

## MINIMUM CRITERIA DETERMINATION CHECKLIST

TIP Project No.	<u>B-4777</u>
W.B.S. No.	<u>38548.1.2</u>
State Project No.	<u>BRSTP-0251(37)</u>

### Project Location

Bridge Nos. 8 & 9 on NC 251 (River Road) over Ivy River in Madison County.

### Project Description

The purpose of the project is to replace Madison County Bridge Nos. 8 and 9 on NC 251 (River Road) over the Ivy River. The proposed project is included in the 2016-2025 North Carolina State Transportation Improvement Program (STIP) with right-of-way acquisition scheduled for Fiscal Year (FY) 2017 and construction scheduled for FY 2018.

Bridge No. 8 is a five-span structure extending a total length of 238 feet. Originally built in 1939, it has reinforced concrete deck girders with reinforced concrete post and web piers. Three of the four bents are located in the Ivy River. The existing clear roadway width between bridge rails is 31 feet, of which only 15 feet are currently being used to carry a single lane of traffic. The current load posting for this bridge is 32 tons for single vehicles and 36 tons for dual axle trucks and tractor trailers.

Bridge No. 9 is also a five-span structure and extends a total length of 237 feet. Originally built in 1957, it has reinforced concrete deck girders on reinforced concrete posts and beams. Two of its bents are located in the Ivy River. The existing clear roadway width between bridge rails is 28 feet, of which only 18 feet are currently being used to carry a single lane of traffic. No load posting is required for Bridge No. 9. See Figure 1 in the Appendix for the location of Bridges No. 8 and No. 9.

River Road in the vicinity of Bridge Nos. 8 & 9 is a four-lane divided facility with a grass median and grass shoulders. There are currently two lanes of traffic in both directions – north and south – each with two 14-foot lanes and a total pavement width of 22 feet. There are median crossovers at both ends of the bridges – for Ivy River Road (US 70/25 Business) to the north, and for Ivy Hill Road to the south. The existing roadway grade is in a horizontal curve to the west, with both bridges constructed at a 120-degree skew to the roadway. NCDOT reported a traffic volume of 1,100 vehicles per day (vpd) on NC 251 (River Road) in 2013 that is expected to increase to 1,400 vpd by the year 2040. The posted speed limit in the project area is 45 miles per hour.

Bridge Nos. 8 & 9 will be replaced by a single two-lane structure, which will sufficiently serve existing and forecasted traffic volumes and reduce total project cost. The replacement structure will be a bridge approximately 240 feet long. The bridge will include two 12-foot travel lanes and a minimum 4-foot offset on each side to accommodate bicycles. The bridge length is based on preliminary design information and is set by hydraulic requirements. Elevation of the replacement bridge will be approximately the same as the existing bridges.

Replacement of the existing dual bridges with a single bridge will require realignment of the existing roadway approaches for a total distance of 0.40 mile. The new approach roadway will include two 12-foot travel lanes and 6-foot paved shoulders. Six-foot grass shoulders will be provided on each side. The roadway will be designed as a Rural Collector using Statewide Tier

Guidelines with a 55 mile per hour design speed. Preliminary design figures are included in the Appendix.

### **Purpose and Need**

The purpose of the proposed project is to replace structurally deficient bridges. NCDOT Bridge Management Unit records dated 6/12/2012 indicate Bridge No. 8 has a sufficiency rating of 2 out of a possible 100 for a new structure. It is considered structurally deficient due to the serious condition of deck and superstructure components that show signs of advanced deterioration. NCDOT Bridge Management records dated 6/21/2012 indicate Bridge No. 9 has a sufficiency rating of 45.09 out of a possible 100 for a new structure. It is considered structurally deficient due to progressive deterioration of the superstructure components that show efflorescence staining, cracking and spalling in various places. The poor condition of deck and substructure components, which are cracking and showing other signs of progressive deterioration, is also a contributing factor in the structural deficiency of Bridge No. 9.

### **Anticipated Permit or Consultation Requirements**

A Nationwide Permit 23 (33 CFR 330.5(a) 23) will likely be required for impacts to “Waters of the United States” resulting from this project. Other permits that may apply include a NWP No. 33 for temporary construction activities such as stream dewatering, work bridges, or temporary causeways that are often used during bridge demolition.

If a Section 404 (US Clean Water Act) permit is required, then a Section 401 Water Quality Certification (WQC) from the NC Department of Environmental Quality, Division of Water Resources will be needed. Other required 401 certifications may include a GC 3366 for temporary construction access and dewatering. The US Army Corps of Engineers (USACE) holds the final discretion as to what permit will be required to authorize construction activities.

The proposed project is located in the Tennessee Valley Authority’s (TVA) Land Management District. The project will require approval under Section 26a of the TVA Act.

### **Special Project Information:**

#### **Special Project Commitments**

Greensheet Commitments are located at the end of the checklist.

#### **Estimated Costs**

The total project cost included in the 2016-2025 STIP is \$5,161,000. Of this total, \$460,000 is programmed for right of way acquisition and \$4,600,000 is programmed for construction. The current preliminary cost estimate for the project (dated April 18, 2017) is \$2,850,000.

#### **Estimated Traffic**

Current (2013)	1,100 vpd
Year 2040	1,400 vpd
TTST	1%
Dual	5%

#### **Pedestrian and Bicycle Accommodations**

Bridge Nos. 8 & 9 are located on a designated bicycle route. As a result, an offset of 4-6 feet and a minimum handrail height of 54 inches will be included in the design. No temporary bicycle or pedestrian accommodations are required for this project.

**Alternatives Considered:**

**No Build** – The No Build alternative would result in eventually closing the road which is unacceptable given the traffic service provided by NC 251.

**Rehabilitation** – Rehabilitation of Bridge Nos. 8 & 9 is not practical due to the age and extent of deterioration in multiple components of each bridge deck, superstructure and substructure. Rehabilitation efforts would be inefficient, ineffective and costly beyond reasonable limits.

**Replace-in-Place with Offsite Detour** – An offsite detour for traffic during construction is not necessary for this project. Since dual structures are being replaced with a single structure, one of the two existing structures can be used for maintaining traffic on site during construction, thus eliminating any need to detour traffic during construction.

**Replace-in-Place with On Site Detour** – Bridge Nos. 8 & 9 will be replaced on the existing alignment of Bridge No. 8 with traffic detoured on site via Bridge No. 9 during construction.

**Resource Agency Involvement:**

**US Fish & Wildlife Service (USFWS)**

The following project-specific comments were received from USFWS in a letter dated December 20, 2012, which is included in the Appendix:

*A full list of federally endangered and threatened species and federal species of concern with known occurrence in Madison County is available on the USFWS website at (<http://www.fws.gov/nc-es/es/countyfr.html>). A review of available information indicates that the Ivy River is home to the mountain blotched chub (*Erimystax insignis eristigma*), a federal species of concern. There are also records of the common mudpuppy (*Necturus maculosus*), a North Carolina species of concern. The project is also in close proximity to the French Broad River, which is home to several species of concern as well as additional state-listed species. We recommend close adherence to best management practices for erosion control and minimization of in-water work and bank disturbance to minimize effects to the in-water habitat around the project area.*

*Due to the large size of the existing structure and its close proximity to prime bat feeding habitat, it is recommended that an inspection of the bridge be carried out to determine if bats are actively using the structure. If there are signs of bat usage, we request that you consult (USFWS) regarding measures to reduce the effects to bat populations.*

**Response:** NCDOT's *Best Management Practices for Protection of Surface Waters* (March 1997) will be followed throughout the design and construction of the project. Bat surveys were completed in June 2013 and February 2016. On both occasions, evidence of use by Northern Long Eared Bats (NLEB) and Gray Bats (MYGR) was observed on both bridges. Presence of the NLEB was observed on Bridge No. 9 during the 2013 survey. A memorandum dated July 28, 2016 summarizing Section 7 survey results for the NLEB and MYGR associated with the proposed project B-4777 as well as the USFWS Section 7 Concurrence Request is included in the Appendix.

**NC Wildlife Resources Commission (NCWRC)**

The following project-specific comments were received from NCWRC in a letter dated July 30, 2013, which is included in the Appendix:

*We do not expect reproducing trout resources downstream of the project and, therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.*

**Response:** NCDOT’s *Best Management Practices for Protection of Surface Waters* (March 1997) will be followed throughout the design and construction of the project.

**US Environmental Protection Agency (USEPA)**

The following project-specific comments were received from USEPA via email received December 14, 2012, which is included in the Appendix:

*EPA notes the split multi-lane highway bridges along Ivy River and the additional access roads at the curve in the river. EPA notes the expanded ROW required for the current design and the proximity to the banks of the river and within the floodplain. EPA requests that NCDOT consider design options that reduce the potential for roadway facilities being located so close to the river banks and within the floodplain.*

**Response:** The replacement structure is proposed to be located along the existing alignment of Bridge No. 8, the easternmost structure. Roadway approaches will be realigned, increasing the distance between roadway facilities and the French Broad River banks. Distance between roadway facilities and the Ivy River banks will remain approximately the same. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The project is not anticipated to increase the level or extent of upstream flood potential.

