division 11; TIP No. R-2237C, WBS Element No. 34402.2.6

Reference: - Individual 404 Permit (May 26, 2011) and Revised Permit (dated May 5, 2011) (Action ID: SAW-2002-31262)  
- 401 Certification (March 9, 2011) and Revised Certification (dated May 5, 2011) (NCDWQ Project No. 20100752)  
- NCDOT Permit Application, dated September 3, 2010  
- NCDOT Revised Permit Application, dated February 23, 2011

Dear Mr. Matthews:

This Modification request is being submitted due to the need for construction revisions at Site XII. The revisions entail moving the 84-inch pipe for ease of construction. This Modification application package consists of the cover letter, a revised EEP acceptance letter, revised Permit Drawing Sheets (including a revised Wetland Permit Impact Summary sheet that includes the new impacts for Site XII), the associated roadway plan sheet, and a Request for Revised JD package.

**Jurisdictional Impacts at Site XII**

The original impacts at Site XII consisted of only temporary stream impacts for the installation of a pipe. Due to the need for a construction revision, there will be 45 lf of permanent stream impacts from fill, and the temporary impacts are reduced from 45 lf to 21 lf. Subsequent to the issuance of the Permit, a small wetland was identified at the site. The previously unidentified wetland at Site XII will be temporarily impacted from the revised construction technique. There will be <0.01 acre of temporary impacts to the wetland at Site XII.

MAILING ADDRESS:  
NC DEPARTMENT OF TRANSPORTATION  
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS  
1598 MAIL SERVICE CENTER  
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100  
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610-4328

Table 4 from the referenced original and revised applications, for impacts to streams in the **New River Basin** (labeled to maintain consistency), has been modified to reflect the inclusion of 45 lf of permanent stream impacts, and the reduction of temporary stream impacts (from 45 lf to 21 lf) at Site XII. Table 3 from the referenced revised application is unchanged but has been included in this application to present the stream impacts within the Yadkin-Pee Dee River Basin, for reference.

**Modified Table 4. Impacts to jurisdictional streams in New River Basin (HUC 05050001)**

Site No.	Station No.	Stream Name	Stream Type / Classification	Impact Type	Impact Length	Impact Acreage	Mitigation Requirement
VI	495+20 to 498+15-L-	UT1 to Middle Fork <sup>a/</sup>	Perennial / WS-IV: +	Perm. fill	294 lf	--	USACE & DWQ
VII	523+33.5-L-	Middle Fork	Perennial / WS-IV: +	Perm. fill	128 lf	--	USACE & DWQ
				Bank stabilization	32 lf <sup>b/</sup>	--	DWQ
				Temp. fill	26 lf	0.01 ac.	--
IX	540+20-L-	UT2 to Middle Fork	Perennial / WS-IV: +	Perm. fill	119 lf	--	USACE & DWQ
					14 lf	--	N/A <sup>c/</sup>
				Temp. fill	10 lf	<0.01 ac.	--
X	553+50-L-	UT3 to Middle Fork	Perennial / WS-IV: +	Perm. fill	59 lf	--	USACE & DWQ
				Temp. fill	19 lf	<0.01 ac.	--
		UT4 to Middle Fork	Perennial / WS-IV: +	Perm. fill	25 lf	--	USACE & DWQ
				Temp. fill	19 lf	<0.01 ac.	--
XII	561+56-L-	UT5 to Middle Fork	Perennial / WS-IV: +	Perm. fill	<b>45 lf</b>	--	USACE & DWQ
				Temp. fill	<b>21 lf</b>	<0.01 ac.	
<b>Total Temporary Impacts:</b>					<b>95 lf</b>	0.02 <sup>d/</sup>	--
<b>Total Permanent Impacts:</b>					<b>716 lf</b>		
<b>Permanent Impacts Requiring No Mitigation:</b>					14 lf		0 lf
<b>Permanent Impacts Requiring DWQ Mitigation (1:1):</b>					747 lf		747 lf
<b>Permanent Impacts Requiring USACE Mitigation (2:1):</b>					<b>670 lf <sup>+</sup></b>		<b>1,340 lf <sup>+</sup></b>

<sup>a/</sup> Middle Fork = Middle Fork of the South Fork of the New River.

<sup>b/</sup> Mitigation for bank stabilization impact required by DWQ – not required by USACE.

<sup>c/</sup> area determined to have been already impacted – no mitigation required by USACE or DWQ.

<sup>d/</sup> value based on rounding, due to some of the individual impacts being <0.01 acre.

