STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

October 20, 2009

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Mr. Steve Lund
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 33** for the proposed replacement of Bridge No. 155 over Little Long Creek on SR 1800 (Willis Road) in Gaston County, Federal Aid Project No. BRZ-1800(4); Division 12; WBS Element 33743.1.1; TIP No. B-4519.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 155 over Little Long Creek on SR 1800. There will be <0.01 acre (26 linear feet) of potential temporary stream impacts.

Please see enclosed copies of the Pre-Construction Notification (PCN), Jurisdictional Determination (JD), permit drawings, stormwater management plan and design plans for the above-referenced project. The Programmatic Categorical Exclusion (PCE) was completed in April 2009 and was distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of June 15, 2010 and a review date of April 27, 2010, however the let date may advance as additional funding becomes available.

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

TELEPHONE: 919-431-2000
FAX: 919-431-2002
WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 ATLANTIC AVENUE
SUITE 116
RALEIGH NC 27604

A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/. If you have any questions or need additional information, please e-mail Erin Cheely at ekcheely@ncdot.gov.

Sincerely,

E. J. Luck

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

W/attachment:
Mr. Brian Wrenn, NCDWQ (2 Copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC

W/o attachment (see website for attachments):
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. M.L. Holder, P.E., Division Engineer
Ms. Trish Simon, DEO
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Hank Schwab, PDEA Project Planning Engineer

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 33	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No

1d. Type(s) of approval sought from the DWQ (check all that apply):

☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit

☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☒ Yes ☐ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.		☐ Yes ☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.		☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?		☐ Yes ☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge 155 over Little Long Creek on SR 1800
2b. County:	Gaston
2c. Nearest municipality / town:	Dallas
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4519

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 431-6697
3g. Fax no.:	(919) 431-2002
3h. Email address:	ekcheely@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	*not applicable*
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 35.32536 (DD.DDDDDD)	Longitude: - 81.18276 (-DD.DDDDDD)
1c. Property size:	1.5 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Little Long Creek (HUC 03050102)	
2b. Water Quality Classification of nearest receiving water:	C	
2c. River basin:	Catawba	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: The land use in the vicinity is approximately 70-75% heavily developed or disturbed land (predominantly residential and some commerical) and 25-30% forest land (including alluvial forest).		
3b. List the total estimated acreage of all existing wetlands on the property: 0 acres		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 147 linear feet		
3d. Explain the purpose of the proposed project: The purpose of this project is to replace a structurally deficient bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 31-foot bridge with a 50-foot, 1-span bridge on the existing alignment with an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☒ Yes ☐ No ☐ Unknown	
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary ☒ Final	
4c. If yes, who delineated the jurisdictional areas? Name (if known): Steven Lund	Agency/Consultant Company: EcoScience Corporation Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. October 22, 2007		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown	
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes ☒ No	
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☐ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 2 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 3 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0 Permanent 0 Temporary

2h. Comments: No wetlands within project area

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☐ P ☒ T	abutment removal	Little Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	12	26
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	0 Perm 26 Temp

3i. Comments: It is possible that the removal of the existing abutment on the west side may result in some temporary disturbance of Little Long Creek (up to 26 linear feet listed above).

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	0 Permanent 0 Temporary

4g. Comments: No open water within project area

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
	5f. Total							

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?			☐ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☐ Other:
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ P ☐ T			☐ Yes ☐ No		
B2 ☐ P ☐ T			☐ Yes ☐ No		
B3 ☐ P ☐ T			☐ Yes ☐ No		
			6h. **Total buffer impacts**		
6i. Comments:					

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

The proposed bridge is nearly 20 feet longer than the existing bridge and will be replaced in the same location as the old bridge. There will be no direct discharge to Little Long Creek via deck drains from the bridge. In addition, an offsite detour will be used to re-route traffic during construction.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

Preformed scour holes will be used at pipe and ditch outlets on the west side of the road. In addition, rip rap outlet protection will be used at a pipe outlet on the east side of the road. Both of these measures will reduce stormwater pollution. NCDOT's Best Management Practices will be followed.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: Mitigation is not proposed as there are no permanent stream impacts from this project. The temporary 26 linear feet of potential stream disturbance is minimal, and will not cause an adverse effect or significant loss of waters of the United States.
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. **Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?			☐ Yes	☒ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments: if yes, see attached permit drawings.	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☐ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☒ Yes ☐ No
5b. Have all of the 401 Unit submittal requirements been met?	☒ Yes ☐ No

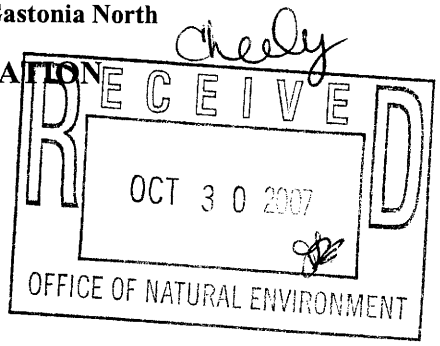
F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes	☒ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? An NCDOT field survey for Schweinitz's sunflower was conducted on October 7, 2008. Suitable habitat for this species exists, but no Schweinitz's sunflowers were found during the survey (No Effect). There is no habitat present for the bog turtle or bald eagle within the project area.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Lupk Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	10.20.09 Date

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. SAW-2006-32936-336 County: **Gaston** U.S.G.S. Quad: **Gastonia North**



NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: Gregory J. Thorpe, Director
Address: Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center, Raleigh, NC 27699-1548
Telephone No.: 919-733-3141

Property description:

Size (acres)	2.7 approx.	Nearest Town	Dallas
Nearest Waterway	Little Long Creek	River Basin	Catawba
USGS HUC	03050101	Coordinates	N 35.3251 W 81.1829
Location description	Bridge No. 155 on SR 1800 north of Dallas, TIP B-4519		

Indicate Which of the Following Apply:

_ Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

X There are surface waters on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

_ The wetland on your property have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

X The surface waters have been delineated and surveyed and are accurately depicted on the GPS plat provided by EcoScience Corporation and dated 13 March 2006. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Washington, NC, at (252) 946-6481 to determine their requirements.

Action ID: _____
SAW-2006-32936-336

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact Steven Lund at 828-271-7980.

Basis For Determination: Little Long Creek is a Perennial Water that exhibits a distinct ordinary high water mark and flows directly to the South Fork Catawba River at Lake Wylie which is a navigable water.

Remarks: Consultant's report dated 13 March, 2006 identifies Little Long Creek in the project area consisting of an approximate 400-foot long by 300-foot wide corridor centered on the existing bridge site.

Corps Regulatory Official: Steven W. Lund, Project Manager, Asheville Regulatory Field Office

Date: October 22, 2007 Expiration Date: October 22, 2012

Corps Regulatory Official (Initial): SWL

FOR OFFICE USE ONLY:

- A plat or sketch of the property and the wetland data form must be attached to the file copy of this form.
- A copy of the "Notification Of Administrative Appeal Options And Process And Request For Appeal" form must be transmitted with the property owner/agent copy of this form.
- If the property contains isolated wetlands/waters, please indicate in "Remarks" section and attach the "Isolated Determination Information Sheet" to the file copy of this form.

Copy Furnished: Ms. Heather Jean Saunders, EcoScience Corporation, 1101 Haynes Street, Suite 101, Raleigh, NC 27604

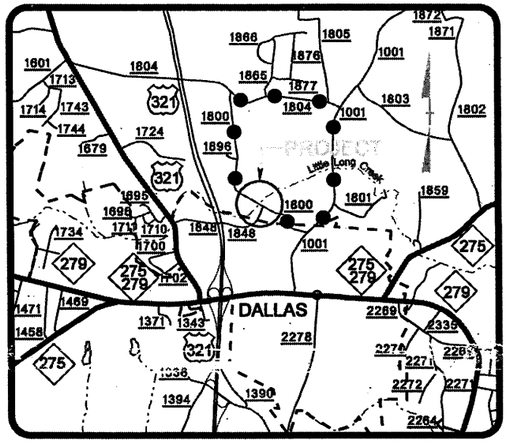
09/08/99

TIP PROJECT: B-4519

CONTRACT: C202431

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$USERNAME$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GASTON COUNTY

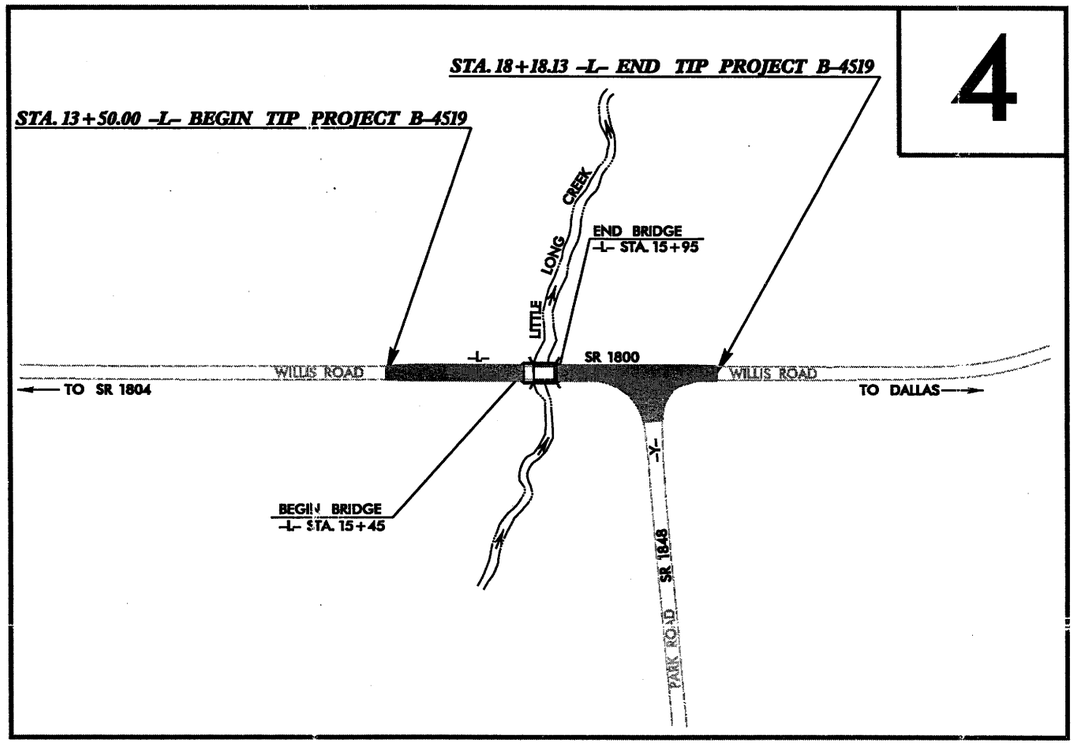
LOCATION: BRIDGE NO. 155 OVER LITTLE LONG CREEK ON SR 1800

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4519	1	

STATE FED.NO.	P.A. PROJ. NO.	DESCRIPTION
33743.1.1	BRZ-1800(4)	PE
33743.2.1	BRZ-1800(4)	ROW & UTIL

NAD 83CORS 96



** DESIGN EXCEPTION REQUIRED FOR A SAG VERTICAL CURVE K FACTOR OF 59 AND A SAG VERTICAL CURVE K FACTOR OF 22.

SUB REGIONAL TIER DESIGN GUIDELINES FOR BRIDGE PROJECTS WAS USED TO DEVELOP THIS PROJECT.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTIBLISHED BY METHOD III.

Permit Drawing
Sheet 1 of 3

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2010	=	1481
ADT 2030	=	2000
DHV	=	10 %
D	=	60 %
T	=	3 % *
**V	=	50 MPH

* TTST 1% DUAL 2%
FUNC. CLASS = URBAN LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4519	=	0.080 MILES
LENGTH STRUCTURE TIP PROJECT B-4519	=	0.009 MILES
TOTAL LENGTH TIP PROJECT B-4519	=	0.089 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 5, 2009

LETTING DATE: JUNE 15, 2010

GARY LOVERING, PE
PROJECT ENGINEER

RON McCOLLUM, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

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)
1	-L- 15+60	Abutment Removal							<0.01		26	
TOTALS:			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	26	0

** The 26 linear feet of potential temporary impacts may be less depending on the water level at the time of abutment removal.

Permit Drawing
Sheet 2 of 3

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

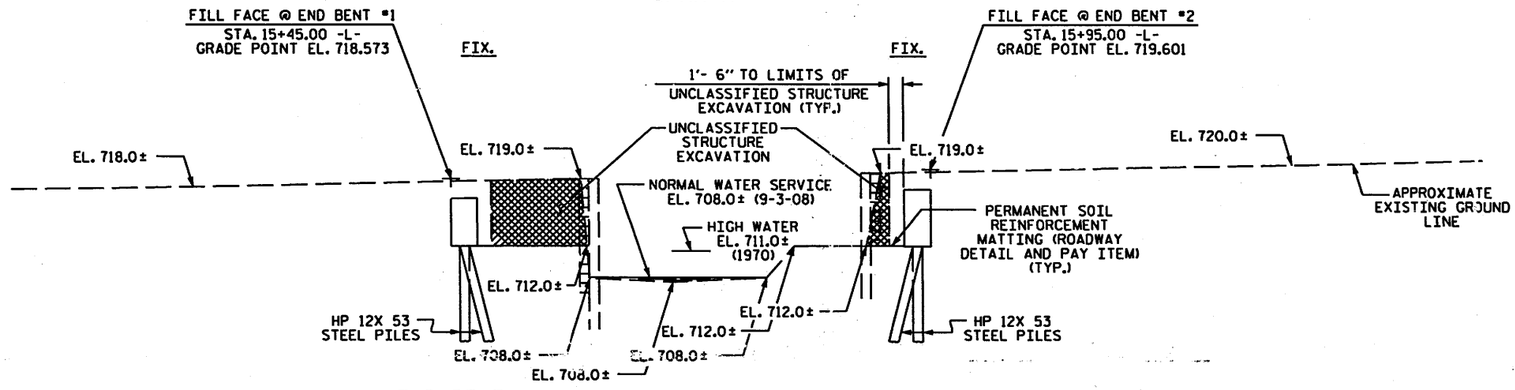
Gaston County
WBS - 33743.1.1 (B-4519)