**PART A: MINIMUM CRITERIA**

- |  | YES                                 | NO                                  |
|--|-------------------------------------|-------------------------------------|
| 1. Will the proposed project involve land disturbing activity of more than ten acres that will result in substantial, permanent changes in the natural cover or topography of those lands? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 2. Will the proposed project require the expenditure of more than ten million dollars in public funds?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 3. Is the proposed project listed as a type and class of activity which would qualify as a Non-Major Action under the Minimum Criteria rules?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

If “yes”, under which category?

Category #9

(Note: If either Category #8 or #15 is used, complete Part D of this checklist.)

If “yes” is selected for either Question 1 or 2 and “no” is selected for Question 3, then the project does not qualify as a Non-Major Action. A state environmental impact statement (SEIS) or state environmental assessment (SEA) will be required.

**PART B: MINIMUM CRITERIA EXCEPTIONS**

- |  | YES                      | NO                                  |
|--|--------------------------|-------------------------------------|
| 4. Does the proposed activity have a significant adverse effect on wetlands; surface waters such as rivers, streams, and estuaries; parklands; prime or unique agricultural lands; or areas of recognized scenic, recreational, archaeological, or historical value? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- |     |   |                          |                                     |
|-----|---|--------------------------|-------------------------------------|
| 5.  | Will the proposed activity endanger the existence of a species on the Department of Interior’s threatened and endangered species list?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6.  | Would the proposed activity cause significant changes in land use concentrations that would be expected to create adverse air quality impacts?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7.  | Would the proposed activity cause significant changes in land use concentrations that would be expected to create adverse water quality or groundwater impacts?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8.  | Is the proposed activity expected to have a significant adverse effect on long-term recreational benefits?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9.  | Is the proposed activity expected to have a significant adverse effect on shellfish, finfish, wildlife, or their natural habitats?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. | Will the proposed activity have secondary impacts or cumulative impacts that may result in a significant adverse impact to human health or the environment?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. | Is the proposed activity of such an unusual nature or does the proposed activity have such widespread implications, that an uncommon concern for its environmental effects has been expressed to NCDOT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Note: If any of Questions 4 through 11 in part B are answered “YES”, the proposed project does not qualify as a Non-Major Action. A SEIS or SEA will be required.

**PART C: COMPLIANCE WITH STATE AND FEDERAL REGULATIONS**

- |                           | YES  | NO                                  |                                     |
|---------------------------|--|-------------------------------------|-------------------------------------|
| <b>Ecological Impacts</b> |  |                                     |                                     |
| 12.                       | Is a federally protected threatened or endangered species, or its habitat, likely to be impacted by the proposed action?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 13.                       | Does the action require the placement of fill in waters of the United States?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 14.                       | Does the project require the placement of a significant amount of fill in high quality or relatively rare wetland ecosystems, such as mountain bogs or pine savannahs? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 15.                       | Does the project require stream relocation or channel changes?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 16.                       | Is the proposed action located in an Area of Environmental Concern, as defined in the Coastal Area Management Act?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| <b>Cultural Resources</b> |  |                                     |                                     |
| 17.                       | Will the project have an “effect” on a property or site listed on the National Register of Historic Places?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

18. Will the proposed action require acquisition of additional right of way from publicly owned parkland or recreational areas?

Question 12:

**Gray bat (MYGR):** During an inspection by Calyx Engineers and Consultants on February 1, 2016, evidence of bats was observed on Bridges 8 and 9. Multiple guano pellets were located on the beams and end walls of both bridges where they span dry ground on the north side of the Ivy River. These areas did not show any staining from body oils or urine, so it is presumed that they are used as temporary night roosts by some species of bat. MYGR roost almost exclusively in caves, and no caves or mines were observed during the field visit in the project footprint. However, in July 2016, a population of MYGR was found roosting in a bridge in Buncombe County, so suitable summer habitat now does exist within the project area. MYGR have been captured infrequently in Transylvania, Buncombe, and Haywood Counties, but had not been documented roosting or hibernating in North Carolina yet. Because there was evidence of bats using the bridge, the possibility that MYGR was using it as a summer roost cannot be ruled out. Therefore, NCDOT has requested a biological conclusion of *May Affect, Not Likely to Adversely Affect* for the MYGR.

**Northern Long Eared Bat (NLEB):** Bridge No. 9 is a documented NLEB temporary roosting location, where the arrival and roosting of a NLEB was observed in May of 2013. An inspection was performed by Calyx Engineers and Consultants on February 1, 2016. Based on the evidence of bat use during the bridge inspection and the presence of this species in 2013, NCDOT has requested a biological conclusion of *May Affect, Not Likely to Adversely Affect* for the NLEB.

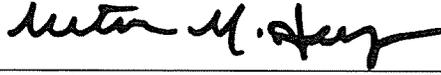
A Section 7 Concurrence Request has been submitted to USFWS, including Section 7 survey results for the NLEB and MYGR. A copy of the request and survey results is included in the Appendix. Until USFWS responds to the Concurrence Request, the biological conclusion for both protected bat species is Unresolved. Upon response by USFWS, there may be additional project commitments that result.

Question 13: The new bridge will require the replacement of bents in the water and rip-rap on end slopes. This work is considered placement of fill in Waters of the US. No impacts to jurisdictional wetlands are expected as a result of the project.

Prepared by:

5/1/2017

Date



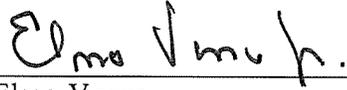
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Martha Hodge, AICP  
Consultant Project Manager  
CALYX Engineers and Consultants

Reviewed by:

5/1/2017

Date



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Elmo Vance  
Project Planning Engineer  
Project Development & Environmental Analysis Unit

5.1.17

Date



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Brian Yamamoto, PE  
Project Engineer  
Project Development & Environmental Analysis Unit

## **PROJECT COMMITMENTS**

**Madison County  
Bridge Nos. 8 & 9 on NC 251 (River Road)  
Over Ivy River  
STIP No. B-4777  
W.B.S. No. 38548.1.2  
State Project No. BRSTP-0251(37)**

### **Project Development and Environmental Analysis Unit**

A Section 7 Concurrence Request has been submitted to USFWS, including Section 7 survey results for the Northern Long Eared Bat and Gray Bat. Until USFWS responds to the Concurrence Request, the biological conclusion for both protected bat species is Unresolved. Upon response by USFWS, there may be additional project commitments that result. Additional coordination with the US Fish and Wildlife Service regarding the project's potential effects on endangered species will be conducted prior to submitting the Section 404 permit application to the US Army Corps of Engineers.

### **Division 13 Construction – FEMA**

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.

### **Hydraulic Unit – FEMA Coordination**

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

### **Roadway Design/ Structure Design – Bicycle Facilities**

Bicycle Accommodations will be provided on both sides of the proposed bridge. The bridge will be fitted with rails that are appropriate for bicycles.

### **Structure Design – TVA Permit**

The proposed project is located in the Tennessee Valley Authority's (TVA) Land Management District. The project will require approval under Section 26a of the TVA Act.

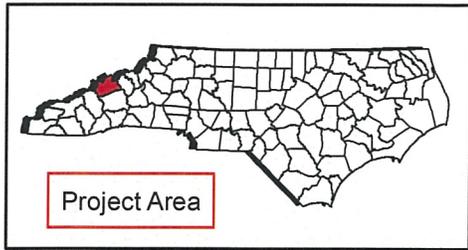
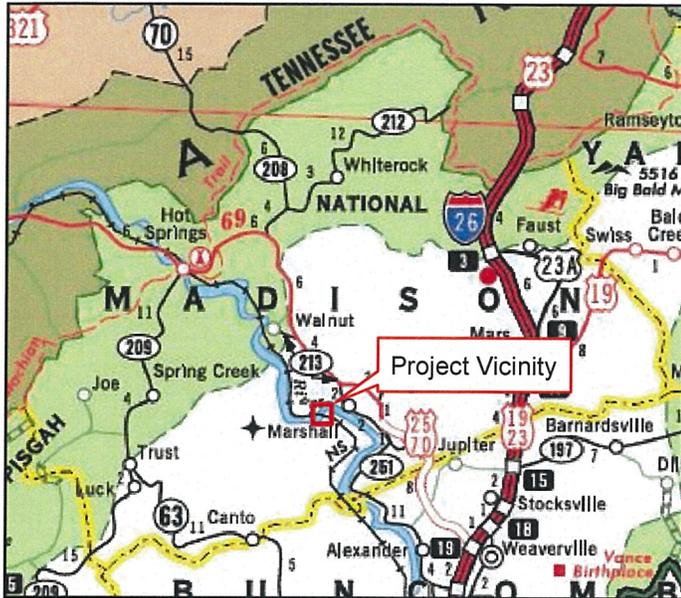