<sup>+</sup> Amount of stream impact requiring mitigation (based on mitigation required by the USACE exceeding the amount required by DWQ).

Modified impact values are **bolded**.

Table 3. Impacts to jurisdictional streams in Yadkin-Pee Dee River Basin (HUC 03040101)  
 [table unchanged – included for reference]

Site No.	Station No.	Stream Name	Stream Type / Classification	Impact Type	Impact Length	Impact Acreage	Mitigation Requirement
I	385+70 to 389+45-L-	UT1 to Bailey Camp Creek	Perennial / C; Tr	Perm. fill	294 lf	--	USACE & DWQ
				Temp. fill	36 lf	<0.01 ac.	--
II	403+30-L-	Bailey Camp Creek	Perennial / C; Tr	Perm. fill	119 lf	--	USACE & DWQ
				Temp. fill	33 lf	<0.01 ac.	--
III	442+00 to 444+00-L-	UT1 to Yadkin River	Perennial / C; Tr	Perm. fill	53 lf	--	USACE & DWQ
		UT2 to Yadkin River	Perennial / C; Tr	Perm. fill	150 lf	--	USACE & DWQ
				Bank stabilization	10 lf <sup>a/</sup>	--	DWQ
				Temp. fill	43 lf	0.01 ac.	--
IV	444+65 to 449+50-L-	UT2 to Yadkin River	Perennial / C; Tr	Perm. fill	317 lf	--	USACE & DWQ
				Temp. fill	46 lf	0.01 ac.	--
V	451+40-L-	UT2 to Yadkin River	Perennial / C; Tr	Perm. fill	22 lf	--	USACE & DWQ
				Bank stabilization	10 lf <sup>a/</sup>	--	DWQ
				Temp. fill	6 lf	<0.01 ac.	--
<b>Total Temporary Impacts:</b>					164 lf	0.03 <sup>b/</sup>	--
<b>Total Permanent Impacts:</b>					975 lf		
<b>Permanent Impacts Requiring DWQ Mitigation (1:1):</b>					975 lf		975 lf
<b>Permanent Impacts Requiring USACE Mitigation (2:1):</b>					955 lf <sup>+</sup>		1,910 lf <sup>+</sup>

<sup>a/</sup> Mitigation for bank stabilization impact required by DWQ – not required by USACE.

<sup>b/</sup> Value based on rounding, due to some of the individual impacts being <0.01 acre.

<sup>+</sup> Mitigation proposed by NCDOT (based on mitigation required by the USACE exceeding the amount required by DWQ).

## SUMMARY OF IMPACTS TO WATERS OF THE U.S.

### Surface Waters

Based on the net increase of 45 linear feet of stream impact at Site XII, permanent impacts are proposed on a total of 1,691 (revised from 1,646) linear feet of jurisdictional streams: 716 linear feet within the New River Basin (revised from 671 lf) and 975 linear feet within the Yadkin Pee-Dee River Basin (unchanged). Temporary impacts are proposed on 0.05 acre (reduced from 283 lf to 259 lf) of jurisdictional streams. This revised linear footage does not change the area (0.05 acre) of temporary stream impacts presented in the referenced original and revised applications presented in Modified Table 2 (labeled to maintain consistency).

**Wetlands**

There will be <0.01 acre of temporary impacts to the wetland at Site XII. There is no change to permanent wetland impacts on the project; therefore the wetland table from the referenced original application has not been modified, nor included with this application, and permanent wetland impacts have not been modified in Modified Table 2. A JD package for the features at Site XII, including a Rapanos Form, wetland data forms, figures and photographs are included as an attachment.

**Modified Table 2 - Summary of Impacts**

<b>River Basin</b>	<b>Permanent Wetland (ac)</b>	<b>Permanent Stream (lf)</b>	<b>Temporary Stream (ac)<sup>1/</sup></b>
Yadkin-Pee Dee	0.13	975	0.03
New	0.06	<b>716</b>	0.02
<b>Totals</b>	0.19	<b>1,691*</b>	0.05

<sup>1/</sup> Values are based on rounding, due to some of the individual impacts being <0.01 acre.

\* Of the 1,691 total linear feet of permanent stream impacts, 1,625 lf require mitigation (see Table 3 & Modified Table 4 and the Summary of Mitigation section of this application).