SHEET Oct-09

ATN Revised 3/31/05

F. A. PROJECT NO. : BRZ-1800(4)

SPAN A

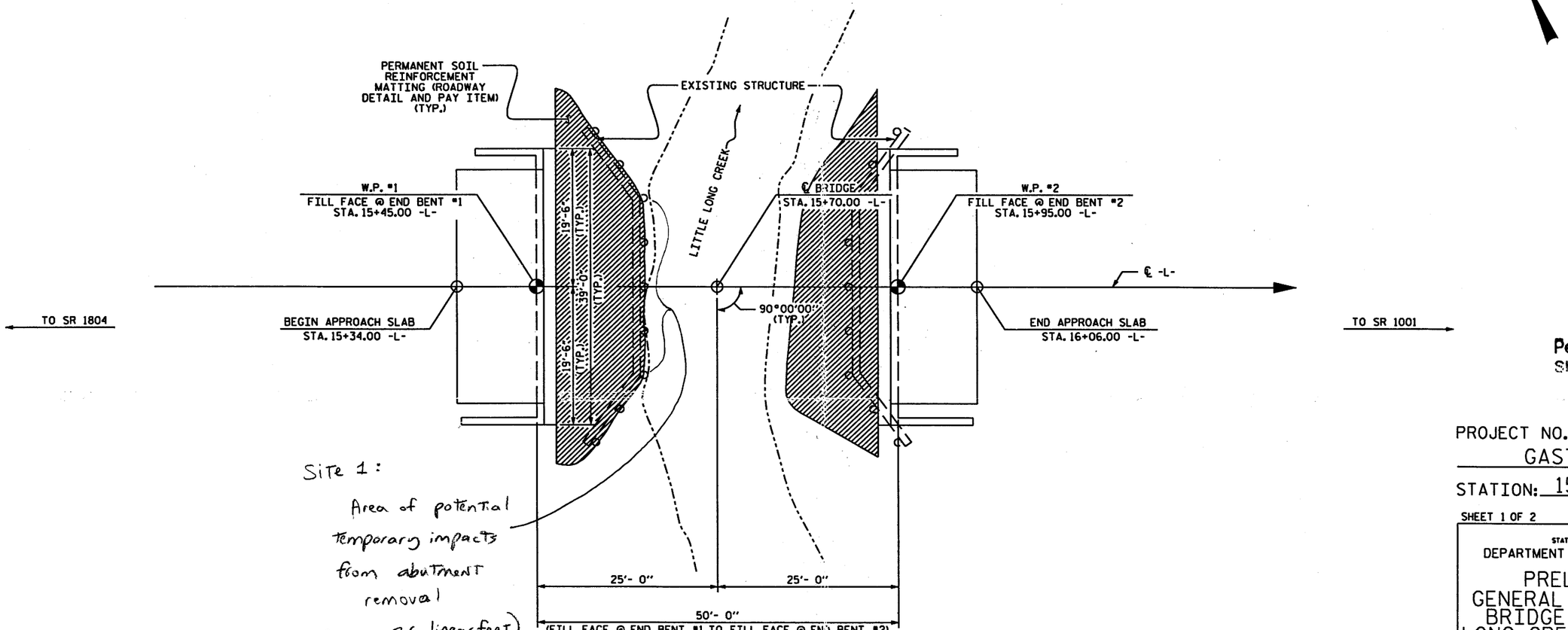


SECTION ALONG ℄ -L-

-1.1900 % 2.0556 %

PI = 14+50.00
EL. = 716.620
VC = 190'

GRADE DATA



PLAN

(PILES ARE NOT SHOWN FOR CLARITY)

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 3 of 3

PROJECT NO. B-4519

GASTON COUNTY

STATION: 15+70.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 155

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRELIMINARY GENERAL DRAWING FOR BRIDGE OVER LITTLE LONG CREEK ON SR 1800 BETWEEN US 321 AND SR 1001

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			

DRAWN BY : D. A. GLADDEN DATE : 11-20-08
CHECKED BY : D. A. DAVENPORT DATE : 01-09

b4519 sd pgd.dgn 9/8/2009 2:53:43 PM

STORMWATER MANAGEMENT PLAN

Project: 33743.1.1
TIP No. B-4519
Gaston County 06/30/2009

Hydraulics Project Manager: Dan Robinson, P.E. (Kimley-Horn and Associates, Inc.),
Marshall Clawson, P.E. (NCDOT Hydraulics Unit)

ROADWAY DESCRIPTION

The project B-4519 consists of constructing a new bridge 50 feet long to replace the existing bridge #155 in Gaston County on SR-1800 over Little Long Creek. The total project length is 0.089 miles. Little Long Creek is located in the Yadkin River Basin. The project drainage systems consist of roadside ditches, grated inlets with associated pipe system, preformed scour holes at a pipe and ditch outlets and rip rap outlet protection at a pipe outfall.

Jurisdictional Streams: Little Long Creek

ENVIRONMENTAL DESCRIPTION

The project is located within the Yadkin River Basin in Gaston County, which is not a CAMA county. The stream is classified as Class C. There are no wetlands in the surrounding area of Little Long Creek. Impacts to the stream have been minimized by spanning Little Long Creek with a bridge and by dissipating storm water in preformed scour holes.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

The primary goal of Best Management Practices (BMPs) is to prevent degradation of the states surface waters by the location, construction and operation of the highway system. The BMPs are activities, practices and procedures taken to prevent or reduce stormwater pollution. The BMP measures used on this project to reduce stormwater impacts are:

- Preformed scour holes at pipe and ditch outlets.
- Rip rap outlet protection at pipe outlet.

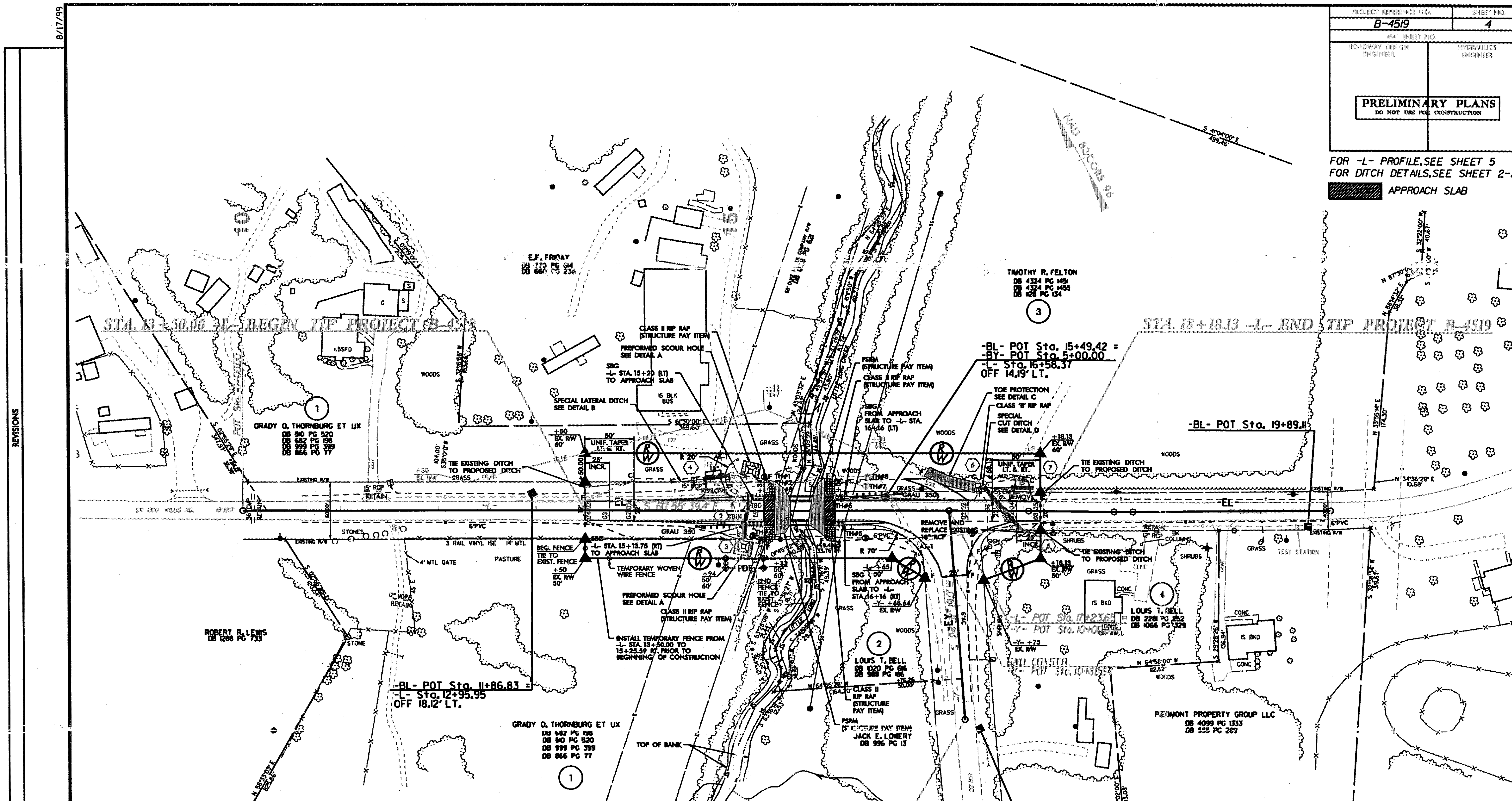
PROJECT REFERENCE NO.	SHEET NO.
B-4519	4

RW SHEET NO.

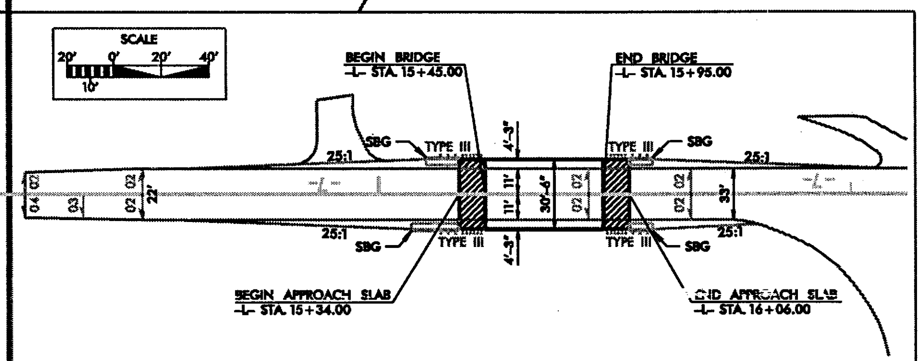
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

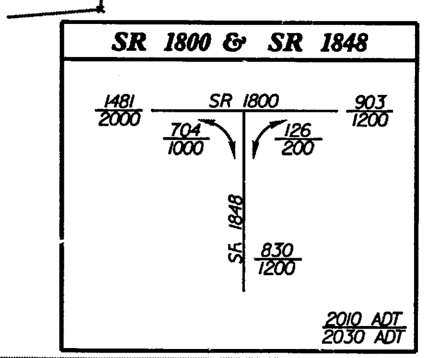
FOR -L- PROFILE, SEE SHEET 5
FOR DITCH DETAILS, SEE SHEET 2-A
APPROACH SLAB



8/17/99
REVISIONS
NAD 83/CORS 96
STA. 13+50.00 -L- BEGIN TIP PROJECT B-4519
STA. 18+18.13 -L- END TIP PROJECT B-4519
E.F. FRIDAY
TIMOTHY R. FELTON
DB 4324 PG 1451
DB 4324 PG 1455
DB 128 PG 134
GRADY O. THORNBURG ET UX
DB 510 PG 520
ROBERT R. LEWIS
DB 1288 PG 733
LOUIS T. BELL
DB 1020 PG 616
DB 988 PG 186
DB 2281 PG 352
DB 1066 PG 329
PIEDMONT PROPERTY GROUP LLC
DB 4099 PG 1333
DB 555 PG 269
JACK E. LOWERY
DB 996 PG 13
-BL- POT Sta. 15+49.42 =
-BY- POT Sta. 5+00.00
-L- Sta. 16+58.37
OFF 14.19' LT.
-BL- POT Sta. 19+89.11
-BL- POT Sta. 11+86.83 =
-L- Sta. 12+95.95
OFF 18.12' LT.
-BY- POT Sta. 7+60.56
-Y- POT Sta. 12+19.07
SR 1800 WILLIS RD.
CLASS II RIP RAP (STRUCTURE PAY ITEM)
PREFORMED SCOUR HOLE SEE DETAIL A
SPECIAL LATERAL DITCH SEE DETAIL B
TOE PROTECTION SEE DETAIL C
SPECIAL CUT DITCH SEE DETAIL D
TIE EXISTING DITCH TO PROPOSED DITCH
INSTALL TEMPORARY FENCE FROM -L- STA. 13+50.00 TO 15+25.59 RT. PRIOR TO BEGINNING OF CONSTRUCTION
TEMPORARY WOVEN WIRE FENCE
REMOVE AND REPLACE EXISTING 18" RCP
TOP OF BANK
WOODS
GRASS
PASTURE
SHRUBS
TEST STATION
END CONSTR.



SKETCH SHOWING PAVEMENT WIDTH TO BRIDGE WIDTH RELATIONSHIP



CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	**B-4519**
State Project No.	**8.2813101**
W.B.S. No.	**33743.1.1**
Federal Project No.	**BRZ-1800(4)**

A. Project Description:

The purpose of this project is to replace Gaston County Bridge No. 155 on SR 1800 (Willis Road) over Little Long Creek. The existing structure is a 31-foot long bridge. The replacement structure will consist of a one span bridge, approximately 50 feet long. The bridge size is based on preliminary design information and is set by hydraulic requirements. This structure will be of sufficient width to provide two 11-foot lanes with 4-foot offsets for bicycle lanes with bicycle railing. The roadway grade of the new structure will be approximately the same as that of the existing structure. Approach roadway improvements will extend approximately 195 feet from the northwest end of the new bridge and approach improvements will extend approximately 220 feet from the southeast end of the new bridge. The approaches will be widened to include a 22-foot pavement width providing two 11-foot lanes. Six-foot grass shoulders will be provided on each side (9-foot shoulders where guardrail is included). The roadway will be designed as an Urban Local using Sub Regional Tier Guidelines for Bridge Projects. The project will have a 50 mile per hour design speed.

Traffic will be detoured offsite during construction (see Figure 1).

B. Purpose and Need:

NCDOT Bridge Management Unit records indicate Bridge No. 155 has a sufficiency rating of 44.1 out of a possible 100. A benchmark for bridge replacement is a sufficiency rating of 50 or below. The bridge is considered structurally deficient due to a structural appraisal of 2 out of a possible 9 according to Federal Highway Administration (FHWA) standards. The bridge also has deck geometry appraisal of 2 out of a possible 9. Therefore, Bridge No. 155 is eligible for FHWA's Highway Bridge Program.

The posted weight limit is down to 12 tons for single vehicles and 17 tons for truck-tractor semi-trailers. Bridge No. 155 has a fifty-one year old timber sub-structure. Timber structure components have a typical life expectancy between 40 to 50 years due to the natural deterioration rate of wood. Rehabilitation of timber components is generally practical only when a few members are damaged or prematurely deteriorated. However, past a certain degree of deterioration, timber structures become impractical to maintain and upon eligibility are programmed for replacement. Components of the substructure and superstructure have experienced an increased proportion of deterioration that can no longer be addressed by maintenance activities. Bridge No. 155 is approaching the end its useful life.

C. Proposed Improvements:

Circle one or more of the following Type II improvements which apply to the project:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).

   a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
   b. Widening roadway and shoulders without adding through lanes
   c. Modernizing gore treatments
   d. Constructing lane improvements (merge, auxiliary, and turn lanes)
   e. Adding shoulder drains
   f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
   g. Providing driveway pipes
   h. Performing minor bridge widening (less than one through lane)
   i. Slide Stabilization
   j. Structural BMP's for water quality improvement

2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.

   a. Installing ramp metering devices
   b. Installing lights
   c. Adding or upgrading guardrail
   d. Installing safety barriers including Jersey type barriers and pier protection
   e. Installing or replacing impact attenuators
   f. Upgrading medians including adding or upgrading median barriers
   g. Improving intersections including relocation and/or realignment
   h. Making minor roadway realignment
   i. Channelizing traffic
   j. Performing clear zone safety improvements including removing hazards and flattening slopes
   k. Implementing traffic aid systems, signals, and motorist aid
   l. Installing bridge safety hardware including bridge rail retrofit

(3.) Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.

   a. Rehabilitating, reconstructing, or replacing bridge approach slabs
   b. Rehabilitating or replacing bridge decks
   c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
   (d.) Replacing a bridge (structure and/or fill)

4. Transportation corridor fringe parking facilities.

5. Construction of new truck weigh stations or rest areas.

6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.