Figure 1

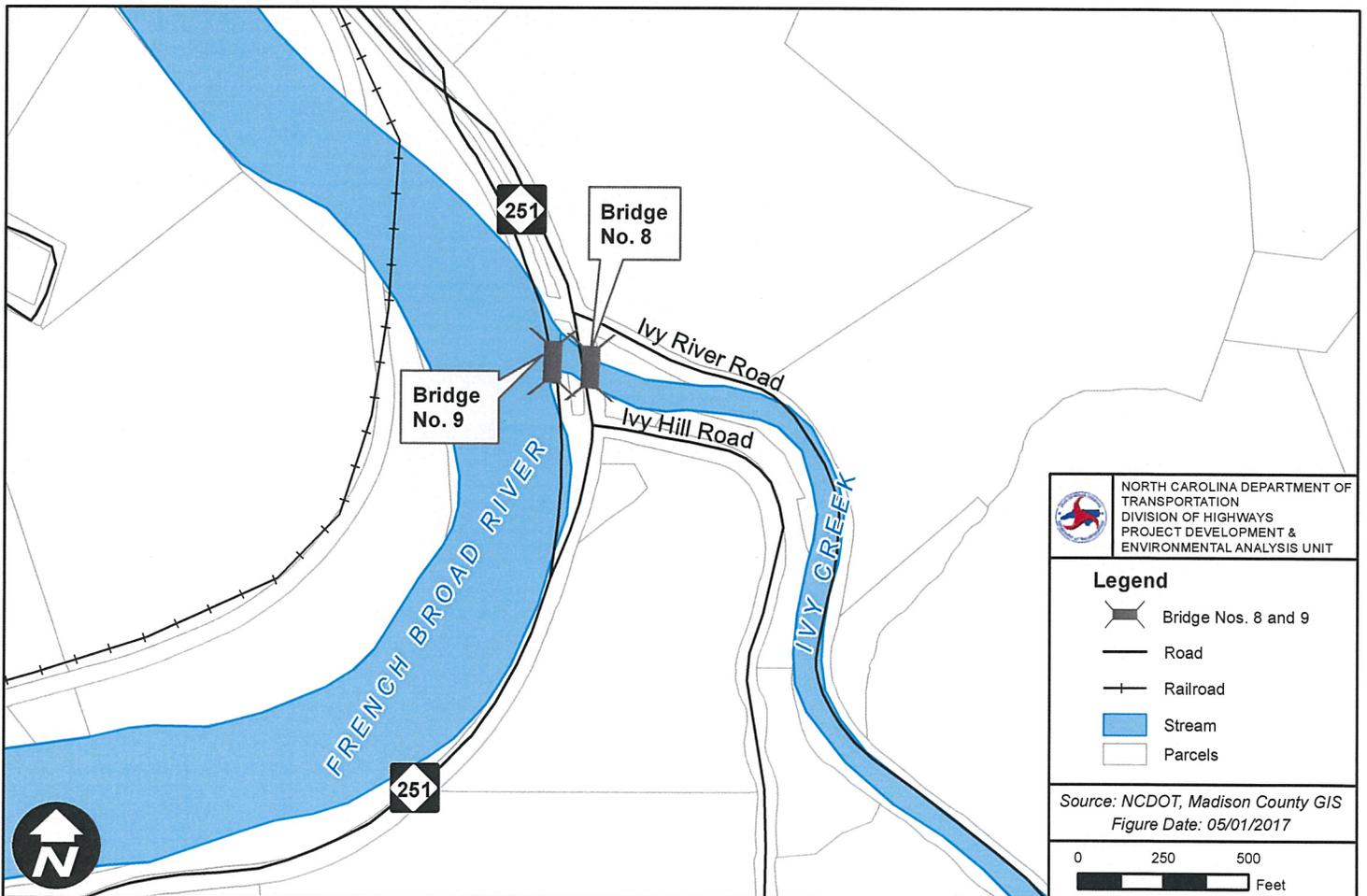
**Project Vicinity**

Replace Bridge Nos 8 and 9  
on NC 251 over Ivy River  
STIP B-4777

Madison County, North Carolina



North Carolina  
Department of Transportation





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

MADISON COUNTY  
REPLACE BRIDGE NO. 8  
ON NC 251 OVER IVY RIVER  
B-4777

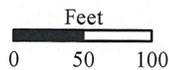
1" = 200'



**CAROLINA ECOSYSTEMS**

3040 NC 42 West, Clayton NC, 27520  
 P:(919)-606-9145 F:(919)-585-5570

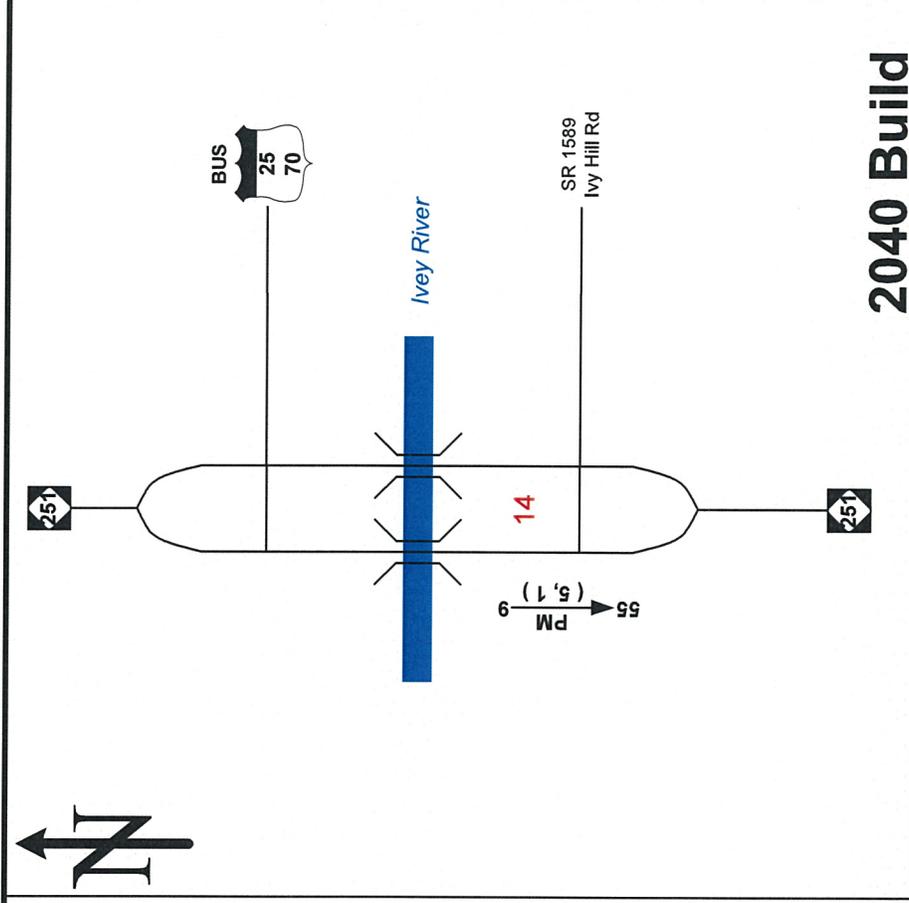
April 2013



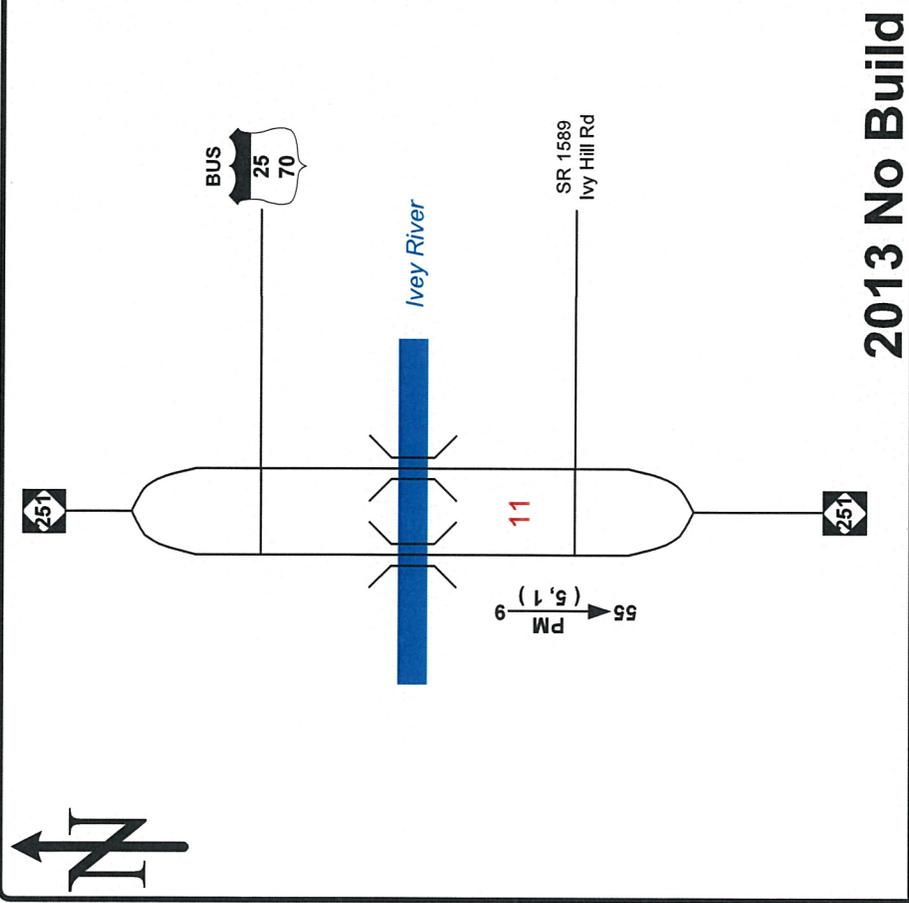
-  Study Area
-  Streams
-  Maintained/Disturbed
-  Chestnut-Oak Forest
-  Montane Alluvial Forest