**Bolded** values have been modified for this application.

**SUMMARY OF MITIGATION**

The previous stream mitigation requirements for this project were based on the USACE mitigation requirement, as they exceeded those of the NCDWQ. The USACE had not required mitigation on 66 lf of the original 1,646 lf of stream impacts (see Table 3 and Modified Table 4). A summary of the previous and modified stream mitigation requirements are as follows:

- Previous total project stream impacts: 1,646, lf
- Previous stream impacts requiring mitigation: 1,580 lf  
(Yadkin-Pee Dee River Basin mitigation: 955 lf)  
(New River Basin mitigation: 625)
  
- Modified total project stream impacts: **1,691 lf**
- Modified stream impacts requiring mitigation: **1,625 lf**  
(Yadkin-Pee Dee River Basin mitigation: **955 lf**)  
(New River Basin mitigation: **670 lf**)

The wetland mitigation requirements remain unchanged, as there were no additional permanent wetland impacts with at Site XII. A revised EEP acceptance letter, corresponding to the revised mitigation requirement, is attached.

A copy of this permit modification application and its distribution list will be posted on the NCDOT website at <http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html> .

If you have any questions or need additional information please contact Mr. Bill Barrett by telephone at (919) 707-6103 or by e.mail at [wabarrett@ncdot.gov](mailto:wabarrett@ncdot.gov).

Sincerely,  
  
for Gregory J. Thorpe, Ph.D., Manager  
Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List



June 7, 2012

Mr. Gregory J. Thorpe, Ph.D.  
 Environmental Management Director  
 Project Development and Environmental Analysis Unit  
 North Carolina Department of Transportation  
 1548 Mail Service Center  
 Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

**Subject:** EEP Mitigation Acceptance Letter:

**R-2237C**, US 321 from SR 1500 (Blackberry Road) to US 221 at Blowing Rock, Watauga and Caldwell Counties

**References:** USACE 404 Individual Permit issued May 25, 2011 (USACE Action ID 2002-31262)

NCDWQ 401 Water Quality Certification issued March 9, 2011 with Correction issued May 26, 2011 (NCDWQ Project ID 2010-0752)

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the additional stream mitigation for the subject project. Based on the information supplied by you on June 1, 2012, the additional impacts are located in CU 05050001 of the New River basin in the Northern Mountains (NM) Eco-Region, and are as follows:

**Table 1 – Additional Impacts**

New 05050001 NM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1 (3:1)	Zone 2 (1.5:1)
Impacts (feet/acres)	45	0	0	0	0	0	0	0

This impact and associated mitigation need were not projected by the NCDOT in the 2012 impact data. EEP is currently providing stream and riparian wetland for the impacts associated with this project located in New 05050001 and Yadkin 03040101 as required by the 404 and 401 permits that were issued in 2011, as shown in the below table (in mitigation credits):

Dr. Thorpe  
TIP R-2237C Additional  
June 7, 2012  
Page Two

**Table 2 – Total Revised Impacts and Mitigation Credits Provided from EEP**

Impact Type	Permitted Impacts	Mitigation Provided by EEP per Issued Permits (Credits)	Additional Impact (for approval)	Revised Total Impacts
<b>New 05050001</b>				
Stream	625	1,250	45.0 (Cold)	670
Riparian Wetland	0.06	0.12	0	0.06
<b>Yadkin 03040101</b>				
Stream	955	1,910	0	955
Riparian Wetland	0.13	0.26	0	0.13

EEP commits to providing the additional compensatory stream mitigation credits to offset all of the impacts located in the New River basin (CU 05050001) associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,



Michael Ellison  
EEP Deputy Director

Cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office  
Mr. David Wainwright, NC Division of Water Quality – Wetlands/401 Unit  
File: R-2237C Additional

*Restoring... Enhancing... Protecting Our State*



**WETLAND PERMIT IMPACT SUMMARY**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)	
IX	540+20 -I-	42" WELDED STEEL PIPE							0.01	<0.01	133	10	
X	553+50 -L-	30" RCP						0.01	<0.01	59	19		
XI	555+50 -L-	15" RCP	0.04						<0.01	25	19		
XII	561+85 -L-	84" WELDED STEEL PIPE		<0.01					<0.01	45	21		
<b>TOTALS:</b>			0.04	<0.01				0.03	0.01	262	69		
<b>GRAND TOTALS</b>			0.13	<0.01	0.03	0.03	0.17	0.04	1691	259			

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 CALDWELL/WATAUGA COUNTIES  
 WBS - 34402.1.1 (R-2237C)

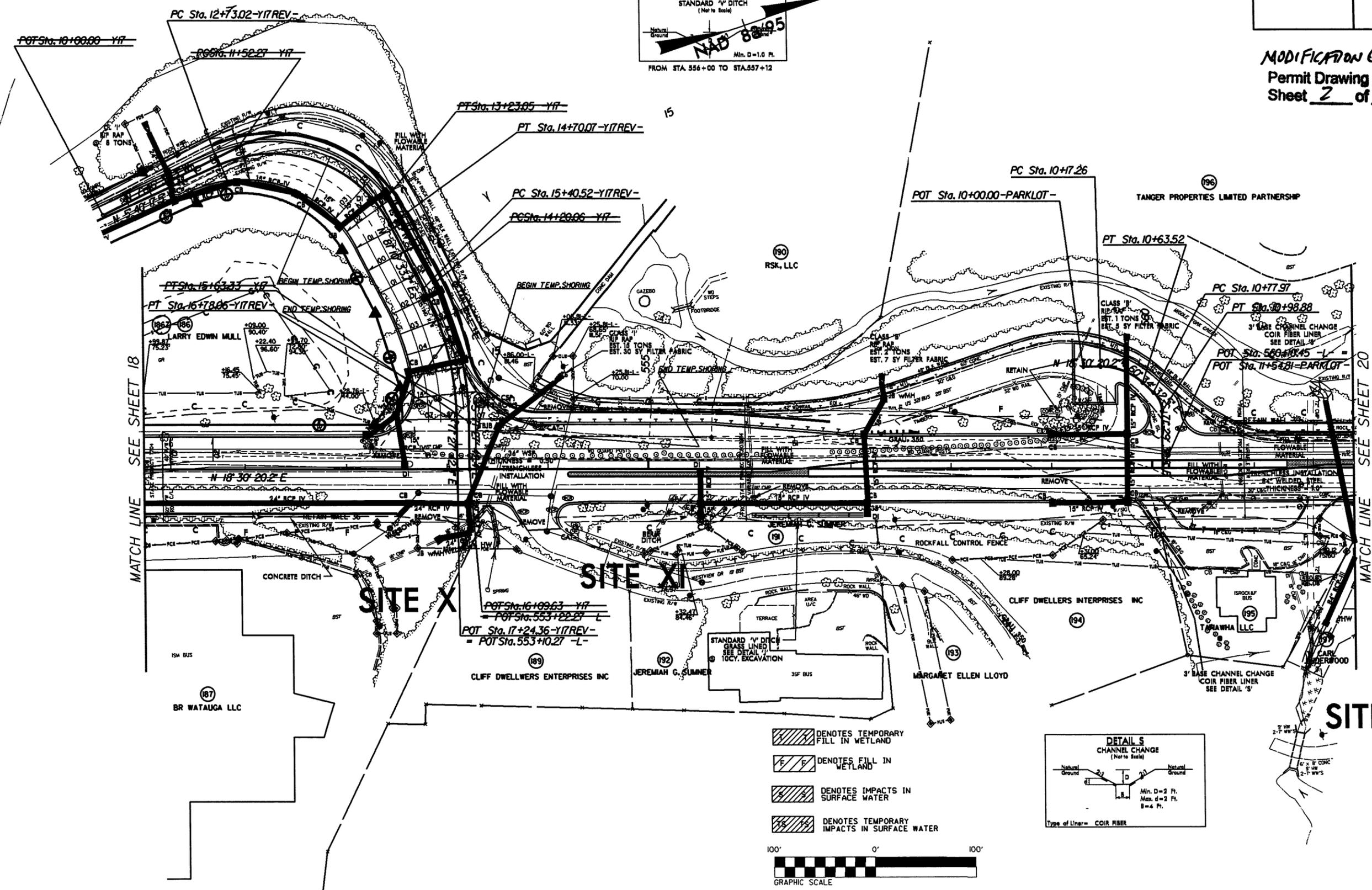
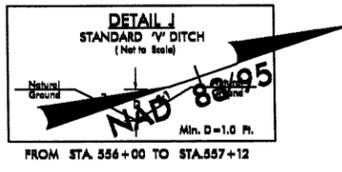
*MODIFICATION (June 2012)*  
 Permit Drawing  
 Sheet 1 of 1

5/14/99

NOTE: SEE SHEET 29 FOR -L- PROFILE  
SEE SHEET 33 FOR -YIT- PROFILE  
SEE SHEET 2-1 FOR -YIT-/-L- INTERSECTION DETAIL

PROJECT REFERENCE NO. R-2237C	SHEET NO. 19
R/W SHEET NO. 19	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

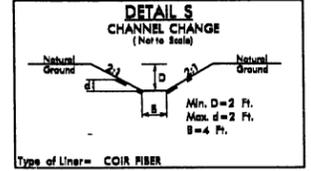
MODIFICATION (JUNE 2012)  
Permit Drawing  
Sheet 2 of 4



MATCH LINE SEE SHEET 18

MATCH LINE SEE SHEET 20

- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



SYSTEMS DESIGN & CONSTRUCTION







## JD Request Package

**APPROVED JURISDICTIONAL DETERMINATION FORM**  
**U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

**SECTION I: BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):**

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:**

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: NC County/parish/borough: Watauga City: Blowing Rock  
Center coordinates of site (lat/long in degree decimal format): Lat. 36.1400° N, Long. 81.6690° W.  
Universal Transverse Mercator:

Name of nearest waterbody: Middle Fork Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows:

Name of watershed or Hydrologic Unit Code (HUC):

- Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.  
 Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

**D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

- Office (Desk) Determination. Date:  
 Field Determination. Date(s):

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There **Pick List** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

- Waters subject to the ebb and flow of the tide.  
 Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.  
Explain: .

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There **Are** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

**1. Waters of the U.S.**

**a. Indicate presence of waters of U.S. in review area (check all that apply):<sup>1</sup>**

- TNWs, including territorial seas  
 Wetlands adjacent to TNWs  
 Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs  
 Non-RPWs that flow directly or indirectly into TNWs  
 Wetlands directly abutting RPWs that flow directly or indirectly into TNWs  
 Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs  
 Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs  
 Impoundments of jurisdictional waters  
 Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: 110 linear feet: 2 width (ft) and/or acres.  
Wetlands: 0.02 acres.

**c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual**

Elevation of established OHWM (if known): .

**2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>**

- Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.  
Explain: .

<sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

<sup>3</sup> Supporting documentation is presented in Section III.F.

**SECTION III: CWA ANALYSIS**

**A. TNWs AND WETLANDS ADJACENT TO TNWs**

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

**1. TNW**

Identify TNW: .

Summarize rationale supporting determination: .

**2. Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent": .

**B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):**

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

**1. Characteristics of non-TNWs that flow directly or indirectly into TNW**

**(i) General Area Conditions:**

Watershed size: **Pick List**

Drainage area: **Pick List**

Average annual rainfall: inches

Average annual snowfall: inches

**(ii) Physical Characteristics:**

**(a) Relationship with TNW:**

Tributary flows directly into TNW.

Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW<sup>5</sup>: .

Tributary stream order, if known: .

<sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

<sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is:  Natural  
 Artificial (man-made). Explain: .  
 Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):

Average width: feet  
Average depth: feet  
Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

Silts  Sands  Concrete  
 Cobbles  Gravel  Muck  
 Bedrock  Vegetation. Type/% cover:  
 Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .

Presence of run/riffle/pool complexes. Explain: .

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime: .

Other information on duration and volume: .

Surface flow is: **Pick List**. Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

Dye (or other) test performed: .

Tributary has (check all that apply):

Bed and banks  
 OHWM<sup>6</sup> (check all indicators that apply):  
 clear, natural line impressed on the bank  the presence of litter and debris  
 changes in the character of soil  destruction of terrestrial vegetation  
 shelving  the presence of wrack line  
 vegetation matted down, bent, or absent  sediment sorting  
 leaf litter disturbed or washed away  scour  
 sediment deposition  multiple observed or predicted flow events  
 water staining  abrupt change in plant community  
 other (list):  
 Discontinuous OHWM.<sup>7</sup> Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

High Tide Line indicated by:  Mean High Water Mark indicated by:  
 oil or scum line along shore objects  survey to available datum;  
 fine shell or debris deposits (foreshore)  physical markings;  
 physical markings/characteristics  vegetation lines/changes in vegetation types.  
 tidal gauges  
 other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: .

Identify specific pollutants, if known: .

<sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

<sup>7</sup>Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size:        acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

- Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- Directly abutting
- Not directly abutting
  - Discrete wetland hydrologic connection. Explain:
  - Ecological connection. Explain:
  - Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain:
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately (        ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

### C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

**Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:**

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

### D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

TNWs: linear feet width (ft), Or, acres.

Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: year-round flow.

Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
  - Other non-wetland waters: acres.
- Identify type(s) of waters: .

3. **Non-RPWs<sup>8</sup> that flow directly or indirectly into TNWs.**

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet width (ft).
  - Other non-wetland waters: acres.
- Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
  - Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **The RPW is one of the boundaries of the wetland.**
  - Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.<sup>9</sup>**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from "waters of the U.S.," or
- Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- Demonstrate that water is isolated with a nexus to commerce (see E below).

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):<sup>10</sup>**

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- which are or could be used for industrial purposes by industries in interstate commerce.
- Interstate isolated waters. Explain: .
- Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

<sup>8</sup>See Footnote # 3.

<sup>9</sup>To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

<sup>10</sup>Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.



**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: R-2237C City/County: Blowing Rock Sampling Date: 5-7-2012  
 Applicant/Owner: NCDOT State: NC Sampling Point: WET - Site XII  
 Investigator(s): Barrett, Hemphill Section, Township, Range: N/A  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%):       
 Subregion (LRR or MLRA): P Lat: 36.1400 Long: -81.6690 Datum: -  
 Soil Map Unit Name: Saunook loam, 8-15% slope, very stony NWI classification: PEM1  
 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks: <u>Due to microtopographic relief, not all areas within wetland meet the hydric soil criteria.</u>			

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (minimum of two required)</b>	
Primary Indicators (minimum of one is required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>    </u>		
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>    </u>		
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

**VEGETATION – Use scientific names of plants**

Sampling Point: WET - Site XII

Tree Stratum (Plot size:N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____	= Total Cover	
	50% of total cover: _____	20% of total cover: _____	

Sapling/Shrub Stratum (Plot size:15')	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>unknown (dead) shrub *</u>	<u>4</u>	<u>N</u>	<u>?</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____	= Total Cover	
	50% of total cover: _____	20% of total cover: _____	

Herb Stratum (Plot size:15)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Solidago gigantea</u>	<u>75</u>	<u>Y</u>	<u>FACW</u>
2. <u>Juncus effusus</u>	<u>25</u>	<u>Y</u>	<u>FACW+</u>
3. <u>Renunculus repens</u>	<u>20</u>	<u>N</u>	<u>FAC</u>
4. <u>Typha angustifolia</u>	<u>15</u>	<u>N</u>	<u>OBL</u>
5. <u>Carex crinita</u>	<u>5</u>	<u>N</u>	<u>FACW+</u>
6. <u>Packera aurea</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>155</u>	= Total Cover	
	50% of total cover: <u>78</u>	20% of total cover: <u>31</u>	

Woody Vine Stratum (Plot size:N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____	= Total Cover	
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test Worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>2</u>	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u>	(A/B)

**Prevalence Index worksheet:**

Total % Cover of :	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test is >50%
  - 3 - Prevalence Index is ≤3.0<sup>1</sup>
  - Problematic Hydrophytic Vegetation1 (Explain)
- <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of 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 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.

**Hydrophytic Vegetation Present?**      Yes          No   

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

\* The shrub is dead and non-identifiable.

**SOIL**

Sampling Point: WET - Site XII

**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 <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 2/2	100	=	=	=	=	clay loam	_____
6-12	10YR 2/2	90	5YR 4/6	10	C	M	clay loam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: 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)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soils Present?      Yes        No   

Remarks:

**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: R-2237C City/County: Blowing Rock Sampling Date: 5-7-2012  
 Applicant/Owner: NCDOT State: NC Sampling Point: Upland-Site XII  
 Investigator(s): Barrett, Hemphill Section, Township, Range: N/A  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%):       
 Subregion (LRR or MLRA): P Lat: 36.1400 Long: -81.6690 Datum: -  
 Soil Map Unit Name: Saunook loam, 8-15% slope, very stony NWI classification: -  
 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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks:			

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- 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)

- 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)

Secondary Indicators (minimum of two required)

- 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)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches):       
 Water Table Present? Yes  No  Depth (inches):       
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches):     

**Wetland Hydrology Present?** Yes  No

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

Remarks:

**VEGETATION – Use scientific names of plants**

Sampling Point: Upland-Site XII

Tree Stratum (Plot size:N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____	= Total Cover	
	50% of total cover: _____	20% of total cover: _____	

Sapling/Shrub Stratum (Plot size:15')	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>15</u>	<u>Y</u>	<u>OBL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	<u>15</u>	= Total Cover	
	50% of total cover: <u>7</u>	20% of total cover: _____	

Herb Stratum (Plot size:15)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Solidago altissima</u>	<u>40</u>	<u>Y</u>	<u>FACU+</u>
2. <u>Taraxacum officinale</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>
3. <u>Parthenocissus quinquefolia</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
4. <u>Daucus carota</u>	<u>10</u>	<u>N</u>	<u>not listed</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	_____	= Total Cover	
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>	

Woody Vine Stratum (Plot size:N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____	= Total Cover	
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test Worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>4</u>	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u>	(A/B)

**Prevalence Index worksheet:**

Total % Cover of :	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test is >50%
  - 3 - Prevalence Index is ≤3.0<sup>1</sup>
  - Problematic Hydrophytic Vegetation1 (Explain)
- <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of 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 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.

**Hydrophytic Vegetation Present?**      Yes        No   

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

**SOIL**

Sampling Point: Upland-Site XII

**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 <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 2/2	100	=	=	=	=	clay loam	_____
6-12	10YR 2/2	90	5YR 4/6	10	C	M	clayloam	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: 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)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

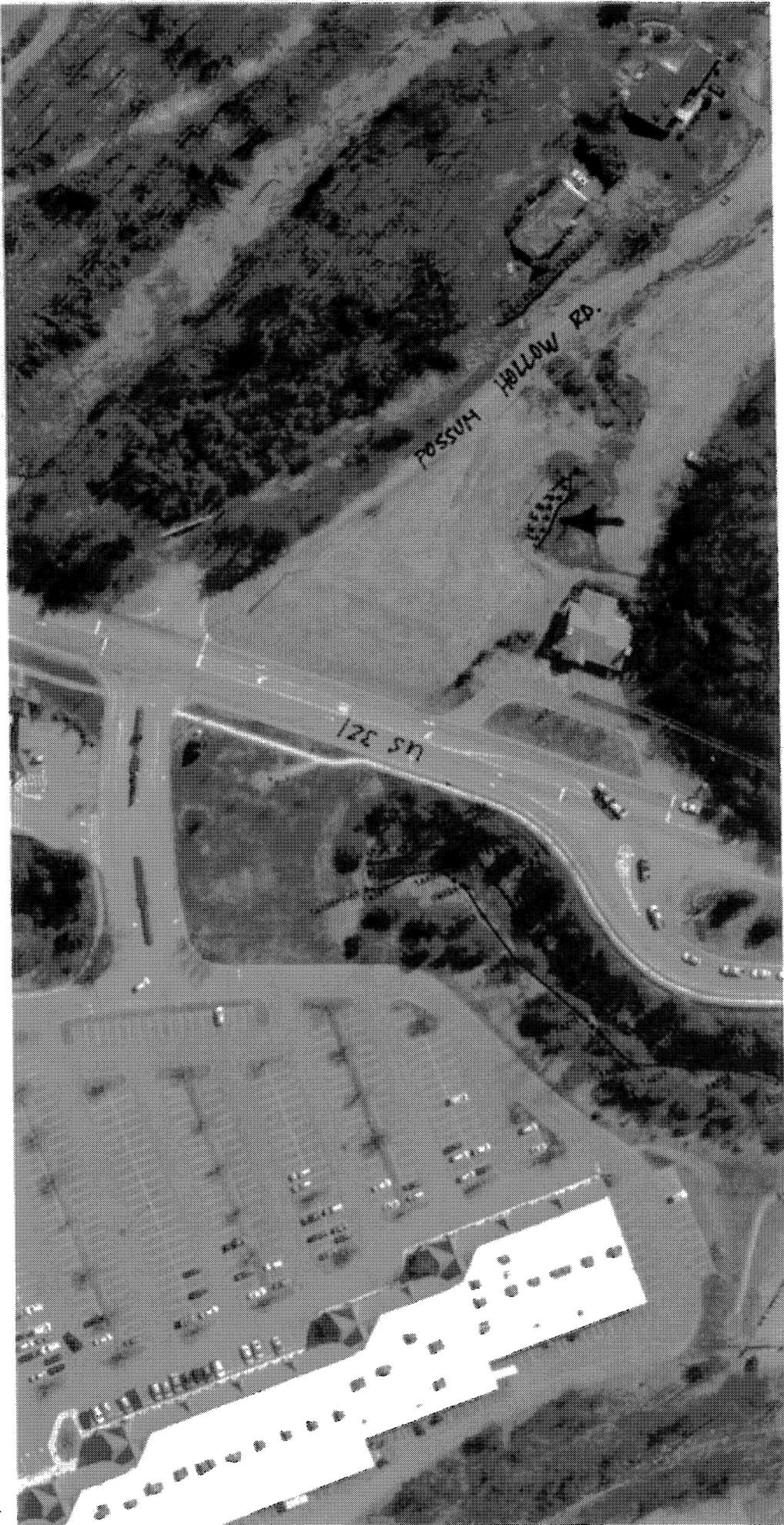
Hydric Soils Present?      Yes        No   

Remarks:

N 4

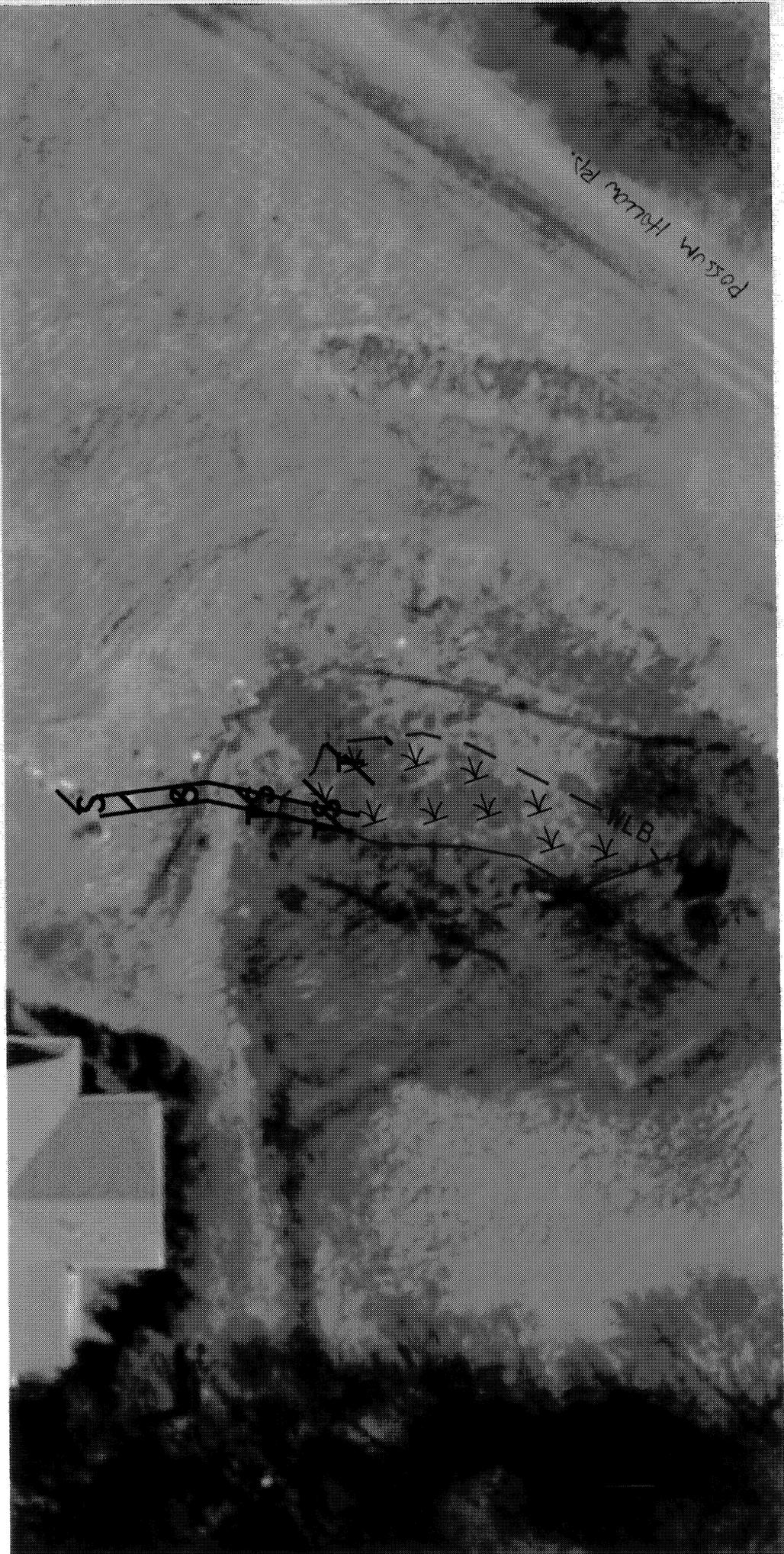
R-2237C WETLAND • SITE XII

R-2237C



D-2237C

WETLANDS & STREAM IMPACTS @ SITE XII



**R-2237C**

**May 7, 2012**

**View of Wetland – Site XII  
(from the west)**

**Wetland – Site XII**



**Reference, Site XII:  
Roadway Sheet 19,  
Permit Sheet 35 of 45, and  
Permit Sheet 37 of 45 (blow-up)**