7. Approvals for changes in access control.

8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.

9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.

10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.

11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

13. Acquisition and construction of wetland, stream and endangered species mitigation sites.

14. Remedial activities involving the removal, treatment or monitoring of soil or groundwater contamination pursuant to state or federal remediation guidelines.

D. Special Project Information:

Estimated Costs:

The estimated costs are based on 2008 pricing.

	Alternate 1 (Preferred)
Structure	$190,000
Roadway Approaches	$147,000
Detour Structure & Approaches	-0-
Structure Removal	$ 11,000
Misc. & Mob.	$74,000
Eng. & Contingencies	$65,000
Total Construction Cost	$487,000
Utility Cost	$ 80,000
Right-of-way Cost	$ 41,000
Total Project Cost	**$608,000**

Estimated Traffic:

Current 2009	-	1,400 vpd
Year 2035	-	2,100 vpd
TTST	-	1%
Dual	-	2%

Accidents: Traffic Engineering has evaluated a recent three year period and found three accidents occurring in the vicinity of the project. None were associated with the geometry of the bridge or its approach roadways.

Design Exceptions: A design exception to the Sub Regional Tier Design Guidelines for Bridge Projects may be required for 2 SAG vertical curves.

Bridge Demolition: Bridge No. 155 is constructed entirely of timber and steel and should be possible to remove with no resulting debris based on standard demolition practices.

Alternatives Discussion:

No Build – The no build alternative would result in eventually closing the road which is unacceptable given the volume of traffic served by SR 1800.

Rehabilitation – The bridge was constructed in 1958 and the timber materials within the bridge are reaching the end of their useful life. Rehabilitation would require replacing the timber components which would constitute effectively replacing the bridge.

Offsite Detour – Bridge No. 155 will be replaced on the existing alignment (see Figure 2). Traffic will be detoured offsite (see Figure 1) during the construction period. NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour. The offsite detour for this project would include SR 1800, SR 1001, and SR 1804. The majority of traffic on the road is through traffic. The detour for the average road user would result in 5 minutes additional travel time (3 miles additional travel bridge to bridge). Up to a 6-month duration for construction is expected on this project.

Based on the Guidelines, the criteria above indicate that on the basis of delay alone the detour is acceptable. Gaston County Emergency Services along with Gaston County Schools Transportation have also indicated that the detour is acceptable. NCDOT Division 12 has indicated the condition of all roads, bridges, and intersections on the offsite detour are acceptable without improvement and concurs with the use of the detour.

Box Culvert – A culvert does not fit the channel geometry without widening the stream excessively and an existing box culvert downstream has 2 feet of silt in it.

Onsite Detour – An onsite detour was not evaluated due to the presence of an acceptable offsite detour.

Staged Construction – Staged construction was not considered because of the availability of an acceptable offsite detour.

New Alignment – Given that the alignment for SR 1800 is acceptable, a new alignment was not considered as an alternative.

Other Agency Comments:

The **N.C. Wildlife Resource Commission** and **U.S. Fish & Wildlife Service** in standardized letters provided a request that they prefer any replacement structure to be a spanning structure. Standard recommendations should also apply.

The **U.S. Fish & Wildlife Service** also noted that the endangered Schweinitz's sunflower and Georgia aster occur in Gaston County. USFWS indicated that habitat assessments for each of these species be conducted. It was also noted that Friday Meadow Bog (listed by NC Natural Heritage Program as a state significant site) is located approximately 0.5 miles downstream from Bridge No. 155. The threatened (due to similarity of appearance) bog turtle is known to be present in Friday Meadow Bog. USFWS requested the bridge be replaced with a bridge and sediment and erosion control measures should be utilized to ensure that no sediment leaves the site and damages downstream resources.

Response: EcoScience Corp staff conducted a plant by plant search for both Schweinitz's sunflower and Georgia aster on October 11, 2006. No specimens of either species were observed in the project area. NCDOT Natural Environment Unit conducted a study for Schweinitz's sunflower in October of 2008. No specimens were observed in the project area. NCDOT will ensure that appropriate sediment and erosion control measures are included in the project design and implemented during construction activities.

The **N.C. Division of Water Quality** noted that Little Long Creek is Class C Waters of the State.

The Army Corps of Engineers, the **Division of Coastal Management**, and **N.C. Marine Fisheries** provided no comment or had no special concerns for this project.

Gaston County Department of Planning and Code Enforcement - A request for comments regarding the potential impacts of the project was sent to the Gaston County Manager. A second request was sent to the Gaston County Board of Commissioners. Gaston County officials collectively recommended greenway accommodations be made and sidewalks be constructed on each side of the proposed structure.

Response: NCDOT Division of Bicycle and Pedestrian Transportation has determined that SR 1800, surrounding the project area, is a designated bicycle route. Bicycle lanes and bicycle railing will be provided on the new structure. NCDOT Bike-Ped has not identified a need for sidewalks on the proposed replacement structure. However, the need for a wider offset on the bridge will be further evaluated during the final design phase of this project. Moreover, Gaston County has stated there is not a Gaston County Greenway Trail Plan at this time. No greenway considerations will be incorporated into this project at this time. Future greenway accommodations may be discussed during final design.

Gaston County was invited to participate in the planning and/or funding of greenway and sidewalk considerations, but has opted not to participate at this time.

The **State Historic Preservation Office** concluded the project would have no adverse effect on historic resources (Figure 3).

Public Involvement: A letter was sent by the Locations and Survey Unit to all property owners affected directly by this project with a request for comments. No comments were received. A newsletter or a Citizen's Informational Workshop was determined to not be necessary as the anticipated impacts to the area will be minimal.

Work Zone Traffic: Temporary bicycle or pedestrian accommodations will not be required for this project.

E. Threshold Criteria

The following evaluation of threshold criteria must be completed for Type II actions

ECOLOGICAL		YES	NO
(1)	Will the project have a substantial impact on any unique or important natural resource?		X
(2)	Does the project involve habitat where federally listed endangered or threatened species may occur?	X	
(3)	Will the project affect anadromous fish?		X
(4)	If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-tenth (1/10) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	X	
(5)	Will the project require the use of U. S. Forest Service lands?		X
(6)	Will the quality of adjacent water resources be adversely impacted by proposed construction activities?		X
(7)	Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?		X
(8)	Will the project require fill in waters of the United States in any of the designated mountain trout counties?		X
(9)	Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?		X

PERMITS AND COORDINATION		YES	NO
(10)	If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?		X
(11)	Does the project involve Coastal Barrier Resources Act resources?		X
(12)	Will a U. S. Coast Guard permit be required?		X
(13)	Will the project result in the modification of any existing regulatory floodway?	X	
(14)	Will the project require any stream relocations or channel changes?		X

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES		YES	NO
(15)	Will the project induce substantial impacts to planned growth or land use for the area?		X
(16)	Will the project require the relocation of any family or business?		X
(17)	Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?		X
(18)	If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor?	X	
(19)	Will the project involve any changes in access control?		X
(20)	Will the project substantially alter the usefulness and/or land use of adjacent property?		X
(21)	Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?		X
(22)	Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	X	
(23)	Is the project anticipated to cause an increase in traffic volumes?		X
(24)	Will traffic be maintained during construction using existing roads, staged construction, or on-site detours?	X	
(25)	If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility?	X	
(26)	Is there substantial controversy on social, economic, or environmental grounds concerning the project?		X
(27)	Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?	X	
(28)	Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places?		X
(29)	Will the project affect any archaeological remains which are important to history or pre-history?		X
(30)	Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)?		X

(31)	Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended?	☐	X
(32)	Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the National System of Wild and Scenic Rivers?	☐	X

F. Additional Documentation Required for Unfavorable Responses in Part E

E. (2) EcoScience Corp staff conducted a plant by plant search for both Schweinitz's sunflower and Georgia aster on October 11, 2006. No specimens of either species were observed in the project area. NCDOT Natural Environment Unit conducted a study for Schweinitz's sunflower in October of 2008. No specimens were observed in the project area. However, habitat was determined to exist in the project area. NCDOT will ensure that appropriate sediment and erosion control measures are included in the project design and implemented during construction activities. NCDOT Natural Environment Unit personnel will conduct a survey for Schweinitz's sunflower prior to construction of the proposed project.

E. (13) Hydraulic Unit, Resident's Engineer's Office

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP) to determine the status of this project with regard to the applicability of NCDOT's Memorandum of Agreement or approval of a Conditional Letter of Map Revision (CLOMOR) if a Conditional Letter of Map Revision (CLOMR) and a subsequent final Letter of Map Revision (LOMR).

G. CE Approval

TIP Project No.	**B-4519**
State Project No.	**8.2813101**
W.B.S. No.	**33743.1.1**
Federal Project No.	**BRZ-1800(4)**

Project Description:

The purpose of this project is to replace Gaston County Bridge No. 155 on SR 1800 (Willis Road) over Little Long Creek. The existing structure is a 31-foot long bridge. The replacement structure will consist of a one span bridge, approximately 50 feet long. The bridge size is based on preliminary design information and is set by hydraulic requirements. This structure will be of sufficient width to provide two 11-foot lanes with 4-foot offsets for bicycle lanes with bicycle railing. The roadway grade of the new structure will be approximately the same as that of the existing structure. Approach roadway improvements will extend approximately 195 feet from the northwest end of the new bridge and approach improvements will extend approximately 220 feet from the southeast end of the new bridge. The approaches will be widened to include a 22-foot pavement width providing two 11-foot lanes. Six-foot grass shoulders will be provided on each side (9-foot shoulders where guardrail is included). The roadway will be designed as an Urban Local using Sub Regional Tier Guidelines for Bridge Projects. The project will have a 50 mile per hour design speed.

Traffic will be detoured offsite during construction (see Figure 1).

Categorical Exclusion Action Classification:

____ TYPE II(A)
__X__ TYPE II(B)

Approved:

3/31/09 — Date
Bridge Project Development Unit Head
Project Development & Environmental Analysis Branch

3/31/09 — Date
Bridge Project Development Group Leader
Project Development & Environmental Analysis Branch

3/31/09 — Date
Bridge Project Development Engineer
Project Development & Environmental Analysis Branch

For Type II(B) projects only:

4/1/09 — Date
for John F. Sullivan, III, PE,
Division Administrator
Federal Highway Administration

PROJECT COMMITMENTS:

Gaston County
Bridge No. 155 on SR 1800
Over Little Long Creek
Federal Project No. BRZ-1800(4)
State Project No. 8.2813101
W.B.S. No. 33743.1.1
TIP Project No. B-4519

Division 12 Construction Engineer

In order to allow Emergency Management Services (EMS) adequate time to prepare for road closure, the NCDOT will notify Gaston County EMS at (704) 866-3210 thirty days prior to road closure.

Division 12 Construction Engineer

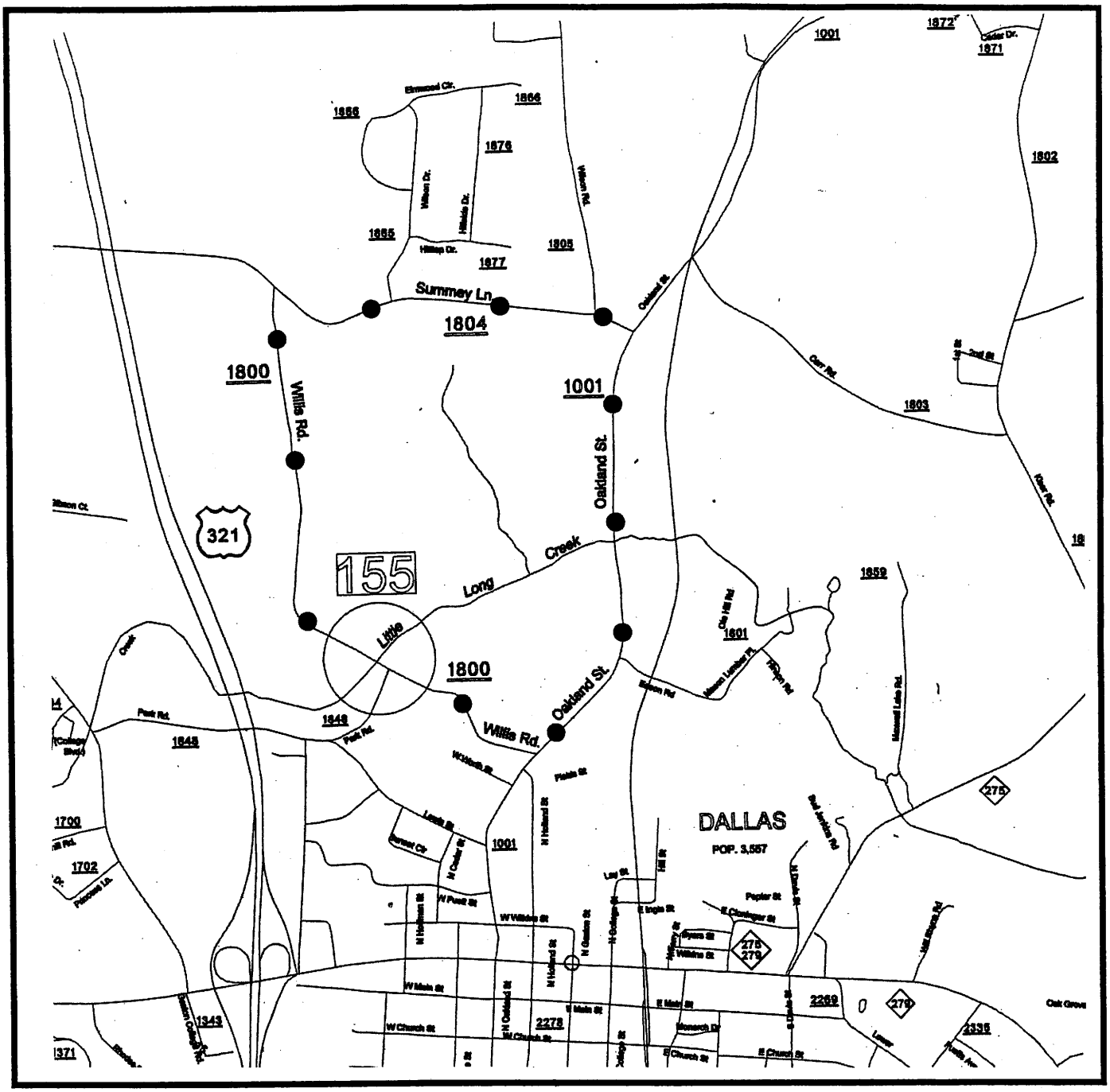
In order to allow Gaston County Division of School Transportation time to prepare for road closure the NCDOT will notify the Transportation Director at (704) 866-6100 thirty days prior to road closure.