**Figure 3: Jurisdictional Features and Terrestrial Communities Map**

**B-4777**  
**Bridge Nos. 8 and No. 9 on**  
**NC 251 over Ivy Creek**  
**Madison County, NC**



### 2013 No Build



### 2040 Build

# 2013/2040

AVERAGE ANNUAL DAILY TRAFFIC

SHEET 1 OF 1

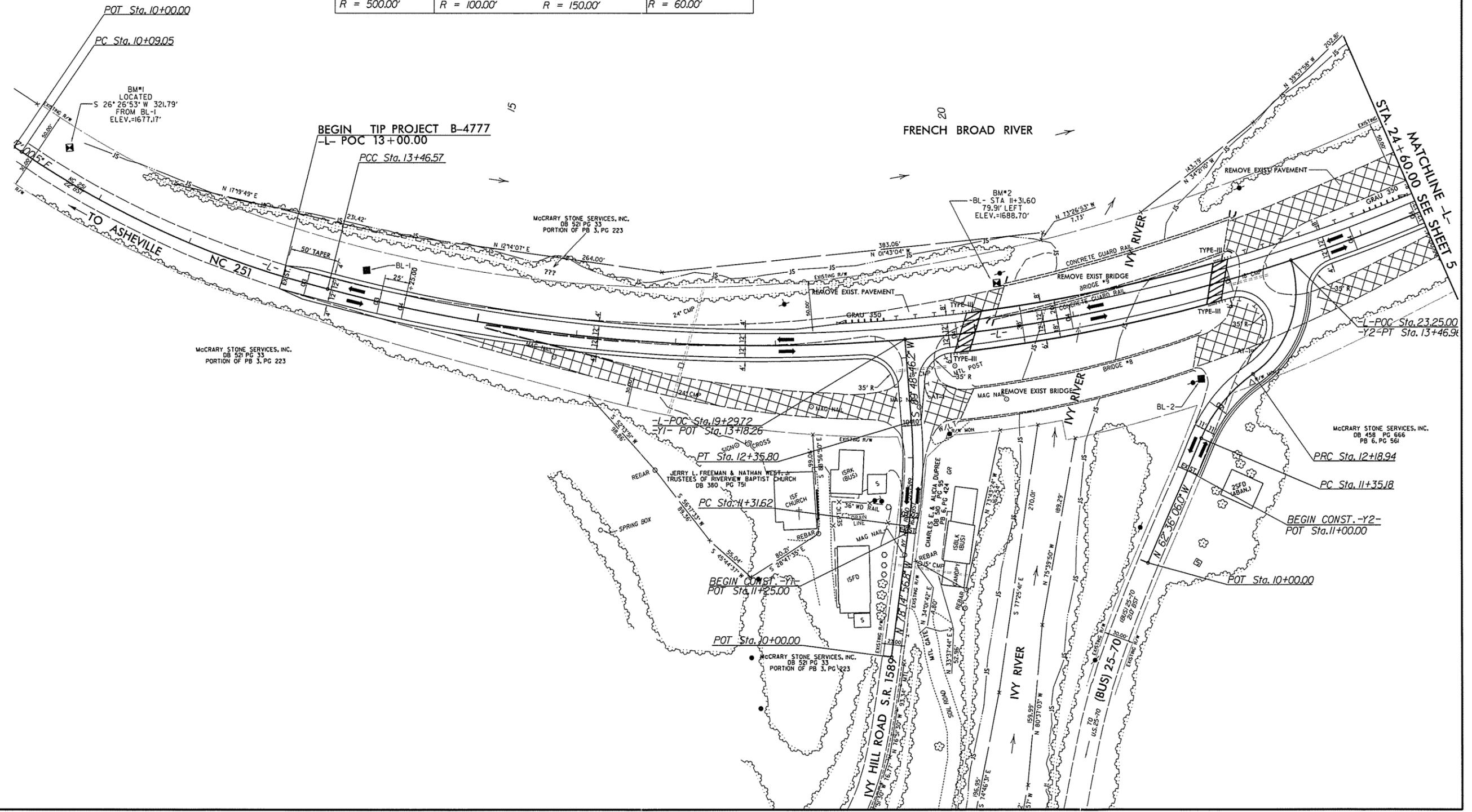
<b>TIP:</b> B-4777	<b>WBS:</b> 38548.1.1
<b>COUNTY:</b> Madison	<b>DIVISION:</b> 13
<b>DATE:</b> 03-26-2013	
<b>PREPARED BY:</b> Michael Orr/Bryan Johnson	
<b>LOCATION:</b> NC 251 south of US 25/70 Bus	
<b>PROJECT:</b> Replace Bridges 8 & 9 over Ivey River	

**LEGEND**

- ###** No. of Vehicles Per Day in 100s
- 1-** Less than 50 vpd
- X** Movement Prohibited
- K** Design Hour Factor (%)
- PM** PM Peak Period
- D** Peak Hour Directional Split (%)
- Indicates Direction of D
- (d, t)** Duals, TT-S-Ts (%)

PROJECT REFERENCE NO. B-4777	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

-L-			
PI Sta 11+79.59	PI Sta 23+49.12		
$\Delta = 20^{\circ} 15' 02.9" (LT)$	$\Delta = 61^{\circ} 03' 32.6" (LT)$		
$D = 6^{\circ} 00' 00.0"$	$D = 3^{\circ} 22' 13.2"$		
$L = 337.51'$	$L = 1,811.66'$		
$T = 170.54'$	$T = 1,002.56'$		
$R = 954.93'$	$R = 1,700.00'$		
-Y1-      -Y2-      -Y3-			
PI Sta 11+83.90	PI Sta 12+93.41	PI Sta 11+78.18	PI Sta 10+73.38
$\Delta = 11^{\circ} 56' 17.0" (LT)$	$\Delta = 73^{\circ} 20' 51.2" (LT)$	$\Delta = 31^{\circ} 59' 45.3" (RT)$	$\Delta = 84^{\circ} 33' 53.9" (RT)$
$D = 11^{\circ} 27' 33.0"$	$D = 57^{\circ} 17' 44.8"$	$D = 38^{\circ} 11' 49.9"$	$D = 95^{\circ} 29' 34.7"$
$L = 104.18'$	$L = 128.02'$	$L = 83.77'$	$L = 88.56'$
$T = 52.28'$	$T = 74.47'$	$T = 43.01'$	$T = 54.56'$
$R = 500.00'$	$R = 100.00'$	$R = 150.00'$	$R = 60.00'$



REVISIONS

8/17/99  
4/10/2017  
C:\Users\jacob\OneDrive\Documents\2017-03-08\_B-4777\IstocCol\B4777\_Rdy\_psh4.dgn  
McCRARY STONE SERVICES, INC.  
DB 52 PG 33  
PORTION OF PB 3, PG 223  
McCRARY STONE SERVICES, INC.  
DB 45 PG 666  
PB 6, PG 561  
McCRARY STONE SERVICES, INC.  
DB 52 PG 33  
PORTION OF PB 3, PG 223

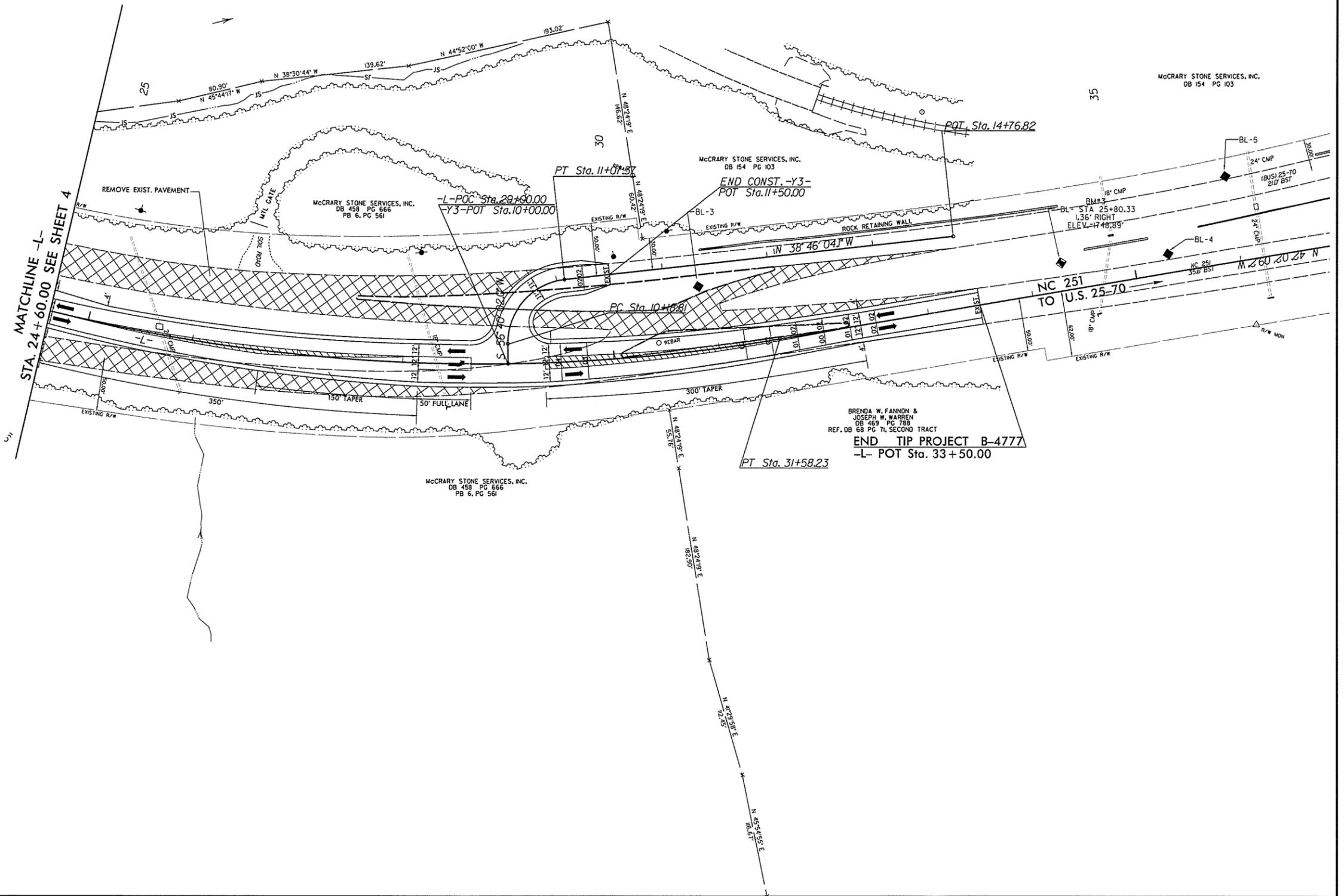
MATCHLINE - L-  
STA. 24+60.00 SEE SHEET 5