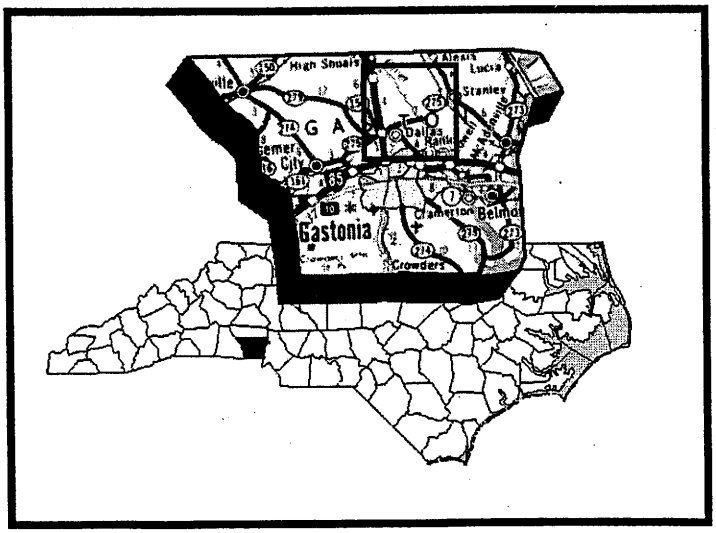
Hydraulic Unit, Resident's Engineer's Office

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP) to determine the status of this project with regard to the applicability of NCDOT's Memorandum of Agreement or approval of a Conditional Letter of Map Revision (CLOMOR) if a Conditional Letter of Map Revision (CLOMR) and a subsequent final Letter of Map Revision (LOMR).

Division Commitment

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.



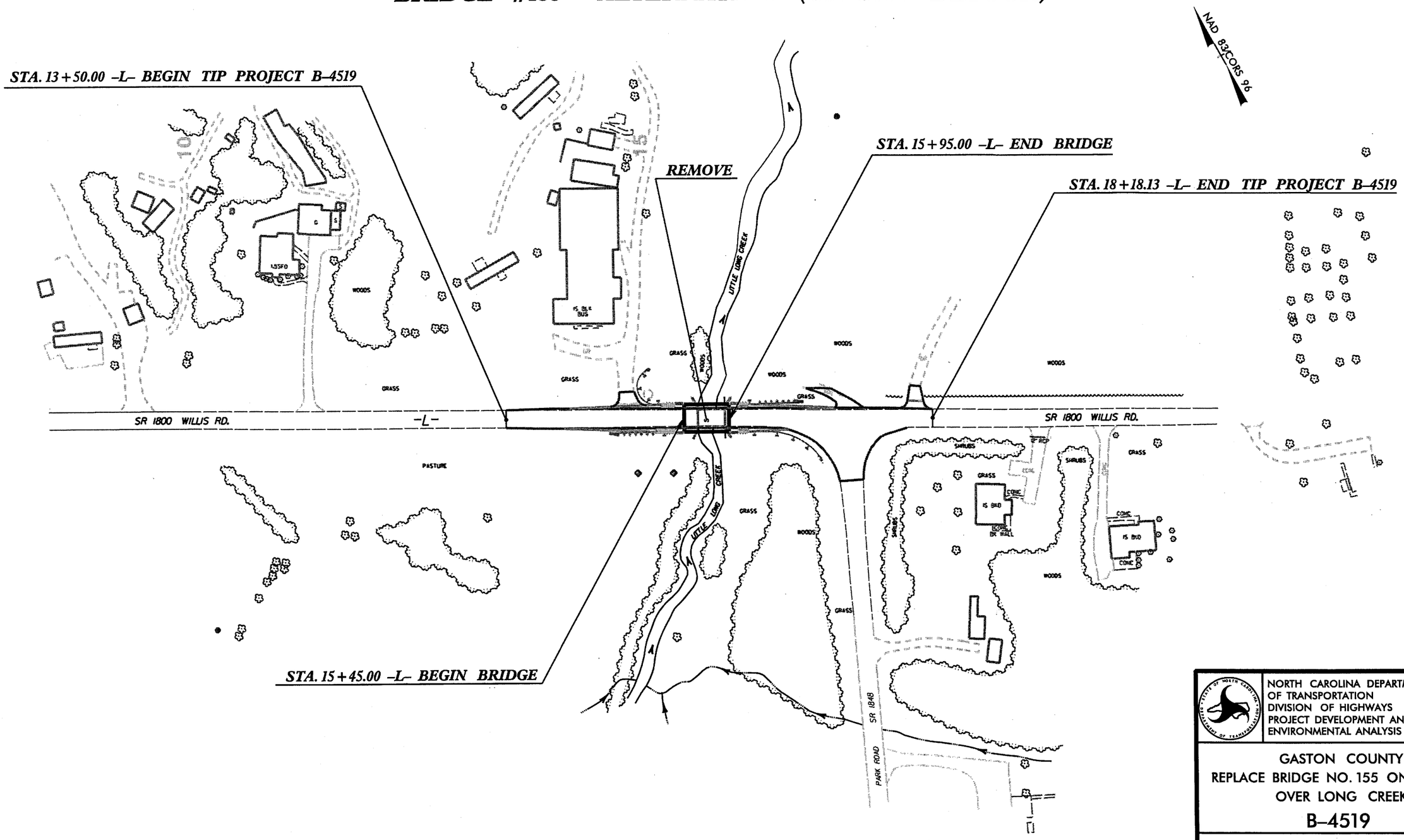


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

GASTON COUNTY
REPLACE BRIDGE NO. 155 ON SR 1800
OVER LITTLE LONG CREEK
B-4519

Off Site Detour Figure 1

GASTON COUNTY
B–4519
BRIDGE #155 – ALTERNATE A (OFFSITE DETOUR)



NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

GASTON COUNTY
REPLACE BRIDGE NO. 155 ON SR 1800
OVER LONG CREEK

B–4519

FIGURE 2

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

July 3, 2006

MEMORANDUM

TO: Dennis Pipkin, PE
NCDOT - PDEA
Bridge Project Development Unit

FROM: Peter Sandbeck PBS for Peter Sandbeck

SUBJECT: Replacement Bridge No. 155 on SR 1800 over Little Long Creek, B-4519, GastonCounty, ER 06-1286

Thank you for your letter of May 5, 2006, concerning the above project.

We have conducted a review of the project and are aware of no historic resources that would be affected by the project. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above-referenced tracking number.

cc: Mary Pope Furr
Matt Wilkerson

EXECUTIVE SUMMARY
NATURAL RESOURCES TECHNICAL REPORT

Replacement of Bridge No. 155
SR 1800 over Little Long Creek

Gaston County, North Carolina
(B-4519)
(WBS Element 33743.1.1)
(State Project No. 82813101)
(Federal Aid No. BRZ-1800(4))

Prepared for:

The North Carolina Department of Transportation
Raleigh, North Carolina

June 2007

EXECUTIVE SUMMARY
B-4519
Gaston County

The N.C. Department of Transportation (NCDOT) proposes to replace Bridge No. 155 located on North Carolina State Road 1800 (SR 1800) over Little Long Creek in Gaston County, North Carolina.

INTRODUCTION

The project study area is located at the crossing of SR 1800 over Little Long Creek approximately 1 mile north of Dallas, NC (Figure 1). The project study area has been determined to be approximately 400 feet wide, centered on SR 1800, and approximately 300 feet long. The project study area encompasses approximately 2.8 acres (Figure 2). Elevations within the project study area range from a high of approximately 720 feet National Geodetic Vertical Datum (NGVD) to a low of approximately 700 feet NGVD (USGS Gastonia North, NC 7.5-minute topographic quadrangle [1993]). Land uses within the project study area consist of pasture, woodlands, residential lots, a sewer easement, a powerline corridor, and roadside shoulders. Based on soil mapping for Gaston County (SCS 1989), the project study area is underlain by three soil series: Chewacla, Pacolet, and Cecil. All three series are considered non-hydric in Gaston County.

The proposed replacement of Bridge No. 155 consists of replacing the bridge with a bridge in the current location while maintaining traffic with an off-site detour. It is anticipated that there will be no temporary fill resulting from bridge demolition. NCDOT will coordinate with resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

PHYSICAL CHARACTERISTICS

Water Resources

The project study area is located within sub-basin 03-08-36 of the Catawba River Basin. This area is part of USGS Hydrologic Unit 03050102 of the South Atlantic Gulf Region. Within the project study area, Little Long Creek is the only surface water. Bridge No. 155 spans Little Long Creek. The portion of Little Long Creek that lies within the project study area has been assigned Stream Index Number 11-129-16-9 by NCDWQ.

A Best Usage Classification of **C** has been assigned to Little Long Creek. Class **C** waters are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation includes wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. No Outstanding Resource Waters (**ORW**), High Quality Waters (**HQW**), Water Supply I (**WS-I**), Water Supply II (**WS-II**), watershed Critical Areas (**CA**), or Trout Waters (**Tr**) occur within 1.0 mile of the project study area (NCDWQ 2004b). Little Long Creek is not listed on any section of the

N.C. 2006 final Section 303(d) list. No benthic macroinvertebrate monitoring stations occur within 1.0 mile of the project study area. With respect to temperature regimes, Little Long Creek is designated as a warm water stream.

Biotic Resources

Two distinct plant communities were identified within the project study area: disturbed/maintained land and alluvial forest (Figure 2). Anticipated impacts to plant communities are based on cut-fill limits plus a 25-foot buffer, based on preliminary construction drawings. Most of the projected impacts to natural plant communities will occur within the disturbed/maintained plant community along roadside shoulders. Permanent impacts to disturbed/maintained land will total 0.5 acres, while impacts to alluvial forest will total 0.1 acres. Due to the use of an off-site detour, there will be no temporary impacts to natural plant communities in the project study area.

Table 1. Terrestrial Community Coverage and Impacts Within the Project Study Area

Plant Community	Coverage (Acres)	Coverage (Percent)	Area Impacted (Acres)
Disturbed/maintained land	1.6	57	0.5
Alluvial Forest	1.2	43	0.1
Total	**2.8**	**100**	**0.6**

JURISDICTIONAL TOPICS

Waters of the United States

Little Long Creek is considered to a be jurisdictional surface water under Section 404 of the Clean Water Act. No vegetated wetlands occur within the project study area (Figure 3). The proposed bridge replacement results in no jurisdictional area impacts. NCDOT will coordinate with resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

Permits

Replacement of Bridge No. 155 is anticipated to result in no impacts to the open-water area of Little Long Creek. It is anticipated that there will be no temporary fill resulting from bridge demolition. This project may be processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. USACE has made available Nationwide Permit (NWP) 23 (67 FR 2020, 2082; January 15, 2002) for CEs due to minimal impacts to waters of the United States expected with bridge construction. NCDWQ has made available a General 401 Water Quality Certification for NWP 23 (GC 3403). Potential impacts to waters of the United States resulting from replacement of this bridge are expected to be avoided.

Protected Species

Species with the federal classification of Endangered, Threatened, or officially Proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). As of June 19, 2007, the USFWS lists three federally protected species for Gaston County.

Table 2. Federally Protected Species Listed for Gaston County (USFWS 2007)

Common Name	Scientific Name	Status*	Habitat Present?	Biological Conclusion
Schweinitz's sunflower	*Helianthus schweinitzii*	E	Y	No Effect
Bald eagle	*Haliaeetus leucocephalus*	T	N	No Effect
Bog turtle	*Glyptemys (Clemmys) muhlenbergii*	T (S/A)	N	Not Required

*Federal Status: E--Endangered; T--Threatened; T (S/A)-- Threatened due to similarity of appearance (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically Endangered or Threatened and are not subject to Section 7 consultation.

SCHWEINITZ'S SUNFLOWER **BIOLOGICAL CONCLUSION: NO EFFECT**

Within the project study area there is suitable habitat for Schweinitz's sunflower in some of the disturbed/maintained areas. A systematic plant-by-plant survey was conducted on October 11, 2006 by EcoScience biologists David O'Loughlin and Ross Andrews. No specimens of Schweinitz's sunflower were found. NCNHP records (reviewed October 2006) document no occurrence of the Schweinitz's sunflower within 2.0 miles of the project study area. Based on the survey results and NCNHP records, this project will have **No Effect** on Schweinitz's sunflower.

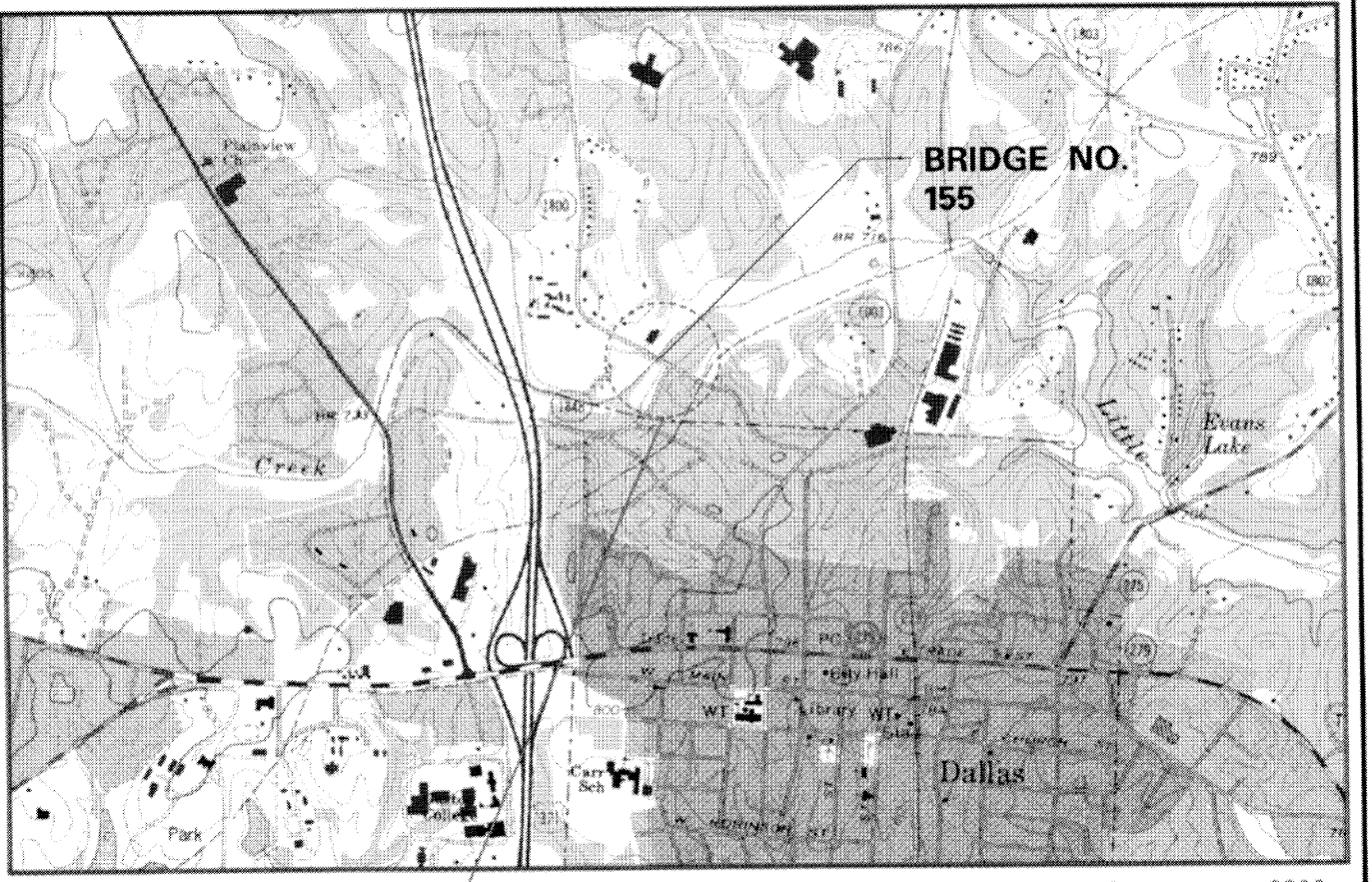
BALD EAGLE **BIOLOGICAL CONCLUSION: NO EFFECT**

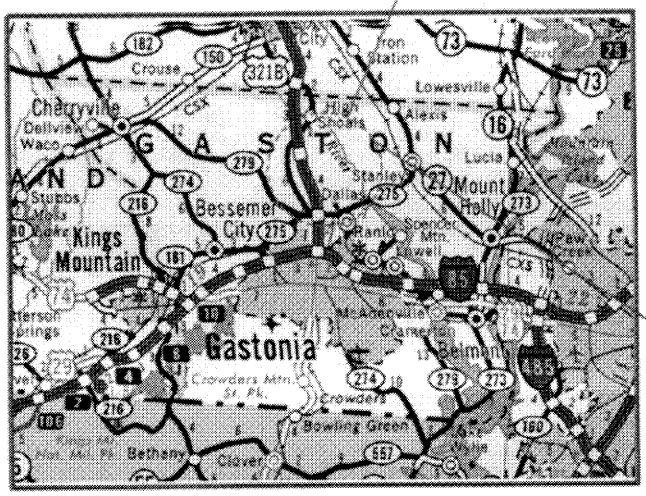
There are no large bodies of water located within 1.0 mile of the project study area; therefore, there is no habitat for bald eagle nesting. NCNHP records (reviewed October 2006) document no occurrence of bald eagle within 2.0 miles of the project study area. Based on a lack of habitat and NCNHP records, this project will have **No Effect** on bald eagle.