8/17/99

4/10/2017  
C:\p\proj\2017\0333.01\F0\INCOMING\NCD01\2017-03-08\_B-4777\F\1\estocob\lux\B4777\_Rdy\_psh5.dgn

REVISIONS

PROJECT REFERENCE NO. B-4777	SHEET NO. 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



McCRARY STONE SERVICES, INC.  
DB 154 PG 103

McCRARY STONE SERVICES, INC.  
DB 458 PG 666  
PB 6, PG 561

McCRARY STONE SERVICES, INC.  
DB 154 PG 103

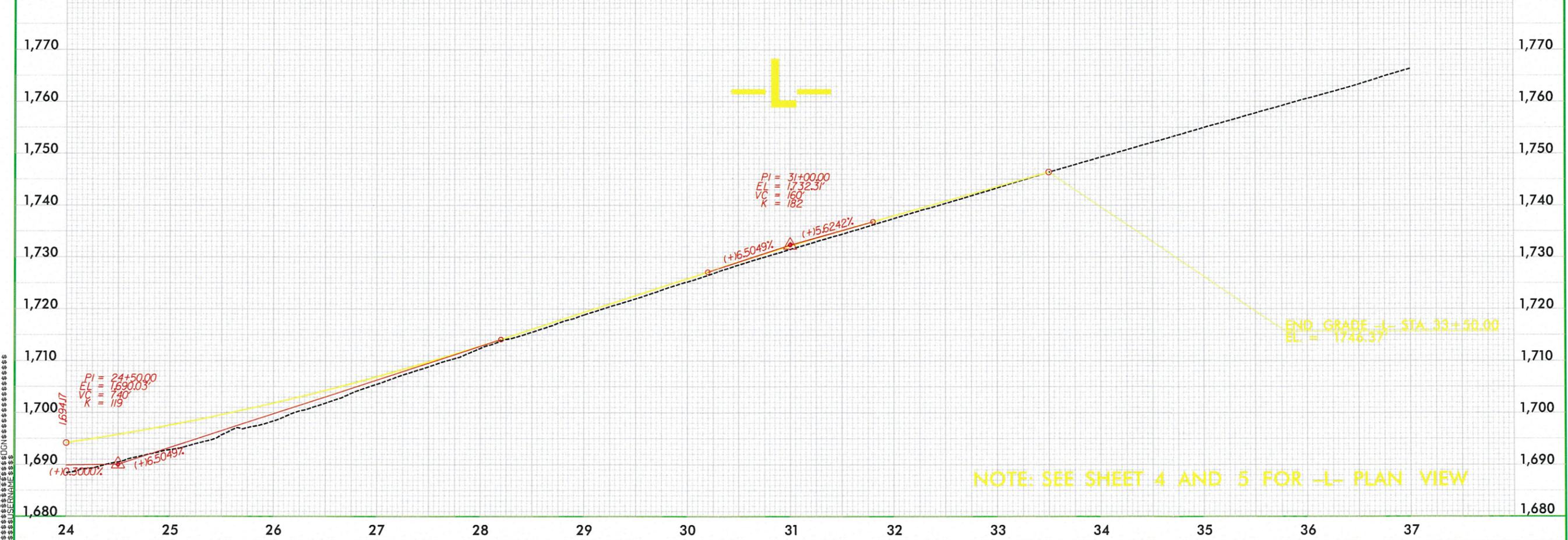
McCRARY STONE SERVICES, INC.  
DB 458 PG 666  
PB 6, PG 561

BRENDA W. FANNON &  
JOSEPH W. WARREN  
DB 469 PG 788  
REF. DB 68 PG 71, SECOND TRACT

**END TIP PROJECT B-4777**  
-L- POT Sta. 33 + 50.00

5/28/99

PROJECT REFERENCE NO. B-4777	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



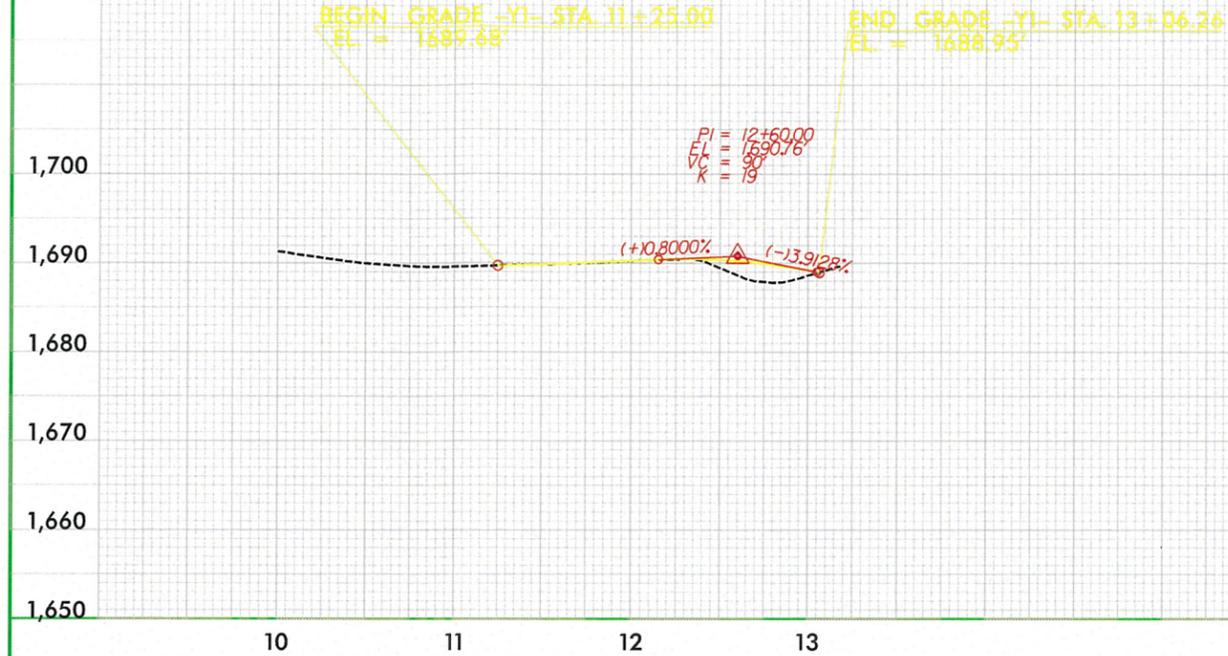
NOTE: SEE SHEET 4 AND 5 FOR -L- PLAN VIEW

SYSTEMS ENGINEERING  
CONSULTANTS  
INCORPORATED

5/28/99

PROJECT REFERENCE NO. B-4777	SHEET NO. 7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

# -Y1-

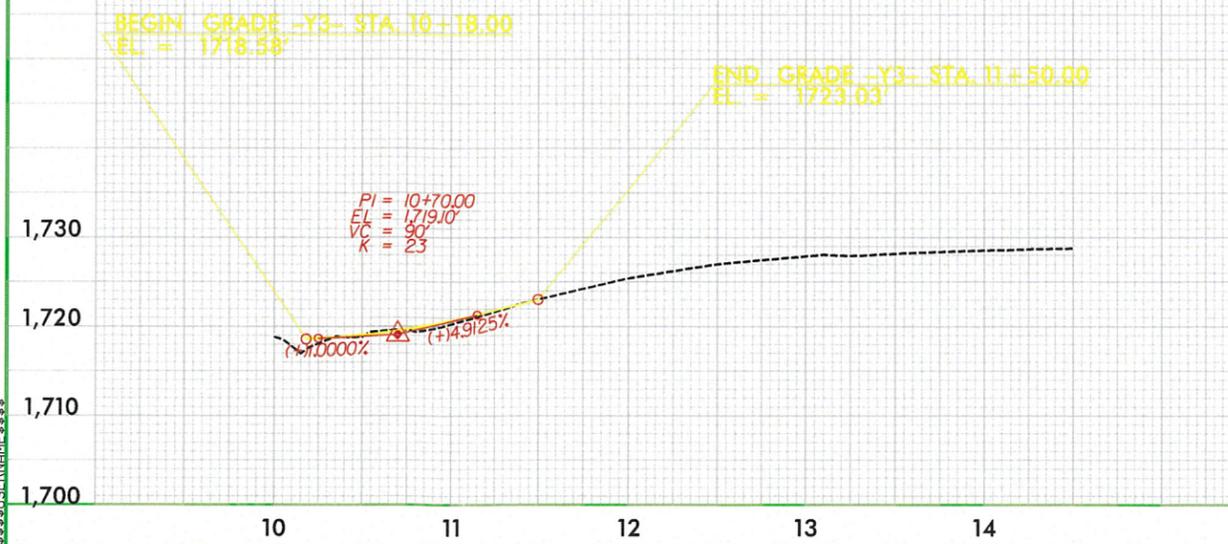


# -Y2-



NOTE: SEE SHEET 4 FOR -Y1- AND -Y2- PLAN VIEW

# -Y3-



NOTE: SEE SHEET 5 FOR -Y3- PLAN VIEW

SYSTEMS DESIGN CONSULTANTS



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

April 28, 2017

Ms. Janet A. Mizzi  
Field Supervisor  
US Fish and Wildlife Service  
160 Zillicoa Street  
Asheville, NC 28801

Subject: **Section 7 Concurrence Request** for the Proposed Replacement of Bridge Nos. 8 and 9 on NC 251 (Old Marshall Highway) over Ivy Creek, Madison County, Division 13, WBS No. 38548.1.2; Federal Aid Project No. BRSTP-0251(35); TIP B-4777

Reference: Section 7 survey results for the NLEB and Gray Bat Memo, dated July 18, 2016

Dear Ms. Mizzi,

The purpose of this letter is to request concurrence from the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 et seq.) (ESA). The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge Nos. 8 and 9 over Ivy Creek on NC 251 (Old Marshall Highway) in Madison County.

As of July 24, 2015, the USFWS lists two federally protected species for Madison County (Table 1).

**Table 1 – Federally protected species listed for Madison County**

Scientific Name	Common Name	Federal Status*	Habitat Present	Biological Conclusion
<i>Myotis grisescens</i>	Gray bat	E	Yes	MANLAA
<i>Myotis septentrionalis</i>	Northern long-eared bat	T	Yes	MANLAA

\* T – Threatened, E – Endangered  
MANLAA – May Affect, Not Likely to Adversely Affect

Summary of Species with Habitat:

**Gray bat (MYGR)** – Calyx Engineers and Consultants assessed the project footprint for potential MYGR habitat on February 1, 2016, and evidence of bats was observed on both bridges. Multiple guano pellets were located on the beams and end walls of both bridges where they span dry ground on the north side of the Ivy River. These areas did not show any staining from body oils or urine, so it is presumed that they are used as temporary night roosts by some species of bat. MYGR roost almost exclusively in caves, and no

Mailing Address:  
NC DEPARTMENT OF TRANSPORTATION  
NATURAL ENVIRONMENT SECTION  
1598 MAIL SERVICE CENTER  
RALEIGH NC 27699-1598

Telephone: (919) 707-6000  
Fax: (919) 212-5785  
Customer Service: 1-877-368-4968  
Website: www.ncdot.gov

Location:  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610

caves or mines were observed during the field visit in the project footprint. However, in July 2016, a population of MYGR was found roosting in a bridge in Buncombe County so suitable summer habitat now does exist within the project area. MYGR have been captured infrequently in Transylvania, Buncombe, and Haywood Counties during summer mist net surveys, but had not been documented roosting or hibernating in NC yet. Because there was evidence of bats using the bridge, the possibility that MYGR was using it as a summer roost cannot be ruled out. Based on this information, the proposed project has a biological conclusion of *May Affect, Not Likely to Adversely Affect* for MYGR.

BIOLOGICAL CONCLUSION: *May Affect, Not Likely to Adversely Affect*

**Northern long-eared bat (NLEB)** – Bridge number 9 is a documented NLEB temporary roosting location (EO 34669), where the arrival and roosting of an NLEB was observed by biologist Chris McGrath on May 23-24, 2013 (see attached Memo). As noted in the MYGR section, an inspection on February 1, 2016, identified evidence of bats on both bridges. Based on the evidence of bat use during the bridge inspection and the presence of this species in 2013, the proposed project will have a biological conclusion of *May Affect, Not Likely to Adversely Affect* for NLEB.

BIOLOGICAL CONCLUSION: *May Affect, Not Likely to Adversely Affect*

### Proposed Project Commitments

In order to reduce potential effects on bats, NCDOT proposed the following Avoidance and Minimization measures:

- Perform any bridge removal during the winter hibernation period, outside of the “active period” (removal will occur from November 1 – March 30 of any given year).
- Perform a survey of the existing bridge prior to construction in any given year to ensure federally listed bats are not present.

Based on the information presented and in the included attachment, the project has a biological conclusion of *May Affect, Not Likely to Adversely Affect* for the northern long-eared bat and the MYGR. NCDOT believes that the requirements of Section 7(a)(2) of the ESA have been satisfied and hereby request your concurrence. If you have any questions, please contact Bill Barrett at [wabarrett@ncdot.gov](mailto:wabarrett@ncdot.gov) or (919) 707-6103.

Sincerely,



 Phillip S, Harris, P.E., C.P.M.  
Natural Environment Section Head

Enclosure: Section 7 survey results for the NLEB and Gray bat Memo, dated July 18, 2016

Cc:

Ms. Lori Beckwith, USACE  
Ms. Kathy Herring, NCDOT – NES  
Mr. Jared Gray, NCDOT – NES  
Ms. Marella Buncick, USFWS  
Mr. Elmo Vance, NCDOT – PDEA  
Mr. Roger Bryan, NCDOT – Division 13



PAT McCrory  
Governor

NICHOLAS J. TENNYSON  
Secretary

July 28, 2016

TO: Bill Barrett, Environmental Senior Specialist  
Environmental Coordination & Permitting Group Western, NES - PDEA

CC: Elmo Vance, Project Development Engineer  
Project Development Group - Western Region, PDEA

FROM: Cheryl Gregory, Environmental Program Consultant   
Biological Surveys Group, NES - PDEA

SUBJECT: Section 7 survey results for the northern long-eared bat (*Myotis septentrionalis*) and Gray bat (*Myotis grisescens*) associated with the replacement of Bridges 8 and 9 over the Ivy River on NC 251 in Madison County, **TIP No. B-4777**.

The North Carolina Department of Transportation (NCDOT, Division 13) proposes to replace Bridge Nos. 8 and 9 over the Ivy River on NC 251 in Madison County. The existing bridges are both five span structures that consist of reinforced concrete deck girders, with concrete bents and abutments. The guardrail is also constructed of concrete. The overall length of bridges 8 and 9 is 238 feet and 239 feet, respectively. At this time, the proposed alternative involves the removal of the two bridges and replacing them with one bridge in between. In addition, the existing pavement in the approach roadway will be removed. The new bridge is anticipated to be constructed of concrete, pre-stressed girder.

#### Northern long-eared Bat

The project to replace Bridge Nos. 8 and 9 has been reviewed for effects on the northern long-eared bat (NLEB). As of May 4, 2015, NLEB is listed by the U.S. Fish and Wildlife Service (USFWS) as "Threatened" under the Endangered Species Act of 1973. As of July 14, 2016, NLEB is listed by USFWS as "current" in Madison County ([http://www.fws.gov/raleigh/species/cntylist/nc\\_counties.html](http://www.fws.gov/raleigh/species/cntylist/nc_counties.html)). NCDOT has also reviewed the USFWS Asheville Field office website for consistency with NHP records ([http://www.fws.gov/asheville/htmls/project\\_review/NLEB\\_in\\_WNC.html](http://www.fws.gov/asheville/htmls/project_review/NLEB_in_WNC.html)). This project is located entirely outside of the red highlighted areas (12-digit HUC) that the USFWS Asheville Field Office has determined to be representative of an area that may require consultation.

However, bridge number 9 is a documented NLEB temporary roosting location (EO 34669). EO 34669 represents Ivy Creek Bridge number 9 where on May 23-24, 2013, biologist Chris McGrath, observed the arrival and roosting of a NLEB. The record reads:



*One individual observed by McGrath using the western span as a roost site during the night between 23 and 24 May 2013: "a northern long-eared bat arrived and roosted long enough and close enough to allow identification before departing". The eastern span (Bridge number 8) had evidence of bat use but no confirmation of occupation by this species; westernmost span definitely showed more sign of frequent use, and has evidence of both day and night roosting.*

According to a survey in February 2016 by Calyx Engineers and Consultants, multiple guano pellets were located on the beams and end walls of both bridges where they span dry ground on the north side of the Ivy River. The bridges did not show any staining from body oils or urine, so it is presumed that they are used as temporary night roosts.

Based on the evidence of bat use during the bridge inspection and the presence of this species in 2013, the proposed project will have a biological conclusion of **May Affect, Not Likely to Adversely Affect** for NLEB. In order to reduce potential effects on bats, NCDOT proposes the following Avoidance and Minimizations Measures:

- Perform any bridge removal during the winter hibernation period, outside of the "active period" (removal will occur from November 1-March 30 of any given year).
- Perform a survey of the existing bridge prior to construction in any given year to ensure federally listed bats are not present.

#### Gray Bat

The project to replace Bridge Nos. 8 and 9 has also been reviewed for effects on the Gray bat (MYGR). As of April 28, 1976 the Gray bat was listed by the U.S. Fish and Wildlife Service (USFWS) as "Endangered" under the Endangered Species Act of 1973. As of July 14, 2016 the Gray bat is listed by USFWS as "current" in Madison County ([http://www.fws.gov/raleigh/species/cntylist/nc\\_counties.html](http://www.fws.gov/raleigh/species/cntylist/nc_counties.html)).

According to the North Carolina Natural Heritage Program (NHP) Biotics Database, most recently updated in January 2016, MYGR have not been documented in Madison County. NHP data indicate that the closest known occurrence of MYGR is approximately 16 miles south of the project site (EO ID 19104). EO ID 19104 represents McMahon residence site with a historical observation record from 1968. The next closest known occurrence of MYGR is approximately 20 miles south of the project site (EO ID 21803). EO ID 21803 represents the South Hominy site with a "rabies lab" record from 2001 and a mist net record from 2003.

Calyx Engineers and Consultants assessed the project footprint for potential MYGR habitat. B-4777 was inspected on February 1, 2016 and evidence of bats was observed on both bridges. Multiple guano pellets were located on the beams and end walls of both bridges where they span dry ground on the north side of the Ivy River. These areas did not show any staining from body oils or urine, so it is presumed that they are used as temporary night roosts by some species of bat. MYGR roost almost exclusively caves and no caves or mines were observed during the field visit in the project footprint. However, in July 2016, a population of MYGR has been found roosting in a bridge in Buncombe county so suitable

summer habitat now does exist within the project area. MYGR have been captured infrequently in Transylvania, Buncombe, and Haywood Counties during summer mist net surveys, but had not been documented roosting or hibernating in NC yet. Because there was evidence of bats using the bridge and now we cannot rule out the possibility that it was MYGR using it as a summer roost; the proposed project will have a biological conclusion of ***May Affect Not Likely to Adversely Affect*** for MYGR. No further AMMs (other than those listed above for NLEB) are proposed.

If you need any additional information, please contact Cheryl Gregory at 919-707-6142.



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Asheville Field Office  
160 Zillicoa Street  
Asheville, North Carolina 28801

December 20, 2012

Ms. Dionne C. Brown  
Bridge Project Planning Engineer  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

Dear Ms. Brown:

Subject: Information Request, State Transportation Improvement Project Numbers **B-4777**, B-4848, B-5400, B-5401, B-5170, B-5864, and B-5882

On December 12, 2012, we received your letter (via email) requesting information on the subject projects to aid in initial project evaluation. We submit the following comments and recommendations in accordance with the provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. §§1531-1543); the Fish and Wildlife Coordination Act, as amended (16 U.S.C. §§661-667e); the National Environmental Policy Act (42 U.S.C. §4321 et seq.); the Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§1536, 1538); Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d); and the Clean Water Act (33 U.S.C. §1251 et seq.).

**General Recommendations for Replacing Structures that Cross Rivers and Streams** - We generally recommend the use of clear-spanning bridge structures designed, at a minimum, to accommodate the active channel width. Use of culverts is discouraged. Properly sized spanning structures will provide for the passage of aquatic species and accommodate the movement of debris and bed material. Furthermore, spanning structures usually: (1) can be constructed with minimal in-stream impacts, (2) do not require stream-channel realignment, and (3) retain the natural streambed conditions; and the horizontal and vertical clearances may be designed to allow for human and wildlife passage beneath the structures. If possible, bridge supports (bents) should not be placed in the streams. Bents can collect debris during flood events, resulting in the scouring of bridge foundations. In-stream bents can also result in hydrologic changes, such as bedload scour or deposition, which may adversely affect in-stream habitat. Deck drains of the spanning structures should not discharge directly into the streams; instead, they should drain through a vegetated area before entering the streams. Removal of vegetation in riparian areas should be minimized. Armoring of the bank with riprap should be minimized. The reseeding of disturbed areas should be performed promptly after grading, and seed mixes should consist of

native vegetation in order to prevent the spread of invasive plant species. New structures should be constructed without the use of in-stream causeways or work pads whenever possible. When causeways are necessary, using the largest washed stone practicable for the application will prevent unnecessary damage to in-stream habitat and will facilitate complete removal. We recommend that all equipment be refueled and receive maintenance outside of the riparian zone. Refueling and maintenance should take place in designated refueling sites that are provisioned to quickly contain any spills of fuel, lubricants, and other fluids.

**Migratory Birds** - The MBTA (16 U.S.C. 703-712) prohibits the taking, killing, possession, transportation, and importation of migratory birds (including the bald eagle), their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. To avoid impacts to migratory birds, we recommend conducting a visual inspection of the bridges and any other migratory bird nesting habitat within the project area during the migratory bird nesting season of March through September. If migratory birds are discovered nesting in the project impact area, including on the existing bridges, the North Carolina Department of Transportation should avoid impacting the nests during the migratory bird nesting season (March through September). If birds are discovered nesting on the bridges during years prior to the proposed construction date, the North Carolina Department of Transportation, in consultation with us, should develop measures to discourage birds from establishing nests on the bridges by means that will not result in the take of the birds or eggs, or the North Carolina Department of Transportation should avoid construction and demolition activities during the nesting period.

**Bald Eagle** - The bald eagle has been removed from the federal list of endangered and threatened species due to its recovery. However, this species continues to be afforded protection by the Eagle Act (16 U.S.C. 668-668d) and the MBTA (16 U.S.C. 703-712). The Eagle Act, enacted in 1940 and amended several times, prohibits anyone without a permit issued by the Secretary of the Interior from “taking” bald eagles, including their parts, nests, or eggs. “Take” is defined as to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” “Disturb” means “To agitate or bother a bald or golden eagle to the degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, causing injury, death, or nest abandonment.” In addition to immediate impacts, these definitions also cover impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present if, upon an eagle’s return, such alterations agitate or bother the eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits and causes injury, death, or nest abandonment.

If any active nests are located within a half mile of the project sites, we request that work at the sites be restricted from mid-January through July in order to prevent adverse impacts to the bald eagle. This will prevent disturbance of the eagles from the egg-laying period until the young fledge, which encompasses their most vulnerable times. We ask that you consult with this office before construction begins to confirm that the eagles have left the nest. Once this has been confirmed, construction may begin.

**B-4777 - Bridge No. 8 on NC 251 over Ivy River in Madison County** - A full list of federally endangered and threatened species and federal species of concern with known occurrence in Madison County is available on the USFWS website at <http://www.fws.gov/nc-es/es/countyfr.html>. A review of available information indicates that the Ivy River is home to the

mountain blotched chub (*Erimystax insignis eristigma*), a federal species of concern. There are also records of the common mudpuppy (*Necturus maculosus*), a North Carolina species of concern. The project is also in close proximity to the French Broad River, which is home to several species of concern as well as additional state-listed species. We recommend close adherence to best management practices for erosion control and minimization of in-water work and bank disturbance to minimize effects to the in-water habitat around the project area.

Due to the large size of the existing structure and its close proximity to prime bat feeding habitat, it is recommended that an inspection of the bridge be carried out to determine if bats are actively using the structure. If there are signs of bat usage, we request that you consult us regarding measures to reduce the effects to bat populations.

**B-4848 – Bridge No. 3 on SR 1128 over Possum Trot Creek in Yancey County** - A full list of federally endangered and threatened species and federal species of concern with known occurrence in Yancey County is available on the USFWS website at <http://www.fws.gov/nc-es/es/countyfr.html>. A review of available information indicates that the project site is within 1 mile of the Cane River, which is habitat for the federally endangered Appalachian elktoe (*Alasmidonta raveliniana*). This species is threatened by sediment pollution, which often comes from feeder streams that have bank instability. We request that the replacement structure be a bridge with sufficient capacity to promote bank stability downstream of the structure.

**B-5400 - Bridge No. 259 on SR 3466 over South Hominy Creek in Buncombe County** - A full list of federally endangered and threatened species and federal species of concern with known occurrence in Buncombe County is available on the USFWS website at <http://www.fws.gov/nc-es/es/countyfr.html>. A review of available information indicates that there are records of the eastern hellbender (*Cryptobranchus alleganiensis*), a federal species of concern, in Hominy Creek, downstream of the proposed action area. The eastern hellbender is a species that is threatened by habitat loss due to erosion and excessive sediment in streams. The lower portion of Hominy Creek is on the Clean Water Act 303(d) list of impaired streams due to turbidity. Due to the high density of development in this watershed and the frequency of insufficient buffers, there is a higher than normal risk that the instability of stream banks will lead to additional sediment pollution in the stream. We recommend that the structure for this replacement be designed in a way that promotes long-term bank stability.