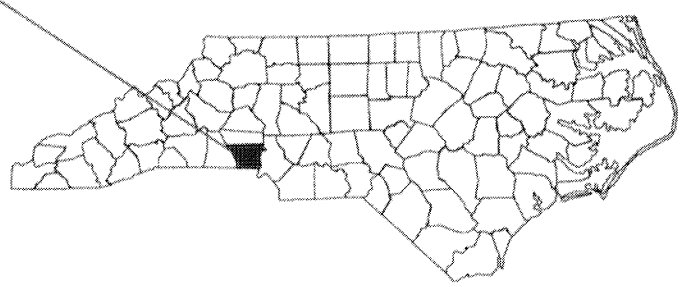
The bog turtle (*Clemmys muhlenbergii)* is listed as Threatened due to Similarity of Appearance, is not subject to Section 7 consultation, and a biological conclusion is not required. However, this project is not expected to affect the bog turtle as the project study area contains no suitable wetland habitat. NCNHP records (reviewed June 2007) document two occurrences of bog turtles within 1.0 mile of the project study area. T (S/A) species are not subject to Section 7 consultation and **a biological conclusion for this species is not required;** however, the project study area contains no suitable habitat for bog turtle.

CONCLUSIONS

No Outstanding Resource Waters (**ORW**), High Quality Waters (**HQW**), Water Supply I (**WS-I**), Water Supply II (**WS-II**) waters, watershed Critical Areas (**CA**), or Trout Waters (**Tr**) occur within 1.0 mile of the project study area. Little Long Creek is not listed on any section of the N.C. 2004 draft Section 303(d) list. The project study area contains one jurisdictional surface water. Potential impacts to waters of the United States resulting from replacement of this bridge are expected to be avoided. This project may be processed as a CE due to minimal impacts to waters of the United States expected with bridge construction. The proposed project is not expected to adversely impact any federally protected species.







Client: STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT LOCATION

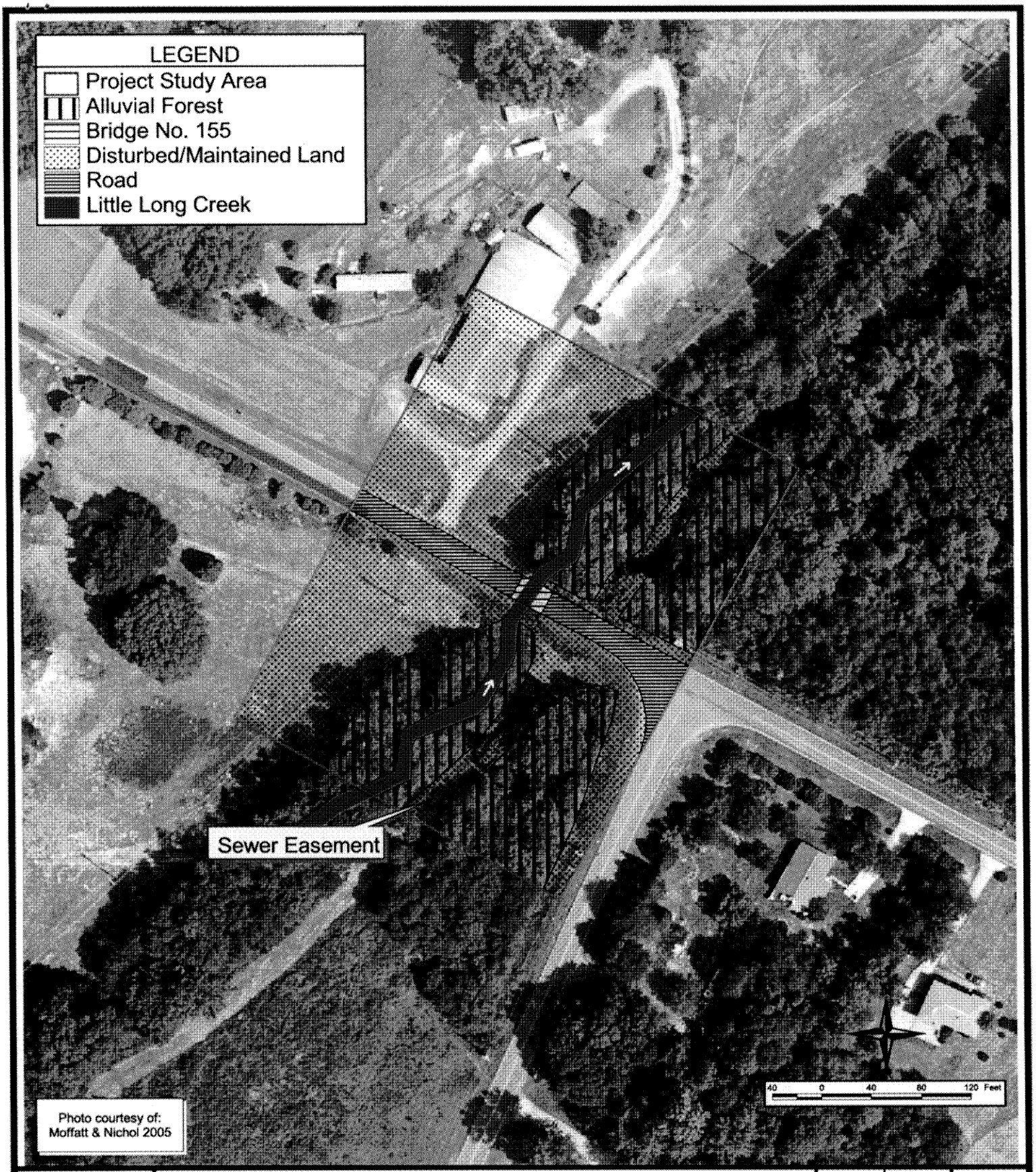
Replacement of Bridge No. 155 (B-4519) over Little Long Creek

Gaston County, North Carolina

Drawn By: JDG	Chkd By: JW
Date: FEB 2006	
Scale: AS SHOWN	
ESC Project No.: 05-262	

FIGURE

1



EcoScience Corporation
Raleigh, North Carolina

Plant Communities and Jurisdictional Areas
Replacement of Bridge No. 155 (B-4519)
SR 1800 over Little Long Creek

Gaston County, North Carolina

View1	Ckd By:
JRW	ES

Date: October 17, 2006

Scale: AS SHOWN

ESC Project No.: 05-262.00

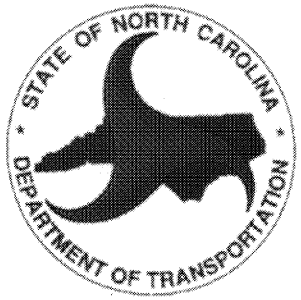
FIGURE 2

NATURAL RESOURCES TECHNICAL REPORT

Replacement of Bridge No. 155
SR 1800 over Little Long Creek

Gaston County, North Carolina
(B-4519)
(WBS Element 33743.1.1)
(State Project No. 82813101)
(Federal Aid No. BRZ-1800(4))

Prepared for:



The North Carolina Department of Transportation
Raleigh, North Carolina

June 2007

NATURAL RESOURCES TECHNICAL REPORT

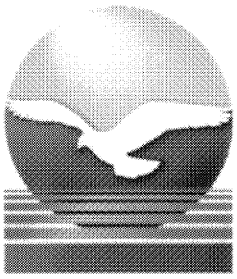
Replacement of Bridge No. 155
SR 1800 over Little Long Creek

Gaston County, North Carolina
(B-4519)
(WBS Element 33743.1.1)
(State Project No. 82813101)
(Federal Aid No. BRZ-1800(4))

Prepared for:

MOFFATT & NICHOL

Prepared by:



ECOSCIENCE CORPORATION
1101 Haynes Street, Suite 101
Raleigh, NC 27604
Tel (919) 828-3433 Fax (919) 828-3518

June 2007

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Replacement of Bridge No. 155
SR 1800 over Little Long Creek
Gaston County, North Carolina
(B-4519)

1.0 INTRODUCTION

1.1 Project Description

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 155 located on State Road 1800 (SR 1800) over Little Long Creek in Gaston County, North Carolina (Figure 1). For the purpose of this report, the names of the streams have been taken from United States Geological Survey (USGS) topographic mapping (Gastonia North, NC 7.5-minute quadrangle [1993]). Bridge No. 155 spans Little Long Creek and the adjacent banks for a distance of 31 feet. Bridge No. 155 consists of one span and is constructed of a timber deck on I-beams. The paved surface of SR 1800 is approximately 19 feet wide.

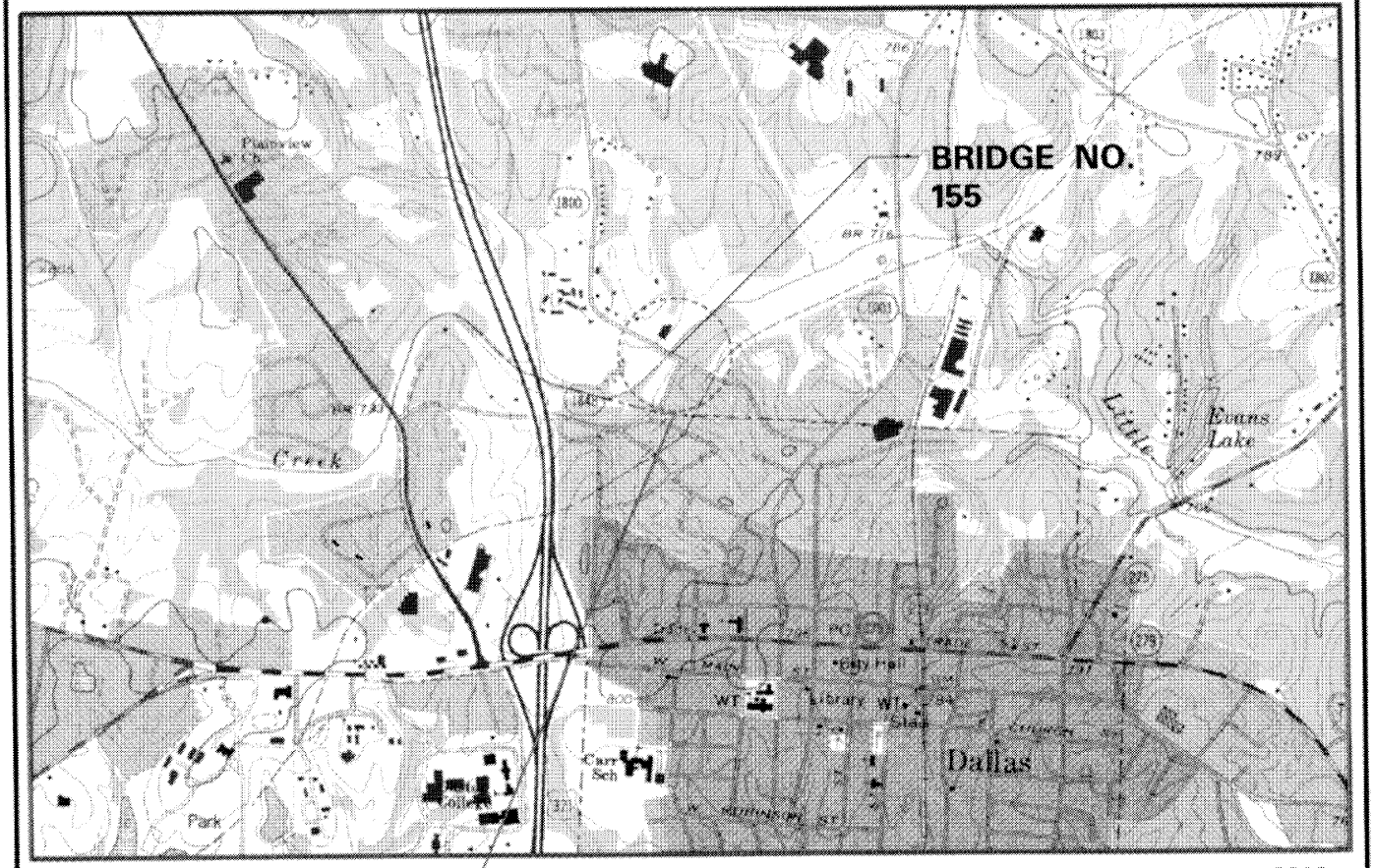
The project study area is located at the crossing of SR 1800 over Little Long Creek approximately 1 mile north of Dallas, NC (Figure 1). The project study area has been determined to be approximately 400 feet wide, centered on SR 1800, and approximately 300 feet long. The project study area encompasses approximately 2.8 acres (Figure 2).

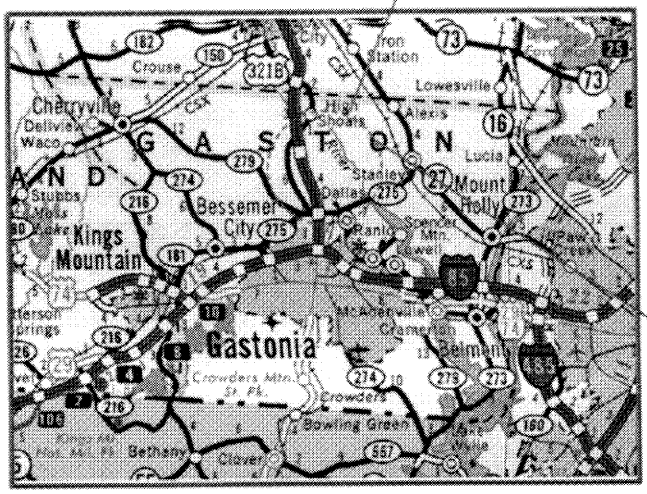
The proposed replacement of Bridge No. 155 consists of replacing the bridge with a bridge in the current location while maintaining traffic with an off-site detour.

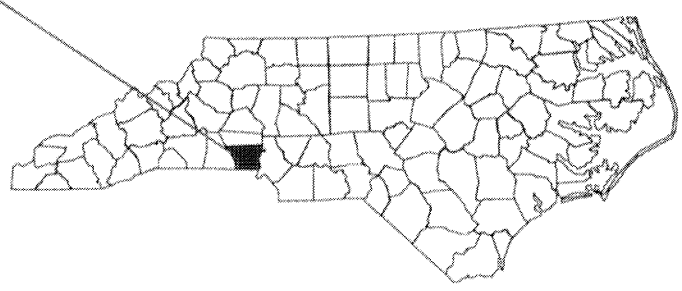
It is anticipated that there will be no temporary fill resulting from bridge demolition. NCDOT will coordinate with resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

1.2 Purpose

The purpose of this study is to provide an evaluation of biological resources in the project study area. Specific tasks performed for this study include 1) an assessment of biological features within the project study area including descriptions of vegetation, wildlife, protected species, jurisdictional areas, and water quality; 2) a delineation of Section 404 jurisdictional areas and subsequent survey of jurisdictional boundaries utilizing Trimble XRS Differential Global Positioning System; 3) an evaluation of plant communities and their extent within the project study area; 4) a preliminary determination of permit needs; and 5) completion of U.S. Army Corps of Engineers (USACE) and N.C. Division of Water Quality (NCDWQ) data forms for jurisdictional systems.







Client:

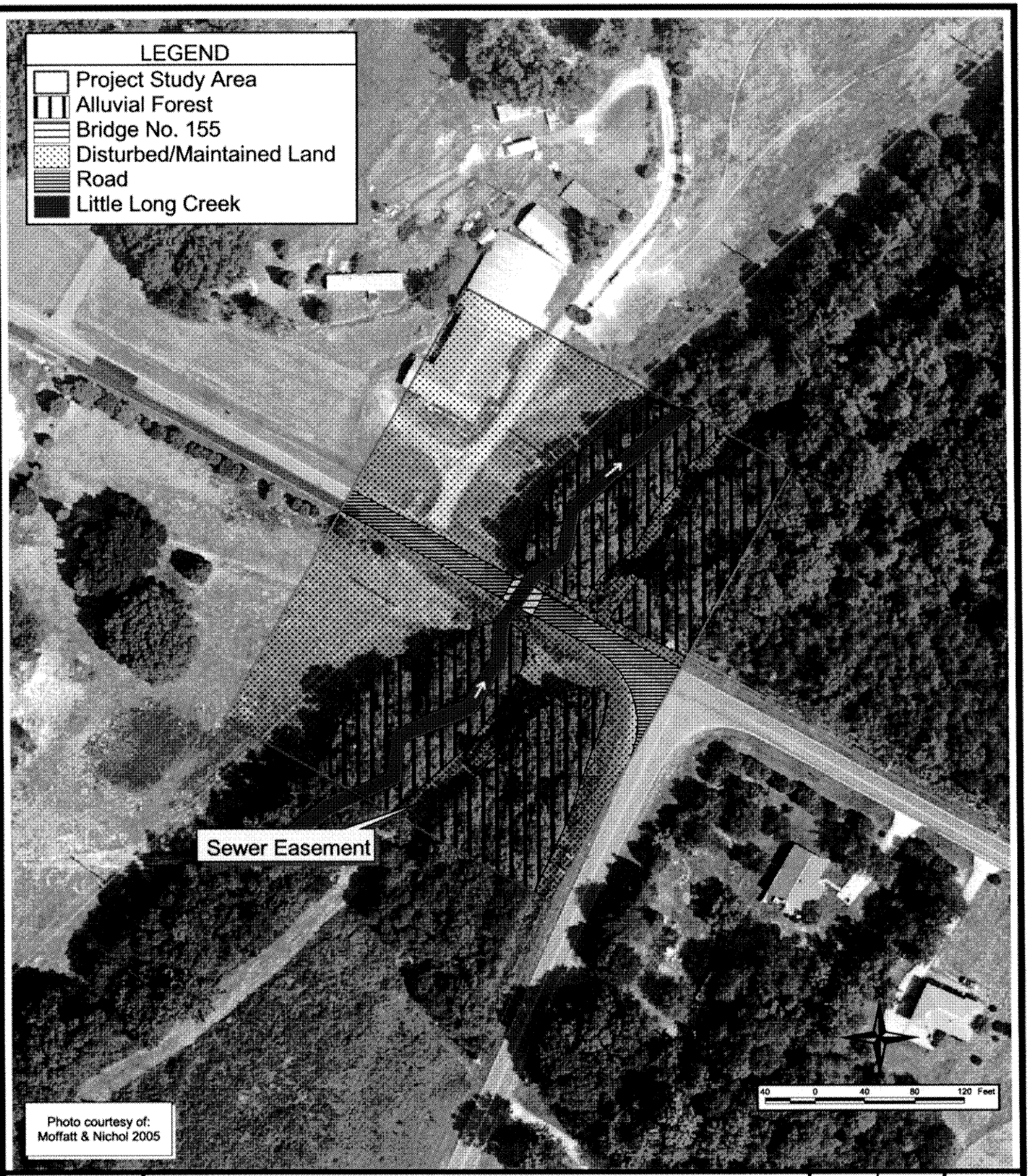
PROJECT LOCATION

Replacement of Bridge No. 155 (B-4519)
over Little Long Creek
Gaston County, North Carolina

Drwn By:	Chkd By:
JDG	JW
Date: FEB 2006	
Scale: AS SHOWN	
ESC Project No.: 05-262	

FIGURE

1



EcoScience Corporation
Raleigh, North Carolina

Plant Communities and Jurisdictional Areas
Replacement of Bridge No. 155 (B-4519)
SR 1800 over Little Long Creek

Gaston County, North Carolina

View1	Ckd By:
JRW	ES

Date: October 17, 2006

Scale: AS SHOWN

ESC Project No.: 05-262.00

FIGURE 2

1.3 Methods

Materials and literature supporting this investigation have been derived from a number of sources including USGS topographic mapping (Gastonia North, NC 7.5-minute quadrangle [1993]), United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping (Gastonia North, NC 7.5-minute quadrangle [1994]), and Soil Conservation Service (SCS) soils mapping (SCS 1989) and recent (2005) aerial photography from Moffatt & Nichol.

Plant community descriptions are based on a classification system utilized by the North Carolina Natural Heritage Program (NCNHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford et al. (1968) with adjustments for updated nomenclature (Kartesz 1998). Wetlands subject to Section 404 of the Clean Water Act (CWA) were evaluated using the three-parameter approach following USACE delineation guidelines (Environmental Laboratory 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin et al. (1979) and/or the North Carolina Division of Environmental Management (NCDEM) *Field Guide to North Carolina Wetlands* (1996). Aquatic and terrestrial wildlife habitat requirements and distributions were determined by supportive literature (Martof et al. 1980, Potter et al. 2006, Webster et al. 1985, Menhinick 1991, Palmer and Braswell 1995, and Rohde et al. 1994). Water quality information for area streams and tributaries was derived from available sources (NCDWQ 2006, NCDWQ 2004, NCDWQ 2005a, NCDWQ 2005b). Quantitative sampling was not undertaken to support existing data.

The most current USFWS listing of federally protected species with ranges extending into Gaston County (USFWS 2007) is considered in this report. In addition, NCNHP records documenting the presence of federally or state listed species were consulted before commencing field investigations.

The project study area was walked and visually surveyed for significant features. Potential impacts resulting from construction will be limited to proposed cut-fill boundaries. Special concerns evaluated in the field include 1) potential protected species habitat and 2) water quality protection of Little Long Creek.

1.4 Qualifications

The fieldwork for this investigation was conducted on Feb 8, 2006 and October 11, 2006 by EcoScience Corporation biologists Alexander Smith, Michael Gloden, Justin Wright, David O'Loughlin, and Ross Andrews.

Mr. Smith is a Senior Scientist with 18 years of experience in the environmental field. Mr. Smith has a bachelor's degree in biology from Davidson College and a master's degree in marine/coastal biology from the University of North Carolina at Wilmington. He has conducted field research and species inventories involving seabirds, shorebirds, colonial water birds, songbirds, small mammals, reptiles, amphibians, freshwater and estuarine fish, and benthic invertebrates. Professional expertise includes jurisdictional area delineations, stream and

riparian buffer determinations, plant and wildlife identification and community mapping, protected species surveys, environmental permitting, and environmental document preparation.

Mr. Gloden is a Project Scientist with 2 years of experience in the environmental field. He holds a B.S. in natural resources (ecosystem assessment) from North Carolina State University. He is proficient in the identification of eastern woody tree and shrub species. Professional expertise includes stream and wetland delineation, habitat assessment, and environmental document preparation.

Mr. Wright is a Project Scientist with one year of experience in the environmental field and a bachelor's degree in environmental science, watershed hydrology from North Carolina State University. Professional expertise includes jurisdictional area delineation, habitat assessment, plant identification, and environmental document preparation.

Mr. O'Loughlin is a Senior Scientist with three years of experience in the environmental field working toward a M.S. in forestry from North Carolina State University, with minors in botany and statistics. He has taken pertinent courses including dendrology, botany, ecology, and wetland soils. His professional expertise includes natural resources assessment, protected species surveys, computer modeling, jurisdictional area delineations and environmental document preparation.

Mr. Andrews is a Project Scientist with three years experience in restoration of native plant communities. Mr. Andrews holds a Bachelors of Science in biology from UNC Chapel Hill and two Masters degrees from NC State University, one in soil science and one in forestry. He has published work in the peer-reviewed journal *Restoration Ecology*. His areas of expertise include identification of upland and wetland plants and community types, community mapping, invasive exotic species management and protected plant surveys.

1.5 Definitions of Area Terminology

Definitions for descriptions used in this report are as follows. **Project Study Area** denotes the area bounded by proposed construction limits and has been determined to be approximately 400 feet wide, centered on SR 1800, and approximately 300 feet long, encompassing approximately 2.8 acres (Figure 2). **Project Vicinity** describes an area extending 0.5 mile on all sides of the project study area. **Project Region** is equivalent to an area represented by a 7.5-minute USGS topographic quadrangle map with the project study area occupying the central position.

2.0 PHYSICAL RESOURCES

2.1 Physiography and Soils

The project area is located within the Southern Outer Piedmont ecoregion within the Piedmont physiographic province of North Carolina. This ecoregion is characterized by dissected irregular

plains, low hills and ridges, and low to moderate gradient streams with cobble, gravel, and sandy substrates (Griffith et al. 2002). Elevations within the project study area range from a high of approximately 720 feet National Geodetic Vertical Datum (NGVD) to a low of approximately 700 feet NGVD (USGS Gastonia North, NC 7.5-minute topographic quadrangle [1993]). Land uses within the project study area consist of pasture, woodlands, residential lots, a sewer easement, a powerline corridor, and roadside shoulders.

Based on soil mapping for Gaston County (SCS 1989), the project study area is underlain by three soil series: Chewacla loam (*Fluvaquentic Dystrudepts*), Pacolet sandy clay loam (*Typic Kanhapludults*), and Cecil sandy clay loam (*Typic Kanhapludults*). All three series are considered non-hydric in Gaston County (NRCS 1997). The Chewacla series is found in the floodplain of Little Long Creek. The Cecil and Pacolet series are found within the sloped areas outside of the floodplain.

The Chewacla series (0 to 2 percent slopes) consists of somewhat poorly drained soil in floodplains that were formed in recent alluvium. This soil tends to be flooded frequently. Permeability is moderate, depth to bedrock is greater than 5 feet, and the seasonal high water table occurs between 0.5 and 1.5 feet.

The Cecil series (8 to 15 percent slopes) consists of deep, well drained, moderately permeable soils on side slopes. Depth to bedrock is greater than 6 feet. The seasonal high water table does not occur within 6 feet of the surface.

The Pacolet series (8 to 15 percent slopes) consists of well drained, moderately permeable soils on side slopes and narrow ridges. Depth to bedrock is greater than 5 feet. The seasonal high water table does not occur within 6 feet of the surface.

2.2 Water Resources

The project study area is located within sub-basin 03-08-36 of the Catawba River Basin (NCDWQ 2004). This area is part of USGS Hydrologic Unit 03050102 (Seaber et al. 1987) of the South Atlantic Gulf Region. Within the project study area, Little Long Creek is the only surface water. Bridge No. 155 spans Little Long Creek. The portion of Little Long Creek that lies within the project study area has been assigned Stream Index Number 11-129-16-9 by NCDWQ (NCDWQ 2005b).

Little Long Creek flows from southwest to northeast through the project study area (Figure 2) and enters the project study area as a well-defined, third-order, perennial stream with moderate flow over a sandy substrate. At Bridge No. 155, Little Long Creek is approximately 12 feet wide. The banks of Little Long Creek are approximately 5 feet high and are stable. During field investigations, the water depth ranged from 1 to 2 feet. The water was clear to the bottom of the stream, and flow velocity was moderate. Little Long Creek had evident riffle-pool sequencing and natural meanders in the stream channel. No persistent emergent aquatic vegetation was observed within the stream. Opportunities for habitat within Little Long Creek include fallen sticks, leaf packs, and undercut banks.

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. A Best Usage Classification of **C** has been assigned to Little Long Creek. Class **C** waters are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation includes wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. No Outstanding Resource Waters (**ORW**), High Quality Waters (**HQW**), Water Supply I (**WS-I**), Water Supply II (**WS-II**), watershed Critical Areas (**CA**), or Trout Waters (**Tr**) occur within 1.0 mile of the project study area (NCDWQ 2004b). No benthic macroinvertebrate monitoring stations occur within 1.0 mile of the project study area (NCDWQ 2004). With respect to temperature regimes, Little Long Creek is designated as a warm water stream (USACE et al. 2003).

NCDWQ has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed project study area is summarized in the *Catawba Basinwide Water Quality Plan* (NCDWQ 2004). Little Long Creek is currently listed by NCDWQ as **Not Rated** for its designated uses.

NCDWQ has assembled a list of impaired waterbodies according to the Clean Water Act Section 303(d) and 40 CFR 130.7, hereafter referred to as the N.C. 2006 final Section 303(d) list (NCDWQ 2006). The list is a comprehensive public accounting of all impaired waterbodies. An impaired waterbody is one that does not meet water quality standards including designated uses, numeric and narrative criteria, and anti-degradation requirements defined in 40 CFR 131. The standards violation may be due to an individual pollutant, multiple pollutants, or an unknown cause of impairment. The impairment could be from point sources, non-point sources, and/or atmospheric deposition. Some sources of impairment exist across state lines. North Carolina's methodology is strongly based on the aquatic-life use-support guidelines available in the Section 305(b) guidelines (EPA-841-B-97-002A and -002B). Those streams attaining only Partially Supporting or Not Supporting status are listed on the N.C. 2006 final Section 303(d) list. Streams are further categorized into one of six parts within the N.C. 2006 final Section 303(d) list, according to source of impairment and degree of rehabilitation required for the stream to adequately support aquatic life. Within Parts 1, 4, 5, and 6 of the list, North Carolina has developed a priority ranking scheme (low, medium, high) that reflects the relative value and benefits those waterbodies provide to the State. Dallas Creek, which flows into Long Creek approximately 2.6 miles upstream of the confluence of Little Long Creek and Long Creek, is listed on the N.C. 2006 final Section 303(d) list. Dallas Creek is the only waterbody within subbasin 03-08-36 of the Catawba River Basin to be listed on the N.C. 2006 final Section 303(d) list (NCDWQ 2004a). **Little Long Creek is not listed on any section of the N.C. 2006 final Section 303(d) list (NCDWQ 2006).**

Sub-basin 03-08-36 of the Catawba River Basin supports 14 permitted, point source dischargers. Four of the permitted dischargers are classified as major dischargers, discharging a total of 21.4 million gallons per day. The other ten permitted dischargers are minor, discharging less than 1 million gallons per day (NCDWQ 2005a). A minor permitted discharger is located less than 1.0 mile upstream of the project study area. Major non-point sources of

pollution within the Catawba River Basin include stormwater runoff from agriculture, timber harvesting, failing septic systems, mining, and rural residential development. Sedimentation and nutrient inputs are major problems associated with non-point source discharges (NCDWQ 2004).