**B-5401 – Bridge No. 184 on SR 1102 over UT N. Fork Cattail Creek Yancey County** - A full list of federally endangered and threatened species and federal species of concern with known occurrence in Yancey County is available on the USFWS website at <http://www.fws.gov/nc-es/es/countyfr.html>. A review of available information indicates that the project site is within 1 mile of multiple records of the Carolina northern flying squirrel (*Glaucomys sabrinus coloratus*), a federally endangered species. This species is sensitive to habitat fragmentation caused by roads that are too wide for the species to glide from one side to the other. We recommend that the project be constructed in a way that minimizes the removal of trees and avoids widening the canopy gap across the road.

**B-5170 – Bridge No. 29 on NC 226 over Rock Creek in Mitchell County** - A full list of federally endangered and threatened species and federal species of concern with known occurrence in Mitchell County is available on the USFWS website at <http://www.fws.gov/nc->

*es/es/countyfr.html*. A review of available information indicates that there are no records of either state-listed or federally listed species that may be affected by the construction of this project. We recommend that the general recommendations listed above be implemented for the general preservation of local species and ecosystem services.

**B-5864 – Bridge No. 49 on NC 80 over Brown’s Creek in Yancey County** - A full list of federally endangered and threatened species and federal species of concern with known occurrence in Yancey County is available on the USFWS website at <http://www.fws.gov/nc-es/es/countyfr.html>. A review of available information indicates the project site is approximately 1 mile from the mouth of Brown’s Creek at the South Toe River. The South Toe River is known to have a substantial population of the Appalachian elktoe (*Alasmidonta raveliniana*), a federally endangered species. The Appalachian elktoe is sensitive to habitat degradation from erosion and excessive sedimentation of stream habitat. We recommend that the replacement structure be designed in a way that promotes long-term bank stability.

**B-5882 – Bridge No. 145 on SR 1151 over Big Pine Creek in Madison County** - A full list of federally endangered and threatened species and federal species of concern with known occurrence in Madison County is available on the USFWS website at <http://www.fws.gov/nc-es/es/countyfr.html>. A review of available information indicates that there are no records of either state-listed or federally listed species that may be affected by the construction of this project. We recommend that the general recommendations listed above be implemented for the general preservation of local species and ecosystem services.

If you have questions about these comments, please contact Mr. Jason Mays of our staff at 828/258-3939, Ext. 226. In any future correspondence concerning these projects, please reference our log numbers with your project numbers as follows:

<u>NCDOT</u> <u>Project Nos.</u>	<u>USFWS</u> <u>Log Nos.</u>
• B-4777	4-2-13-049
• B-4848	4-2-13-050
• B-5400	4-2-13-051
• B-5401	4-2-13-052
• B-5170	4-2-13-053
• B-5864	4-2-13-054
• B-5882	4-2-13-055

Sincerely,



Brian P. Cole  
Field Supervisor

cc:

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

Ms. Marla J. Chambers, Western NCDOT Permit Coordinator, North Carolina Wildlife  
Resources Commission, 12275 Swift Road, Oakboro, NC 28129

Ms. Amy Chapman, North Carolina Division of Water Quality, Central Office, 2321 Crabtree  
Blvd., Suite 250, Raleigh, NC 27604

Ms. Amy Euliss, North Carolina Division of Water Quality, Winston-Salem Regional Office,  
585 Waughtown Street, Winston-Salem, NC 27107



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## ☒ North Carolina Wildlife Resources Commission ☒

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Gordon Myers, Executive Director

TO: Carla Dagnino, Project Management, Western Region  
Natural Environment Section, PDEA Branch, NCDOT

FROM: Marla Chambers, Western NCDOT Review Coordinator *Marla Chambers*  
Habitat Conservation Program, NCWRC

DATE: July 30, 2013

SUBJECT: Scoping review of 14 bridge replacement projects proposed by NCDOT in Buncombe, Cherokee, Jackson, Macon, Madison, Polk, Transylvania, Wilkes, and Yancey Counties. TIP Nos. B-5400, B-4462, B-5410, B-5905, B-5910, B-5406, B-4777, B-5882, B-5407, B-5405, B-4978, B-4848, B-5401, and B-5864.

The North Carolina Department of Transportation (NCDOT) has requested comments from the North Carolina Wildlife Resources Commission (NCWRC) regarding impacts to fish and wildlife resources for 14 bridge replacement projects proposed by the North Carolina Department of Transportation (NCDOT). Staff biologists with the North Carolina Wildlife Resources Commission (NCWRC) have reviewed the information provided. The following preliminary comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)), the Clean Water Act of 1977 (33 U.S.C. 466 et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Our standard recommendations for bridge replacement projects of this scope are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.

3. Live concrete should not be allowed to contact the water in or entering into the stream.
4. If possible, bridge supports (bents) should not be placed in the stream.
5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.
6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, Mr. Logan Williams with the NCDOT - ONE should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.
11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.
12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.
13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.
16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
17. If culvert installation is being considered, conduct subsurface investigations prior to structure design to determine design options and constraints and to ensure that wildlife passage issues are addressed.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream end to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, the base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.
2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.
3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to

avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. Tall fescue should not be used in riparian areas. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. Buncombe Co., B-5400, Bridge No. 259 over South Hominy Creek on SR 3466. We do not expect significant, reproducing trout resources downstream of the project and therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.
2. Cherokee Co., B-4462, Bridge No. 148 over Persimmon Creek on SR 1127. Persimmon Creek supports wild Rainbow Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.
3. Jackson Co., B-5410, Bridge No. 221 over Little Savannah Creek on SR 1367. Little Savannah Creek is expected to support Rainbow Trout in the project area and a number of protected aquatic species occur further downstream. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.
4. Jackson Co., B-5905, Bridge No. 27 over Scott Creek and Southern Railroad on US 23 Business. Scott Creek supports wild Rainbow Trout in the project area and a number of protected aquatic species occur further downstream. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.
5. Jackson Co., B-5910, Bridge No. 32 over Savannah Creek on NC 116. Savannah Creek is expected to support Rainbow Trout. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.
6. Macon Co., B-5406, Bridge No. 67 over Rabbit Creek on SR 1513. Rabbit Creek is expected to support Rainbow Trout downstream and a number of protected aquatic species occur further downstream. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry

stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

7. Madison Co., B-4777, Bridge Nos. 8 and 9 over Ivy River on NC 251. We do not expect reproducing trout resources downstream of the project and therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.
8. Madison Co., B-5882, Bridge No. 145 over Big Pine Creek on SR 1151. Big Pine Creek supports wild Brown Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.
9. Polk Co., B-5407, Bridge No. 34 over Walnut Creek on SR 1311. We do not expect significant, reproducing trout resources downstream of the project and therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.
10. Transylvania Co., B-5405, Bridge No. 139 over East Branch Toxaway Creek on SR 1139. East Branch Toxaway Creek supports Brown Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.
11. Wilkes Co., B-4978, Bridge No. 82 over South Prong Lewis Fork Creek on SR 1154. We do not expect reproducing trout resources downstream of the project and therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.
12. Yancey Co., B-4848, Bridge No. 3 over Possum Trot Creek on SR 1128. Possum Trot Creek supports wild Brown and Rainbow trout in the project area and protected aquatic species occur further downstream in the Cane River. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.
13. Yancey Co., B-5401, Bridge No. 184 over what appears to be an unnamed tributary to North Fork Cattail Creek on SR 1102. The North Fork Cattail Creek supports wild Brook Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

14. Yancey Co., B-5864, Bridge No. 49 over Browns Creek on NC 80. Browns Creek supports wild Brook Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks, reducing habitat fragmentation and vehicle related mortality at highway crossings.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (704) 485-8291. Thank you for the opportunity to review and comment on this project.

cc: Mike Parker, NCDWQ  
Amy Euliss, NCDWQ  
Jason Mayes, USFWS

## Martha Hodge

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**From:** Militscher.Chris@epamail.epa.gov  
**Sent:** Friday, December 14, 2012 10:27 AM  
**To:** Brown, Dionne C  
**Subject:** Division 13 Bridge Replacement Start of Study notices

Dionne: EPA has reviewed the Start of Study notices for the following proposed bridge replacement projects and we offer the following comments:

B-4777, Madison Co.: EPA notes the split multi-lane highway bridges along Ivy River and the additional access roads at the curve in the river. EPA notes the expanded ROW required for the current design and the proximity to the banks of the river and within the floodplain. EPA requests that NCDOT consider design options that reduce the potential for roadway facilities being located so close to the river banks and within the floodplain.

B-4818, Yancey Co.: EPA notes the the non-perpendicular bridge crossing over Possum Trot Creek and the fork in the roadway immediate adjacent to the existing bridge. EPA prefers that bridges attempt to span rivers, creeks, and streams as perpendicular as is feasible. For the this proposed project there may be added benefits (safety) by re-aligning the roadway and bridge approach.

B-5400, Buncombe Co.: No specific environmental issues identified

B-5401, Yancey Co.: No specific environmental issues identified

B-5170, Mitchell Co.: No specific environmental issues identified

B-5864, Yancey Co.: No specific environmental issues identified

B-5882, Madison Co.: No specific environmental issues identified

Thank you for the opportunity to comment.

Christopher A. Militscher, REM, CHMM  
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