2.3 Summary of Potential Impacts to Water Resources

Impacts to water resources in the project study area may result from activities associated with project construction. Activities that would result in impacts are clearing and grubbing on streambanks, riparian canopy removal, in-stream construction, fertilizers and pesticides used in revegetation, and pavement/culvert installation. The following impacts to surface water resources could result from construction activities mentioned above.

- Increased sedimentation and siltation downstream of the crossings and increased erosion in the project study area.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Changes in and destabilization of water temperature due to vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Increased nutrient loading during construction via runoff from exposed areas.
- Increased concentrations of toxic compounds in roadway runoff.
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.

Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion-control schedule and the use of Best Management Practices (BMPs). The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled *Control of Erosion, Siltation, and Pollution* (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into streams by catch basins and roadside vegetation.

It is anticipated that there will be no temporary fill resulting from bridge demolition. NCDOT will coordinate with resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved and follow NCDOT's Best Management Practices for Bridge Demolition and Removal.

3.0 BIOTIC RESOURCES

3.1 Terrestrial Communities

Two distinct plant communities were identified within the project study area: 1) disturbed/maintained land and 2) alluvial forest. Plant communities were delineated (Figure 2) to determine the approximate area and location of each community. These communities are described below in order of their dominance within the project study area. Wildlife that has been observed in each community or is expected to occur in each community is noted.

Disturbed/maintained Land - Approximately 1.6 acres (57 percent) of the project study area is composed of disturbed/maintained land. This community is made up of roadside shoulders, residential yards, a powerline corridor, a sewer easement, and pastures. Within this community there are scattered trees including eastern red cedar (*Juniperus virginiana*). There are also shrubbery patches that contain tag alder (*Alnus serrulata*) and smooth sumac (*Rhus glabra*). Groundcover includes seeded and native grasses and weedy forbs including fescue (*Festuca* sp.), goldenrod (*Solidago* sp.), wild onion (*Allium canadense*), pokeweed (*Phytolacca americana*), microstegium (*Microstegium vimineum*), and henbit (*Lamium amplexicaule*).

Scattered, varying sized trees, overgrown shrubbery patches, and a good source of water allow for limited avian and mammalian diversity. American crows (*Corvus brachyrhynchos*), observed in a pasture, being omnivorous, will eat seeds and other available foods such as carrion and insects. The non-migratory northern cardinal (*Cardinalis cardinalis*) is common to residential areas. The American robin (*Turdus migratorius*) is adaptable and abundant and often builds nests near human structures. The northern mockingbird (*Mimus polyglottos*), perches on snags, power lines, and buildings. The eastern bluebird (*Sialia sialis*) likes open areas and can be seen perching on utility wires and fences. Other species observed in these disturbed areas included the Carolina wren (*Thryothorus ludovicianus*), common grackle (*Quiscalus quiscula*), blue jay (*Cyanocitta cristata*), and the European starling (*Sturnus vulgaris*).

No terrestrial mammals were visually observed during the site visit although some signs were present. Raccoon (*Procyon lotor*) tracks were observed in the sandy banks of Little Long Creek. Raccoons are opportunistic omnivores and will consume a wide variety of food. Similar to the raccoon, the striped skunk (*Mephitis mephitis*) is opportunistic and omnivorous. Striped skunks like brushy fields and may be found in the overgrown fencerows along pastures within this community. White-tailed deer (*Odocoileus virginianus*) would be expected to graze in the pasture and then seek cover within the surrounding woodlands. Other mammal species expected to occur within this community include eastern cottontail (*Sylvilagus floridanus*), eastern mole (*Scalopus aquaticus*), red fox (*Vulpes vulpes*), least shrew (*Cryptotis parva*), and Virginia opossum (*Didelphis virginiana*).

No terrestrial reptile or amphibian species were observed during the site visit. Terrestrial reptiles and amphibians which may occur within disturbed/maintained land include black rat snake (*Elaphe obsoleta*), corn snake (*E. guttata*), eastern fence lizard (*Sceloporus undulatus*),

slender grass lizard (*Ophisaurus attenuatus*), black racer (*Coluber constrictor*), and American toad (*Bufo americana*).

Alluvial Forest - Approximately 1.2 acres (43 percent) of the project study area is made up of alluvial forest community. This community is located on either side of the stream, between the utility lines and the road. Within the project study area, this community is well-developed with a closed canopy consisting of large, mature trees. The canopy is dominated by sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), box elder (*Acer negundo*), sweetgum (*Liquidambar stryaciflua*) water oak (*Quercus nigra*), and yellow poplar (*Liriodendron tulipifera*). The understory includes black willow (*Salix nigra*), box elder (*Acer negundo*), and eastern red cedar. The shrub layer includes multiflora rose (*Rosa multiflora*), Chinese privet (*Ligustrum sinese*), tag alder, giant cane (*Arundinaria gigantea*), and heavenly bamboo (*Nandina domestica*). The herb and vine layer includes common greenbriar (*Smilax rotundifolia*), poison ivy (*Toxicodendron radicans*), Japanese honeysuckle (*Lonicera japonica*), ebony spleenwort (*Asplenium platyneuron*), violet (*Viola* sp.), trumpet creeper (*Campsis radicans*), and soft rush (*Juncus effusus*).

The closed and well-stratified canopy of this community provides good food and nesting opportunities for bird species. The proximity to Little Long Creek provides a good source of water. A tufted titmouse (*Baeolophus bicolor*) was observed next to Little Long Creek. Tufted titmice are adaptable to many habitats and are often seen in small flocks along with Carolina chickadees (*Poecile carolinensis*). Great blue heron (*Ardea herodias*) tracks were seen underneath the bridge in the sandy banks of Little Long Creek. The heron eats fish and other animals that live in or near water. Barn swallow (*Hirundo rustica*) nests were present underneath bridge 155. Other bird species expected to be found here include northern cardinal, northern flicker (*Colaptes auratus*), red-tailed hawk (*Buteo jamaicensis*), and belted kingfisher (*Ceryle alcyon*). The northern flicker eats insects found on the forest floor. The belted kingfisher may be seen perched on some of the dead branches above Little Long Creek and diving head first into the stream to catch fish.

Mammal species expected to occur within alluvial forest include some that also utilize disturbed areas such as striped skunk, raccoon, and white-tailed deer. Some other species that may take advantage of cover, such as the forest floor duff layer, and food sources, such as hard mast from the oaks, include gray squirrel (*Sciurus carolinensis*), southeastern shrew (*Sorex longirostris*), and eastern chipmunk (*Tamias striatus*). Predators on these species might include gray fox (*Urocyon cineareoargenteus*) and red-shouldered hawk (*Buteo lineatus*). Another common species that may be found here is the solitary eastern red bat (*Lasiurus borealis*) which spends much of its time camouflaged in a shrub and suspended by a single foot.

No terrestrial reptile or amphibian species were observed during the site visit. Terrestrial reptiles and amphibians which may occur within this community include eastern box turtle (*Terrapene carolina*), American toad, common musk turtle (*Sternotherus odoratus*), five-lined skink (*Eumeces fasciatus*), copperhead (*Agkistrodon contortrix*), southern leopard frog (*Rana*

utricularia), spring peeper (*Pseudacris crucifer*), and white-spotted slimy salamander (*Plethodon cylindraceous*).

3.2 Aquatic Communities

Limited investigations resulted in no observations of aquatic reptiles. Aquatic or semi-aquatic reptiles and amphibians expected to occur within the project study area vicinity include northern water snake (*Nerodia sipedon*), queen snake (*Regina septemvittata*), green frog (*Rana clamitans*), blackbelly salamander (*Desmognathus quadramaculatus*), and two-lined salamander (*Eurycea bislineata*).

No sampling was undertaken in Little Long Creek to determine fishery potential and no fish species were observed during the field survey. Fish species that may be present in Little Long Creek include creek chub (*Semotilus atromaculatus*), whitefin shiner (*Notropis niveus*), swallowtail shiner (*Notropis photogenis*), bluehead chub (*Nocomis leptocephalus*), highback chub (*Hybopsis hypsinotus*), santee chub (*Hybopsis zanema*), and margined madtom (*Noturus insignis*). Little Long Creek has no NCDWQ trout designations. Little Long Creek is not listed by North Carolina Wildlife Resources Commission (NCWRC) as Designated Public Mountain Trout Waters (NCWRC 2006).

3.3 Summary of Anticipated Impacts

Plant communities within the project study area were delineated to determine the approximate area and location of each (Figure 2). A summary of the plant community areas within the project study area is presented in Table 1. Anticipated impacts are based on cut-fill limits plus a 25-foot buffer, based on preliminary construction drawings.

Table 1. Terrestrial Community Coverage and Impacts Within the Project Study Area

Plant Community	Coverage (Acres)	Coverage (Percent)	Area Impacted (Acres)
Disturbed/maintained land	1.6	57	0.5
Alluvial Forest	1.2	43	0.1
Total	**2.8**	**100**	**0.6**

Most of the projected impacts to natural plant communities will occur within the disturbed/maintained plant community along roadside shoulders. Permanent impacts to disturbed/maintained land will total 0.5 acres, while impacts to alluvial forest will total 0.1 acres. Due to the use of an off-site detour, there will be no temporary impacts to natural plant communities in the project study area. No significant habitat fragmentation is expected as a result of project activities since potential improvements will be restricted to adjoining roadside margins. Construction noise and associated disturbances are anticipated to have short-term impacts on avifauna and migratory wildlife movement patterns. Short-term impacts associated with turbidity and suspended sediments may affect benthic populations.

4.0 JURISDICTIONAL TOPICS

4.1 Waters of the United States

Surface waters within the project study area are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR Section 328.3). Section 404 jurisdictional areas are depicted on Figure 2. Only one surface water occurs within the project study area: Little Long Creek. See Appendix A for the NCDWQ Stream Identification Form and USACE Stream Quality Assessment Worksheet for Little Long Creek. A request for verification of the delineation was submitted to Mr. Steve Lund of the USACE on March 13, 2006. On July 26, 2007, Mr. Lund indicated that a site visit had been made and that a jurisdictional determination was forthcoming.

Little Long Creek exhibits characteristics of a well-defined, third-order, perennial stream with moderate flow over a silt and sand substrate. Little Long Creek is classified as a riverine, upper perennial stream with an unconsolidated bottom composed primarily of sand (R3UB2) (Cowardin et al. 1979).

Vegetated wetlands are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (Environmental Laboratory 1987). The project study area contains no vegetated wetlands.

Replacement of Bridge No. 155 is anticipated to result in no impacts to the open-water area of Little Long Creek. It is anticipated that there will be no temporary fill resulting from bridge demolition. NCDOT will coordinate with resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

4.2 Permit Issues

4.2.1 Permits

This project may be processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. USACE has made available Nationwide Permit (NWP) 23 (67 FR 2020, 2082; January 15, 2002) for CEs due to minimal impacts to waters of the United States expected with bridge construction. NCDWQ has made available a General 401 Water Quality Certification for NWP 23 (GC 3403).

4.2.2 Mitigation

USACE has adopted through the Council on Environmental Quality (CEQ) a wetland mitigation policy which embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of waters of the United States, and specifically wetlands. Mitigation of wetland impacts has been defined by CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Each of these

three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

Avoidance examines all appropriate and practicable possibilities of averting impacts to waters of the United States. According to a 1990 Memorandum of Agreement between the United States Environmental Protection Agency and USACE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes. Impacts to waters of the United States and aquatic communities are expected to be avoided. Potential downstream impacts to aquatic habitat are anticipated to be avoided by bridging the stream system to maintain regular flow and stream integrity.

Minimization includes the examination of appropriate and practicable steps to reduce adverse impacts to waters of the United States. Minimization typically focuses on decreasing the proposed project footprint through the reduction of median widths, right-of-way widths, fill slopes, and/or road shoulder widths. All efforts should be made to decrease impacts to surface waters. Temporary impacts to downstream habitat from increased sediment during construction will be minimized by the implementation of stringent erosion-control measures.

Compensatory mitigation is not normally considered until anticipated impacts to waters of the United States have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. In accordance with 67 FR 2020, 2092; January 15, 2002, USACE requires compensatory mitigation when necessary to ensure that adverse effects to the aquatic environment are minimal. The NCDWQ also requires mitigation if water quality effects resulting from the project are more than minimal. The size and type of the proposed project impact and the function and value of the impacted aquatic resource are factors considered in determining acceptability of appropriate and practicable compensatory mitigation. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization opportunities have been implemented. Compensatory actions often include restoration, preservation, enhancement, and creation of waters of the United States. Such actions should be undertaken first in areas adjacent to or contiguous to the discharge site.

On-site mitigation possibilities for the Section 404 jurisdictional area will be investigated by NCDOT Onsite Mitigation Group before off-site mitigation options are considered. In accordance with the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the United States Army Crops of Engineers, Wilmington District", July 22, 2003, the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP), will be requested to provide off-site mitigation to satisfy the federal Clean Water Act compensatory mitigation requirements for this project.

Mitigation for Section 404 jurisdictional areas may not need to be proposed for this project due to the proposed avoidance of impacts to jurisdictional areas. However, utilization of BMPs is recommended in an effort to minimize potential indirect impacts.

4.3 Protected Species

Species with the federal classification of Endangered, Threatened, or officially Proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered Species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range;" and the term "Threatened Species" is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532). The USFWS lists three federally protected species for Gaston County (USFWS 2007, see Table 2).

Table 2. Federally Protected Species Listed for Gaston County (USFWS 2007)

Common Name	Scientific Name	Status*	Habitat Present?	Biological Conclusion
Schweinitz's sunflower	*Helianthus schweinitzii*	E	Y	No Effect
Bald eagle	*Haliaeetus leucocephalus*	T	N	No Effect
Bog turtle	*Glyptemys (Clemmys) muhlenbergii*	T (S/A)	N	Not Required

*Federal Status: E--Endangered; T--Threatened; T (S/A)-- Threatened due to similarity of appearance (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically Endangered or Threatened and are not subject to Section 7 consultation.

***Helianthus schweinitzii* (Schweinitz's sunflower)**
Endangered
Family: Asteraceae
Date Listed: May 7, 1991

Schweinitz's sunflower is an erect, unbranched, rhizomatous, perennial herb that grows to approximately 6 feet in height. The stem may be purple, is usually pubescent, but is sometimes nearly smooth. Leaves are sessile, opposite on the lower stem but alternate above; in shape they are lanceolate and average 5 to 10 times as long as wide. The leaves are rather thick and stiff, with a few small serrations. The upper leaf surface is rough and the lower surface is usually pubescent with soft white hairs. Schweinitz's sunflower blooms from September to frost; the yellow flower heads are about 0.6 inch in diameter. The current known range of this species is within 60 miles of Charlotte, North Carolina, occurring on upland interstream flats or gentle slopes, in soils that are thin or clay in texture. The species needs open areas protected from shade or excessive competition, reminiscent of Piedmont prairies. Disturbances such as fire maintenance or regular mowing help sustain preferred habitat (USFWS 1994).

BIOLOGICAL CONCLUSION **NO EFFECT**

Within the project study area there is suitable habitat for Schweinitz's sunflower in some of the disturbed/maintained areas. A systematic plant-by-plant survey was conducted on October 11, 2006 by EcoScience biologists David O'Loughlin and Ross Andrews. No specimens of Schweinitz's sunflower were found. NCNHP records (reviewed October 2006) document no occurrence of the Schweinitz's sunflower within 2.0 miles of the project study area. Based on the survey results and NCNHP records, this project will have **No Effect** on Schweinitz's sunflower.

***Haliaeetus leucocephalus* (Bald eagle)**
Threatened
Family: Accipitridae
Date Listed: March 11, 1967

The bald eagle is a large raptor with a wingspan greater than 6 feet. Adult bald eagles are dark brown with a white head and tail. Immature eagles are brown with whitish mottling on the tail, belly, and wing linings. Bald eagles typically feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 2006). Bald eagles typically nest in tall, living trees in a conspicuous location near open water. Eagles forage over large bodies of water and utilize adjacent trees for perching (Hamel 1992). Disturbance activities within a primary zone extending 750 to 1,500 feet from a nest tree are considered to result in unacceptable conditions for eagles (USFWS 1987). The USFWS recommends avoiding disturbance activities, including construction and tree-cutting within this primary zone. Within a secondary zone, extending from the primary zone boundary out to a distance of 1.0 mile from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. The USFWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding significant land-clearing activities within 1500 feet of known roosting sites.

BIOLOGICAL CONCLUSION **NO EFFECT**

There are no large bodies of water located within 1.0 mile of the project study area; therefore, there is no habitat for bald eagle nesting. NCNHP records (reviewed October 2006) document no occurrence of bald eagle within 2.0 miles of the project study area. Based on a lack of habitat and NCNHP records, this project will have **No Effect** on bald eagle.

***Glyptemys* (*Clemmys*) *muhlenbergii* (Bog turtle)**
Threatened due to similarity of appearance
Family: Emydidae
Date Listed: November 4, 1997

The bog turtle is a small turtle reaching an adult size of approximately 3 to 4 inches. This otherwise darkly-colored species is readily identifiable by the presence of a bright orange or yellow blotch on the sides of the head and neck (Martof et al. 1980). The bog turtle has declined drastically within the northern portion of its range due to over-collection and habitat

alteration. As a result, the USFWS has listed the bog turtle as Threatened within the northern portion of its range, and, within the southern portion of its range, which includes North Carolina, the bog turtle has been listed as Threatened due to Similarity of Appearance to the northern population (November 4, 1997 Federal Register). The listing allows incidental take of bog turtles in the southern population resulting from otherwise lawful activity. The bog turtle is typically found in bogs, marshes, and wet pastures, usually in association with aquatic or semi-aquatic vegetation and small, shallow streams over soft bottoms (Palmer and Braswell 1995). In North Carolina, bog turtles have a discontinuous distribution in the Mountains and western Piedmont.

Until recently, the bog turtle has been known as *Clemmys muhlenbergii*. Recently however, several species previously listed under the genus *Clemmys* have been placed in the genus *Glyptemys* due to sufficient evidence separating them from members of *Clemmys* (Holman and Fritz 2001). *Glyptemys muhlenbergii* is an accepted taxon for the species *Clemmys muhlenbergii* by the USFWS (Personal communication, David Rabon, USFWS; February 25, 2005).

NCNHP records (reviewed June 2007) document two occurrences of bog turtles within 1.0 mile of the project study area. T (S/A) species are not subject to Section 7 consultation and **a biological conclusion for this species is not required;** however, the project study area contains no suitable habitat for bog turtle

Federal Species of Concern – Shoals spiderlily (*Hymenocallis coronaria*) is the only Federal Species of Concern (FSC) listed by USFWS for Gaston County (USFWS 2007). FSC are not afforded federal protection under the Endangered Species Act of 1973, as amended, and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. An FSC is defined as a species that is under consideration for listing for which there is insufficient information to support listing. In addition, FSC listed as Endangered (E), Threatened (T), or Special Concern (SC) by the NCNHP list of Rare Plant and Animal Species are afforded state protection under the N.C. State Endangered Species Act and the N.C. Plant Protection and Conservation Act of 1979, as amended. No habitat for shoal spiderlily exists within the project study area, which is listed as a "probable/potential occurrence for Gaston County.

Candidate Species – The USFWS list also includes a category of species designated as "Candidate" (C). A species with this designation is one that is a species under consideration for official listing for which there is sufficient information to support listing. The C designation provides no federal protection under the ESA for the species listed.

One C species is listed for Gaston County: Georgia aster (*Aster georgianus*) which has a state status of Threatened (USFWS 2007, Franklin and Finnegan 2006). Georgia aster populations typically prefer roadsides, woodland borders, dry rocky woods, and disturbed areas such as fields and utility right-of-ways. Suitable habitat exists for this species within the project study area. NCNHP files list documentation for Georgia aster within 2.0 miles of the project study

area. In the past, the USFWS has asked EcoScience Corporation to survey for Georgia aster to collect information relevant to this species' standing. On October 11, 2006, EcoScience biologists David O'Loughlin and Ross Andrews conducted systematic plant-by-plant surveys for Georgia aster through suitable habitat in the project study area. No individuals of Georgia aster were found.

5.0 REFERENCES

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. USFWS/OBS -79/31. Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC. 103 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. 169 pp.

Franklin, M.A. and J.T. Finnegan. 2006. Natural Heritage Program List of the Rare Plant Species of North Carolina. North Carolina Natural Heritage Program, Division of Parks and Recreation, N.C. Department of Environment, Health and Natural Resources, Raleigh.

Griffith, G.E., J.M. Omernik, J.A. Comstock, M.P. Schafale, W.H. McNab, D.R. Lenat, T.F. MacPherson, J.B. Glover, and V.B. Shelbourne. 2002. Ecoregions of North Carolina and South Carolina (color poster with map, descriptive text, summary table, and photographs). U.S. Geological Survey, Reston, Virginia.

Hamel, P.B. 1992. Land Manager's Guide to the Birds of the South. The Nature Conservancy, Southeastern Region, Chapel Hill, NC. 437 pp.

Holman, J.A. and U. Fritz. 2001. A new emydine species from the Middle Miocene (Barstovian) of Nebraska, USA, with a new generic arrangement for the species of *Clemmys sensu* McDOWELL (1964) (Reptilia: Testudines: Emydidae. Zool. Abhandlgn. (Dresden)) 51: 331-353.

Kartesz, J. 1998. A Synonymized Checklist of the Vascular Flora of the United States, Puerto Rico, and the Virgin Islands. Biota of North America Program.

Martof, B.S., W.M. Palmer, J.R. Bailey, and J.R. Harrison III. 1980. Amphibians and Reptiles of the Carolinas and Virginia. The University of North Carolina Press, Chapel Hill, NC. 264 pp.

Menhinick, E.F. 1991. The Freshwater Fishes of North Carolina. North Carolina Wildlife Resources Commission, Raleigh. 227 pp.

Natural Resources Conservation Service (NRCS). 1997. U.S. Department of Agriculture. Hydric Soils, Gaston County, N.C. Technical Guide, Section II-A-2.

N.C. Division of Environmental Management (NCDEM). 1996. A Field Guide to North Carolina Wetlands. North Carolina Department of Environment, Health, and Natural Resources, Raleigh.

N.C. Division of Water Quality (NCDWQ). 2004. Catawba River Basin Water Quality Management Plan. North Carolina Department of Environment and Natural Resources, Raleigh.

N.C. Division of Water Quality (NCDWQ). 2005a. List of Active Permits (online). Available: http://h2o.enr.state.nc.us/NPDES/documents/BIMS_120505.xls North Carolina Department of Environment and Natural Resources, Raleigh.

N.C. Division of Water Quality (NCDWQ). 2005b. North Carolina Waterbodies Listed by Subbasin(online).Available:http://h2o.enr.state.nc.us/bims/reports/basinsandwaterbodies/alphacatawba.pdf. North Carolina Department of Environment and Natural Resources, Raleigh.

N.C. Division of Water Quality (NCDWQ). 2006. Water Quality Assessment and Impaired Waters List (online). Available: http://h2o.enr.state.nc.us/tmdl/General_303d.htm. North Carolina Department of Environment and Natural Resources, Raleigh.

N.C. Wildlife Resources Commission (NCWRC). 2006. Mountain trout regulations (online). Available: http://www.ncwildlife.com/pg02_Regs/pg2b3.pdf. North Carolina Wildlife Resource Commission, Raleigh.

Palmer, W.M. and A.L. Braswell. 1995. Reptiles of North Carolina. The University of North Carolina Press, Chapel Hill, NC. 412 pp.

Potter, E.F., J.F. Parnell, R.P. Teulings, and R. Davis. 2006. Birds of the Carolinas. The University of North Carolina Press, Chapel Hill, NC. 408 pp.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. The University of North Carolina Press, Chapel Hill, NC. 1183 pp.

Rohde, F.C., R.G. Arndt, D.G. Lindquist, and J.F. Parnell. 1994. Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware. The University of North Carolina Press, Chapel Hill, N.C. 222 pp.

Seaber, P.R., F.P. Kapinos, and G.L. Knapp. 1987. Hydrologic Unit Maps: U.S. Geological Survey Water-Supply Paper 2294, 63 pp (online). Available: http://www.water.usgs.gov/GIS/huc_name.txt. U.S. Geological Survey.

Schafale, M.P. and A.S. Weakley. 1990. Classification of the Natural Communities of North Carolina: Third Approximation. Natural Heritage Program, Division of Parks and Recreation, N.C. Department of Environment, Health, and Natural Resources. Raleigh. 325 pp.

Soil Conservation Service (SCS). 1989. Soil Survey of Gaston County, North Carolina. U.S. Department of Agriculture.

U.S. Army Corps of Engineers (USACE), U. S. Environmental Protection Agency (USEPA), N.C. Wildlife Resources Commission (NCWRC), Natural Resources Conservation Service (NRCS), and N.C. Division of Water Quality (NCDWQ). 2003. Stream Mitigation Guidelines. State of North Carolina.

U.S. Fish and Wildlife Service (USFWS). 1987. Habitat Management Guidelines for the Bald Eagle in the Southeast Region. U.S. Department of the Interior, Fish and Wildlife Service. 8 pp.

U.S. Fish and Wildlife Service (USFWS). 1994. Schweinitz's Sunflower Recovery Plan. Atlanta, GA. 28 pp.

U.S. Fish and Wildlife Service (USFWS). 2007. Gaston County Endangered Species, Threatened Species, and Federal Species of Concern (online). Available: http://nc-es.fws.gov/es/cntylist/gaston.html. June 20, 2007. U.S. Department of the Interior.

Webster, W.D., J.F. Parnell, and W.C. Biggs, Jr. 1985. Mammals of the Carolinas, Virginia, and Maryland. The University of North Carolina Press, Chapel Hill, NC. 255 pp.

APPENDIX A

North Carolina Division of Water Quality Stream Identification Forms and U.S. Army Corps of Engineers Stream Quality Assessment Worksheets

USACE AID#_____ DWQ #_____ Site #____ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET

Provide the following information for the stream reach under assessment:

1. Applicant's name: NC DOT
2. Evaluator's name: Era Science
3. Date of evaluation: 2/2/06
4. Time of evaluation: 9AM
5. Name of stream: Little Long Creek
6. River basin: Catawba
7. Approximate drainage area: 86 Acres
8. Stream order: 3rd
9. Length of reach evaluated: 50'
10. County: Gaston
11. Site coordinates (if known): _____
12. Subdivision name (if any): _____
13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location): S side of SR 1800
14. Proposed channel work (if any): N/A
15. Recent weather conditions: Cold / clear
16. Site conditions at time of visit: Cold / clear
17. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
18. Is there a pond or lake located upstream of the evaluation point? (YES) NO If yes, estimate the water surface area: 2.4Ac
19. Does channel appear on USGS quad map? (YES) NO
20. Does channel appear on USDA Soil Survey? (YES) NO
21. Estimated watershed land use: ___% Residential ___% Commercial ___% Industrial 50% Agricultural 50% Forested ___% Cleared / Logged ___% Other (_____)
22. Bankfull width: 12'
23. Bank height (from bed to top of bank): 5'
24. Channel slope down center of stream: ___Flat (0 to 2%) (Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
25. Channel sinuosity: ____Straight ___Occasional bends (Frequent meander ___Very sinuous ___Braided channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 64 Comments: _____

Evaluator's Signature Justin Wright Date 11/2/06

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	4
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	4
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	2
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	3
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	2
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	3
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	2
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	3
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	2
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	3
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	5
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	4
	15	**Impact by agriculture, livestock, or timber production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	3
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	3
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	2
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	4
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	**Presence of stream invertebrates** (see page 4) (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	3
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	2
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	2
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	5
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on first page)				64

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date: Feb 8, 2006	Project: 05-262	Latitude:
Evaluator: EcoScience	Site: B-4519	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* 31	County: Gaston	Other *e.g. Quad Name:*

A. Geomorphology (Subtotal = 14)	Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	0	1	2	(3)
2. Sinuosity	0	1	(2)	3
3. In-channel structure: riffle-pool sequence	0	(1)	2	3
4. Soil texture or stream substrate sorting	0	1	(2)	3
5. Active/relic floodplain	0	(1)	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Braided channel	(0)	1	2	3
8. Recent alluvial deposits	(0)	1	2	3
9[a] Natural levees	(0)	1	2	3
10. Headcuts	(0)	1	2	3
11. Grade controls	0	(0.5)	1	1.5
12. Natural valley or drainageway	0	0.5	1	(1.5)
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	No = 0		(Yes = 3)	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7)				
14. Groundwater flow/discharge	0	(1)	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel – dry or growing season	0	1	2	(3)
16. Leaflitter	(1.5)	1	0.5	0
17. Sediment on plants or debris	(0)	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	(0)	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	No = 0		(Yes = 1.5)	

C. Biology (Subtotal = 10)				
20[b]. Fibrous roots in channel	(3)	2	1	0
21[b]. Rooted plants in channel	(3)	2	1	0
22. Crayfish	0	0.5	(1)	1.5
23. Bivalves	(0)	1	2	3
24. Fish	0	0.5	(1)	1.5
25. Amphibians	0	0.5	(1)	1.5
26. Macrobenthos (note diversity and abundance)	0	0.5	(1)	1.5
27. Filamentous algae; periphyton	(0)	0.5	1	1.5
28. Iron oxidizing bacteria/fungus.	(0)	0.5	1	1.5
29[b]. Wetland plants in streambed	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; (Other = 0)			

[b] Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Sketch: