



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

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SECRETARY

July 18, 2003

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: **Nationwide 23 Permit Application;** Mitchell County, Bridge No. 175
over Mine Fork Creek on SR 1206, TIP No. B-3678, State Project No.
8.2880601, Federal Aid No. BRZ-1206(2).

Dear Mr. Lund;

Attached for your information are three copies of the project planning documents for the subject project. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 175 on SR 1206 over Mine Fork Creek (Right Fork Cane Creek). A new 30-foot (9.1-meter) long bridge will be placed approximately 50 feet (15 meters) west of the existing structure. The cross section of the new bridge will include two 11-foot (3.3 meter) wide lanes with 3-foot (1 meter) wide offsets (shoulders). Traffic will be maintained on the existing bridge during construction.

There will be 600 feet (183 meters) of new alignment work to the west of the existing alignment. The pavement width on the approaches will be 22 feet (6.6 meters) including two 11-foot (3.3 meter) lanes. Additionally there will be 4-foot (1.2 meter) grass shoulders. Please find the enclosed half-sized plan sheets, Categorical Exclusion and Federally-Protected Species information.

IMPACTS TO WATERS OF THE UNITED STATES

Mine Fork Creek (DWQ Index No. 07-02-59-1-2) is the only stream that will be impacted by the proposed project. The stream is incorrectly referenced in the CE as Right Fork Cane Creek (DWQ Index No. 07-02-59-1) which is actually the receiving water for Mine Fork Cree. Mine Fork Creek is classified as a *Class C Tr* stream. The supplemental *Tr* classification refers to waters protected for the survival and reproduction

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1 SOUTH WILMINGTON STREET
RALEIGH NC

of trout species. As noted in a March 10, 2000 correspondence from the North Carolina Wildlife Resources Commission, an in-water work moratorium is recommended from November 1 through April 15.

Mine Fork Creek is approximately 15 feet (4.5 meters) wide at the bridge crossing. The bridge is composed entirely of timber and steel. The bridge will be removed without dropping components into the water. Therefore, there will be no fill in the Waters of the U.S. resulting from the proposed Case 2 bridge demolition.

North Carolina's §303(d) List (NCDENR 2000) is a comprehensive public accounting of all impaired waterbodies. Although Mine Fork Creek is not designated as a biologically impaired water body regulated under the provisions of CWA §303(d), Right Fork Cane Creek, its receiving water, located about 0.5 miles downstream, did receive this designation. This is a historical listing for "sediment" based on biological impairment. Implementation of Best Management Practices (BMPs) and maintaining vegetation as described in the Avoidance/Minimization below will reduce sedimentation from construction of this project.

There are no jurisdictional wetlands located in the project area; therefore no permanent or temporary wetland impacts will result from the construction of this project.

AVOIDANCE/MINIMIZATION

According to the Clean Water Act (CWA) §404(b)(1) guidelines, NCDOT must avoid, minimize, and mitigate, in sequential order, impacts to waters of the US. The following is a list of the project's jurisdictional stream avoidance/minimization activities proposed or completed by NCDOT:

Minimization: No stream bank stabilization will be performed at the project site, as originally proposed. Originally the area approximately from Station 15+00-L- to Station 16+25-L- was designated to be graded from the roadside shoulder all the way to the top of the stream bank, with riprap used to stabilize the stream bank and embankment. This area is now protected under a designated "Tree Protection Area" from about 10 feet behind the roadside shoulder down to the top of the stream bank. As a result of this minimization effort, approximately 2,100 square feet of natural vegetation will remain undisturbed. The "Tree Protection Area" is depicted on the enclosed plan sheets.

Minimization: No bridge bents will be placed into the waters of Mine Fork Creek.

Minimization: The project will not have any adverse effect on the existing 100-year floodplain and associated flood hazard. The replacement of Bridge No. 248 will provide equivalent or improved conveyance of 100-year floodwaters compared to that of the existing bridges.

Minimization: Best Management Practices (BMPs) will be strictly enforced for sedimentation and erosion control for the protection of surface waters.

Minimization: In a letter dated March 10, 2000 the North Carolina Wildlife Resources Commission (NCWRC) commented that Mine Fork Creek is excellent trout water

supporting both brook and rainbow trout. In the attached report the NCDOT committed to implementing the following to minimize impacts to aquatic resources:

- Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the trout-spawning season of November 1 through April 15 to protect the egg and fry stages.
- Where concrete is used, work will be accomplished so that wet concrete does not contact stream water.
- Where possible, heavy equipment will be operated from the bank rather than in the stream channel to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.
- See attached letter from NCWRC for other standard recommendations.

This project will take place in a mountain trout county. Thus we anticipate that comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classification of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the United States Fish and Wildlife Service (USFWS) lists nine federally protected species for Mitchell County (Table 1).

Table 1. Federally Protected Species in Mitchell County

Common Name	Scientific Name	Federal Status	Biological Conclusion
Carolina northern flying squirrel	<i>Glaucomys sabrinus coloratus</i>	E	No Effect
Indiana bat	<i>Myotis sodalis</i>	E	No Effect
Appalachian elktoe	<i>Alasmidonta raveneliana</i>	E	Not Likely to Adversely Affect
Spruce-fir moss spider	<i>Microhexura montivaga</i>	E	No Effect
Spreading avens	<i>Geum radiatum</i>	E	No Effect
Heller's blazing star	<i>Liatris helleri</i>	T	No Effect
Blue Ridge goldenrod	<i>Solidago spithamae</i>	T	No Effect
Virginia spirea	<i>Spirea virginiana</i>	T	No Effect
Rock Gnome Lichen	<i>Gymnoderma lineare</i>	E	No Effect
T= A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."			
E = A taxon "in danger of extinction throughout all or a significant portion of its range."			

In the January 17, 2002 memo attached to the enclosed CE document the USFWS concurred with NCDOT's Biological Conclusion of No Effect for 7 of the 9 above-listed species. In the same memo the USFWS concurred with NCDOT's Biological Conclusion of Not Likely to Adversely Affect for Appalachian elktoe and its designated critical habitat provided NCDOT implements and strictly adheres to erosion control for high quality waters.

Special discussion of the spruce-fir moss spider (*Microhexura montivaga*) follows because it was not addressed in prior environmental documents.

The endangered spruce-fir moss spider was added to the list of federally protected species in Mitchell County per the January 29, 2003 update of this list, and subsequent to the completion of the Natural Resources Technical Report for this project. Likewise, the critical habitat area for this species was also added to the protected species information for Mitchell County in the January 29, 2003 list. For this reason, the proposed project site was recently assessed for the potential presence of this species.

There is no appropriate habitat within the project area for the spruce-fir moss spider. The project is located at approximately 2,900 feet in elevation, and no spruce-fir forests are located in the study area. This spider requires spruce-fir forests about 5,000 feet in elevation. Base on this information, no site survey was conducted for this species. A search of North Carolina Natural Heritage Program records on March 4, 2003 found no occurrence of this species within a 2-mile (3.2 km) radius of the project site. Critical Habitat for this species is designated within the Pisgah National Forest in Mitchell County. This area is approximately 6 miles north of the proposed project. Therefore, the proposed project will have "No Effect" on this federally endangered species and its Critical Habitat.

SUMMARY

In accordance with 23 CFR §771.115(b), the Federal Highway Administration (FHWA) processes the proposed project activities as a Categorical Exclusion. Per 67 FR 2020; January 15, 2002 and Clean Water Act (CWA) §404, NCDOT requests that these activities be authorized under a NWP No. 23 (Approved Categorical Exclusions). The NCDOT also anticipates that a CWA §401 GC No. 3403 (Approved Categorical Exclusions) will apply to this project.

In accordance with 15A NCAC 2H .0501(a), NCDOT is providing two copies of this application to the NC Department of Environment and Natural Resources (NCDENR), Division of Water Quality (DWQ) for their records.

If you have any questions or need additional information, please call Mr. Tim Bassette, Sr. Project Manager at 919-715-1341.

Sincerely,



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

GJT/tb

cc w/enc.: Mr. John Dorney, NCDENR, Division of Water Quality (2 copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. Harold Draper, TVA
Mr. Omar Sultan, Programming and TIP
Ms. Debbie Barbour, P.E., Highway Design Branch
Mr. Greg Perfetti, P.E., Structure Design Unit
Mr. Jay Bennett, P.E., Roadway Design Unit
Mr. David Chang, P.E., Hydraulics Unit
Mr. Mark Staley, Roadside Environmental
Mr. F.D. Martin, Division 13 Engineer
Mr. Roger Bryan, Division 13 Environmental Officer
Mr. David Franklin, USACE, Wilmington (Cover Letter Only)

Mitchell County
Bridge No. 175 on SR 1206
Over Right Fork Cane Creek
Federal Project BRZ-1206(2)
State Project 8.2880601
TIP No. B-3678

CATEGORICAL EXCLUSION
U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED:

1-29-02 *William D. Gilmore*
Date William D. Gilmore, P. E., Manager
Project Development and Environmental Analysis Branch

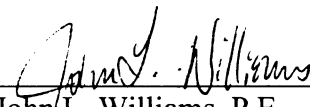
1/31/02 *Clarence W. Coler, Jr.*
Date *for* Nicholas Graf, P. E.
Division Administrator, FHWA

Mitchell County
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CATEGORICAL EXCLUSION

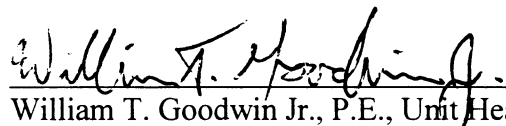
Documentation Prepared in
Project Development and Environmental Analysis Branch By:

1-29-02
DATE



John L. Williams, P.E.
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1-29-02
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William T. Goodwin Jr., P.E., Unit Head
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DATE



Lubin V. Prevatt, P.E., Assistant Manager
Project Development & Environmental Analysis Branch

PROJECT COMMITMENTS:

Mitchell County
Bridge No. 175 on SR 1206
Over Right Fork Cane Creek
Federal Project BRZ-1206(2)
State Project 8.2880601
TIP No. B-3678

Resident Engineer & Roadway Design Unit

Best Management Practices for Bridge Demolition will be followed during design and construction of the project.

NCWRC has commented that Right Fork Cane Creek is an excellent trout water supporting both brook and rainbow trout. The following will be implemented to minimize impacts to aquatic resources:

- Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the trout spawning season of November 1 through April 15 to protect the egg and fry stages.
- Where concrete is used, work will be accomplished so that wet concrete does not contact stream water.
- Where possible, heavy equipment will be operated from the bank rather than in the stream channel to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.
- See attached letter from WRC for other standard recommendations.

Program & TIP Branch

Project Let date should be scheduled such that the contractors time will be optimized regarding the November 1 through April 15 in water moratorium.

Structures Unit

This project must be reviewed under Section 26a of the Tennessee Valley Authority (TVA) Act. The final bridge plans, hydraulic analysis of the effects of the replacement structure on the 100-year flood elevation, and notice of compliance with the Historic Preservation Act of 1966 will be forwarded to TVA for approval.

Mitchell County
Bridge No. 175 on SR 1206
Over Right Fork Cane Creek
Federal Project BRZ-1206(2)
State Project 8.2880601
TIP No. B-3678

Bridge No. 175 is located in Mitchell County over Right Fork Cane Creek. It was included in the approved 2002-2008 Transportation Improvement Program (TIP) as a bridge replacement project due to deteriorating structural integrity and a deficient cross section. This project is part of the Federal Highway Bridge Replacement and Rehabilitation Program (HBRRP) and has been classified as a "Categorical Exclusion". No substantial environmental impacts are expected.

I. RECOMMENDATIONS

Bridge No. 175 will be replaced as recommended in Alternate 2 with a new 30-foot (9.1-meter) long bridge on new alignment approximately 50 feet (15 meters) west of the existing structure (see Figure 2). The cross section of the new bridge will include two 11-foot (3.3-meter) wide lanes with 3-foot (1-meter) wide offsets (shoulders). Traffic will be maintained on the existing bridge during construction.

There will be 600 feet (183 meters) of new alignment work to the west of the existing alignment. The pavement width on the approaches will be 22 feet (6.6 meters) including two 11-foot (3.3-meter) lanes. Additionally there will be 4-foot (1.2-meter) grass shoulders. Based on preliminary design, the design speed should be approximately 30 mph (50 kph).

The estimated cost of the project is \$333,000 including \$300,000 in construction costs and \$33,000 in right of way costs. The estimated cost shown in the 2002-2008 TIP is \$325,000.

Both alternates have similar environmental impacts and identical design criteria. Alternate 1 does have the potential to effect two storage buildings on the east side of the project. Alternate 1 would also involve the construction and demolition of a temporary alignment in addition to the construction of a permanent structure. Because the environmental impacts are similar, and because all other issues are in favor of Alternate 2, NCDOT recommends Alternate 2 for construction. The Division 13 Engineer concurs in this recommendation.

II. ANTICIPATED DESIGN EXCEPTIONS

A design exception will be required for this project. The existing alignment meets the design criteria for 30 mph (50 kph). The road has a statutory 55 mph (90 kph) speed limit. The results of a recent 3 year period showed low volume of traffic (300 VPD) and no accidents. Considering the geographic constraints (a stream paralleling the road), because the accident history indicates no problems and because improving the alignment any further would potentially impact homes; it is reasonable to pursue a design exception.

III. EXISTING CONDITIONS

SR 1206 is a paved, dead end road classified as a rural local route in the Statewide Functional Classification System. It is located a few miles east of Bakersville, N.C. Currently the traffic volume is 300 vehicles per day (VPD) and projected at 500 VPD for the year 2025. There is no posted speed limit and is therefore statutory 55 mph (90 mph) in the vicinity of the bridge. The area is largely agricultural and undeveloped land with scattered homes.

The existing bridge was completed in 1961. It is composed of a one-span timber and steel structure. The deck is 26 feet (7.9 meters) long and 20 feet (6.1 meters) wide. There is vertical clearance of approximately 6 feet (1.8 meters) between the floorbeams of the bridge deck and streambed. The bridge carries two lanes of traffic.

According to Bridge Maintenance Unit records, the sufficiency rating of the bridge is 24.5 out of a possible 100. Presently the bridge is posted with weight restrictions of 11 tons for single vehicles and 16 tons for truck-tractor semi-trailers.

Both vertical and horizontal alignments are fair in the project vicinity. The pavement width on the approaches to the existing bridge is 18 feet (5.5 meters). Shoulders on the approaches of the bridge are approximately 4 feet (1.2 meters) wide.

In an analysis of a recent three-year period the Traffic Engineering Branch indicates no accidents were reported.

There are two buildings on the east side of the bridge which would potentially be impacted by a replace in place alternate. They are most likely used for storage.

There are aerial power and phone services approximately 150 feet (46 meters) northeast of the bridge. No other utilities are in the vicinity of the bridge.

IV. PROPOSED ALTERNATIVES

There are two "build" options considered in this document as follows:

The new structure in each case would be a 30 foot (9.1 meter) long bridge with vertical abutments. Vertical abutments are proposed at this location at the recommendation of both Hydraulics and Structure Design because this happens to be one of the unusual places where a vertical abutment does not present a scour concern and using vertical abutments will keep the bridge length to a minimum.

Alternate 1) Bridge No. 175 would be replaced on the existing location. Traffic would be maintained with a temporary onsite detour during construction. The temporary structure would be approximately 50 feet (15.2 meters) west of the existing bridge. The temporary structure would consist of three 60-inch (1600-millimeter) corrugated steel pipes. The design speed would be approximately 30 mph (50 km/h).

Alternate 2) (Recommended) Bridge No. 175 would be replaced on new location 50 feet (15.2 meters) west of the existing bridge. Traffic would be maintained on Bridge 175 during construction. The design speed would be approximately 30 mph (50 km/h).

"Do-nothing" is not practical; requiring the eventual closing of the road as the existing bridge completely deteriorates. Rehabilitation of the existing deteriorating bridge is neither practical nor economical.

V. ESTIMATED COST (Table 1)

COMPONENT	ALTERNATE 1	Recommended ALTERNATE 2
New Bridge	75,000	75,000
Temporary Detour Structure	156,000	N/A
Bridge Removal	7,000	7,000
Roadway & Approaches	45,000	179,000
Engineering & Contingencies	42,000	39,000
Total Construction	\$ 325,000	\$ 300,000
Right of Way	\$ 73,000	33,000
Total Cost	\$ 398,000	333,000

VI. ENVIRONMENTAL EFFECTS

A. GENERAL

This project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

This project is considered to be a "Categorical Exclusion" due to its limited scope and insignificant environmental consequences.

This bridge replacement will not have a substantial adverse effect on the quality of the human or natural environment by implementing the environmental commitments of this document in addition to use of current NCDOT standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from construction of this project.

There are no hazardous waste impacts.

No adverse effect on families or communities is anticipated. Right-of-way acquisition will be limited.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

There are no publicly owned parks, recreational facilities, or wildlife and waterfowl

refuges of national, state, or local significance in the vicinity of the project. This project will not impact any resource protected by Section 4(f) of the DOT Act.

The proposed bridge replacement project will not raise the existing flood levels or have any significant adverse effect on the existing floodplain.

Utility impacts are considered to be low for the proposed project.

B. AIR AND NOISE

This project is an air quality “neutral” project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

The project is located in Mitchell County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR part 51 is not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

The project will not substantially increase traffic volumes. Therefore, it will not have substantial impact on noise levels. Temporary noise increases may occur during construction.

C. LAND USE & FARMLAND EFFECTS

This project will have no impact on soils considered to be prime or important farmland.

D. HISTORICAL EFFECTS & ARCHAEOLOGICAL EFFECTS

On February 29, 2000, the State Historic Preservation Office (SHPO) reviewed the subject project. Subsequently, the SHPO determined that this project is not likely to affect any resources of architectural or archaeological significance (see attachments).

E. NATURAL RESOURCES

Bridge Demolition and Removal

Bridge No. 175 is located on SR 1206 over Right Fork Cane Creek in Mitchell County. The existing bridge is composed entirely of timber and steel. The bridge will be removed without dropping components into the water. There will be no resulting temporary fill due to bridge demolition. This bridge demolition is classified as a Case 2 - (*allows no work at all in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas*). The Case 2 bridge demolition classification is a result of Brook and Rainbow Trout spawning habitat in Right Fork Cane Creek. To prevent interference with spawning, the Wildlife Resources Commission request that no in-stream work be permitted between November 1 and April 15.

PHYSICAL RESOURCES

Soil and water resources that occur in the project area are discussed below with respect to possible environmental concerns. Soil properties and site topography significantly influence the potential for soil erosion and compaction, along with other possible construction limitations or management concerns. Water resources within the project area

present important management limitations due to the need to regulate water movement and the increased potential for water quality degradation. Excessive soil disturbance resulting from construction activities can potentially alter both the flow and quality of water resources, limiting downstream uses. In addition, soil characteristics and the availability of water directly influence the composition and distribution of flora and fauna in biotic communities, thus affecting the characteristics of these resources.

Regional Characteristics

Mitchell county is located in the mountain physiographic region of North Carolina. It is bounded by the state of Tennessee and Avery, McDowell, and Yancey counties in North Carolina. The county topography is characterized by steeply to moderately sloping mountains. River valleys lie at the foot of the mountains that generally exhibit moderate topographic relief. These river valleys range in width from several miles to less than a mile. The valleys usually have meandering streams associated with them that carry water from the surrounding mountains. Mitchell county borders Yancey county which has the highest mountain elevation east of the Mississippi River, 6,684 feet (2037 meters) on Mount Mitchell. Mitchell county is located in the French Broad Drainage Basin. The main drainages of the county are through the Cane River, North Toe River combining with the South Toe River and several small tributaries to form the Nolichucky River which flows northwest into Tennessee eventually ending up in the Mississippi River. Most of these rivers and streams provide important habitat for various species of freshwater mussels and trout fisheries. Land use in the county is dominated by forest, much of which is located in U.S. Forest Service Property. There is some agriculture and urban land use, primarily located in the river valley areas where such use is suitable.

The project area topography along Right Fork Cane Creek reflects typical river valley characteristics. The area has steep slopes at the foot of the surrounding mountain which continues up the mountain and moderate sloping topography away from the foot of the mountain moving toward the drainage of Right Fork Cane Creek. The project is located at the upper reaches of the river valley where the valley and creek are narrow.

Soils

Generally, soils are characterized into Soil Associations or “General Soil Mapping Units” with consistent patterns of soil, relief, and drainage. The project study area in Mitchell County lies in the Dellwood “General Soil Mapping Unit”. The Dellwood grouping is nearly level, very deep, moderately well and located on concave to convex floodplains. A brief description of the soil type is provided following Table 2.

Table 2. Soils occurring in the project area, Mitchell County

Map Symbol	Specific Mapping Unit	% Slope	Hydric Classification	Capability Unit
DeA	Dellwood and Reddies	0-3	Non-hydric	IIIw

Dellwood and Reddies,(DeA) this soil is on first bottoms adjacent to streams where it is subject to overflow. The surface layer extends to 12 inches (30.5 centimeters) and is a dark grayish brown loamy sand. The underlying layer may extend to 80 inches (203 centimeters) and typically is dark yellowish brown very gravelly to multicolored extremely gravelly. It has very low available water capacity. Occasional flooding in this area is the main limitation to urban uses. This soil type is suited for pasture and hayland

uses.

Water Resources

This section contains information concerning surface water resources likely to be impacted by the proposed project. Water resource assessments include the physical characteristics, best usage standards, and water quality aspects of the water resources, along with their relationship to major regional drainage systems. Probable impacts to surface water resources are also discussed, as are means to minimize impacts.

Best Usage Classification

Water resources within the study area are located in the French Broad Drainage Basin; Division of Water Quality sub-basin number 04-03-06; United States Department of Interior Hydrologic Unit is 06010108. There is one water resource, Right Fork Cane Creek, in the project study area crossed by SR 1206. (Figure1)

Streams have been assigned a best usage classification by the Division of Water Quality (DWQ), formerly Division of Environmental Management (DEM), which reflects water quality conditions and potential resource usage. Unnamed tributaries receive the same classification as the streams to which they flow. The classification for Right Fork Cane Creek [DEM Index No. 07-02-59-1, 04/01/58] is class **C Tr**. Class **C Tr** waters are protected for secondary recreation, fishing, aquatic life including propagation and survival, and wildlife. All freshwaters shall be classified to protect these uses at a minimum. The supplemental classification of **Tr** indicates freshwaters protected for natural trout propagation and survival of stocked trout.

No waters classified as High Quality Waters (HQW), Water Source (WS I or WS II), or Outstanding Resource Waters (ORW) occur within 1.0 mi (1.6 km) of the project study area. Right Fork Cane Creek is not designated as a North Carolina Natural and Scenic River, nor is it designated as a National Wild and Scenic River.

Physical Characteristics of Surface Waters

Right Fork Cane Creek at the study area is approximately 10.0-15.0 ft (3.04 - 4.57m) wide at the top of the bank and ranges in depth at normal stage from 1.0-6.0 in.(2.54-15.2 cm) with a northerly, moderate to swift flow. The substrate in the study area is composed of a sandy loam with a lot of pebble, cobble, and some bedrock present in the streambed. This creek, with moderate flow has relatively steep banks [4ft (1.2m) deep at bank full]. The banks are well vegetated and provide shading that keeps water temperatures in the creek at cool levels. The cobble and bedrock in the streambed creates riffles and small pools of water that are important habitat areas for invertebrates and fish. The bridge is located on a straight run of riffle and pool sequences between two bends. On the day of the site visit, turbidity in the water column appeared to be very low. There was no evidence of elevated levels of sedimentation occurring in Right Fork Cane Creek.

Water Quality

This section describes the quality of the water resources within the project area. Potential sediment loads and toxin concentrations of these waters from both point sources and nonpoint sources are evaluated. Water quality assessments are made based on published resource information and existing general watershed characteristics. These data provide insight into the value of water resources within the project area to meet human needs and to provide habitat for aquatic organisms.

Benthic Macroinvertebrate Ambient Network

The Benthic Macroinvertebrate Ambient Network (BMAN), managed by the DWQ, is part of an ongoing ambient water quality monitoring program which addresses long term trends in water quality. The program monitors ambient water quality by sampling at fixed sites for selected benthic macroinvertebrates organisms, which are sensitive to water quality conditions. Samples are evaluated on the number of taxa present of intolerant groups [Ephemeroptera, Plecoptera, Trichoptera (EPT)] and a taxa richness value (EPT S) is calculated. A biotic index value is also calculated for the sample that summarizes tolerance data for all species in each collection. The two rankings are given equal weight in final site classification. The biotic index and taxa richness values primarily reflect the effects of chemical pollution and are a poor measure of the effects of such physical pollutants as sediment. **There are no BMAN monitoring station within the project vicinity.**

Point source and Nonpoint source dischargers

Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) Program. Any discharger is required to register for a permit. **There are no permitted dischargers within the project vicinity.**

Nonpoint source discharge refers to runoff that enters surface waters through stormwater or snowmelt. Agricultural activities may serve as a source for various forms of nonpoint source pollutants. Land clearing and plowing disturbs soils to a degree where they are susceptible to erosion, which can lead to sedimentation in streams. Sediment is the most widespread cause of nonpoint source pollution in North Carolina. Pesticides, chemical fertilizers, and land application of animal wastes can be transported via runoff to receiving streams and potentially elevate concentrations of toxic compounds and nutrients. Animal wastes can also be a source of bacterial contamination and elevate biochemical oxygen demand (BOD). Drainage ditches on poorly drained soils enhances the transportation of stormwater into surface waters (DEM, 1993). The primary nonpoint pollution source in the project vicinity is runoff from agricultural fields that are located in the project vicinity. Runoff from the agricultural field could contain chemicals used in the practice of farming that might be harmful to water quality. Another nonpoint pollution source is runoff from SR 1206, which could contain petroleum product residues deposited by automobiles driving on the road.

Summary of Anticipated Impacts

Impacts to water resources in the project area are likely to result from activities associated with project construction. Activities likely to result in impacts are clearing and grubbing on streambanks, riparian canopy removal, instream construction, fertilizers and pesticides used in revegetation, and pavement installation. The following impacts to surface water resources are likely to result from the above mentioned construction activities:

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project area.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Changes in and destabilization of water temperature due to vegetation removal.
- Increased potential for release of toxic compounds such as fuel and oil from

- construction equipment and other vehicles.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.

In order to minimize potential impacts to water resources in the project area, NCDOT's Best Management Practices for the Protection of Surface Waters will be strictly enforced during the construction phase of the project. Limiting instream activities and revegetating stream banks immediately following the completion of grading can further reduce impacts.

BIOTIC RESOURCES

Biotic resources include terrestrial and aquatic communities. This section describes the biotic communities encountered in the project area, as well as the relationships between fauna and flora within these communities. The composition and distribution of biotic communities throughout the project area are reflective of topography, soils, hydrology, and past and present land uses. These classifications follow Schafale and Weakley (1990) where possible. Representative animal species that are likely to occur in these habitats (based on published range distributions) are also cited.

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Subsequent references to the same organism refer to the common name only. Fauna observed during the site visit is denoted in the text with an asterisk (*).

Terrestrial communities

Descriptions of the two terrestrial systems are presented in the context of plant community classifications. Terrestrial wildlife relationships are discussed after the two terrestrial community descriptions.

Disturbed/maintained community

This community is located on both sides of SR 1206 and may be impacted by Alternatives 1 and 2. Because of mowing, agricultural practices and the use of herbicides this community is kept in a constant state of early succession. The ground cover of this community is composed of several species of herbaceous grasses and weeds, these include: common chickweed (*Stellaria media*), wild ginger (*Asarum canadense*), star toadflax (*Comandra umbellata*), field sorrel (*Rumex acetosella*), corn salad (*Valerianella olitoria*), violet (*Viola sp.*), wild geranium (*Geranium maculatum*), purple dead nettle (*Lamium purpureum*), panic grass (*Panicum sp.*), milkweed (*Asclepias sp.*), ragweed (*Ambrosia artemisifolia*), wood sorrel (*Oxalis sp.*), red clover (*Trifolium pratense*), thistle (*Carduus sp.*), beggar's tick (*Bidens sp.*), plantain (*Plantago sp.*), vaseygrass (*Paspalum sp.*), wingstem (*Actinomeris alternifolia*), and bluegrass (*Poa sp.*). Vines that occupy these areas include, Virginia creeper (*Parthenocissus quinquefolia*), trumpet vine (*Campsis radicans*), Japanese honeysuckle (*Lonicera japonica*), and poison ivy (*Toxicodendron radicans*). Often, the duration between maintenance sessions of highway right-of-ways is quite long, allowing time for larger herbaceous shrubs and woody vegetation to inhabit this disturbed area. Some of these that may inhabit this disturbed community include: sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), tulip poplar (*Liriodendron tulipifera*), black cherry (*Prunus serotina*), evening primrose (*Oenothera biennis*), and smooth sumac (*Rhus glabra*).

Riparian Community

This community is located on both sides of Right Fork Cane Creek on either side of SR 1206. It is adjacent to the maintained/disturbed community. It is a narrow community that is approximately 30 to 40 feet (9 to 12 meters) wide at the project site. On the east side of the creek there is an old farm road that runs through the middle of the riparian area. This road does not appear to be used very often. The road did not have any trees on it, but it did have an established herbaceous layer. The canopy was well established and made up of 30 to 60 year old trees. The canopy was dominated by tulip poplar, hickory (*Carya sp.*), and sugar maple (*Acer saccharum*). The subcanopy was made up of 5 to 10 year old trees that included, black cherry, tulip poplar, ironwood (*Carpinus caroliniana*), and buckeye (*Aesculus glabra*). The herbaceous layer was sparse and comprised of wild ginger (*Hexastylis sp.*), chickweed, crane-fly orchid (*Tipularia discolor*), trillium (*Trillium sp.*), violet, ironweed (*Vernonia noveboracensis*), wingstem, wild hydrangea (*Hydrangea arborescens*) and thistle. The riparian area may experience brief periods of flooding from the creek but, it appeared that the area was well drained and flood waters would recede quickly.

Terrestrial Wildlife

The disturbed/maintained roadside and agricultural fields adjacent to forested tracts provide rich ecotones for foraging, while the forests provide forage areas and cover. Birds that are often associated with ecotones between these communities are ruby-crowned kinglet (*Regulus calendula*), Carolina chickadee (*Parus carolinensis*)*, bluebird (*Sialia sialis*), downy woodpecker (*Picoides pubescens*), yellow-throated warbler (*Dendroica dominica*), blue-gray gnatcatcher (*Poliophtila caerulea*)*, white-breasted nuthatch (*Sitta carolinensis*), northern cardinal (*Cardinalis cardinalis*)*, ruby-throated hummingbird (*Archilochus colubris*), indigo bunting (*Passerina cyanea*), yellow-billed cuckoo (*Coccyzus americanus*), blue jay (*Cyanocitta cristata*), tufted titmouse (*Parus bicolor*)*, acadian flycatcher (*Empidonax traillii*), and mourning dove (*Zenaidura macroura*)*. The red-tailed hawk (*Bufo jamaicensis*) is a major predator in this habitat, feeding on small mammals, reptiles, and amphibians.

Small mammals may inhabit these early successional habitats along forested areas, roadsides, and streams for nesting and feeding. Some of these small mammals include, woodchuck (*Marmota monax*), white-footed mouse (*Peromyscus leucopus*), least shrew (*Cryptotis parva*), hairy-tailed mole (*Parascalops breweri*), hispid cottonrat (*Sigmodon hispidus*), and eastern cottontail rabbit (*Sylvilagus floridanus*).

Larger mammals that may be present in these habitat areas for foraging, feeding, watering, bedding, and mating include: raccoon (*Procyon lotor*), white-tailed deer (*Odocoileus virginiana*), opossum (*Didelphis virginiana*), eastern gray squirrel (*Sciurus carolinensis*)*, red fox (*Vulpes vulpes*), and gray fox (*Urocyon cinereoargenteus*).

Reptiles and amphibians that may inhabit these community types include, queen snake (*Regina septenvittata*), black rat snake (*Elaphe obsoleta*), copperhead (*Aghistrodon contortrix*), garter snake (*Thamnophis sirtalis*), American toad (*Bufo americanus*), Fowler's toad (*Bufo woodhousii*), fence lizard (*Sceloporus undulatus*), and five-lined skink (*Eumeces laticeps*).

Aquatic Community

This community consists of Right Fork Cane Creek. Research has shown that a large amount of food chain energy of stream communities is derived from allochthonous

(produced outside the river ecosystem) sources, in the form of terrestrial detritus. Rocks, fallen debris (logs, sticks, etc.), and low velocity areas in the river trap detritus within the river. The detritus is then decomposed by heterotrophic microorganisms, such as bacteria and consumed by macroinvertebrates, such as aquatic insects. In turn, the aquatic insects are then consumed by larger organisms. The amount of allochthonous energy input within a river varies seasonally. Autochthonous (produced within the river ecosystem) energy sources include planktonic and benthic micro and macro algae as well as aquatic vascular vegetation. Fallen logs in the water and rock surfaces offer an attachment substrate for algae.

Aquatic insects that may be found in this community include the water strider* (*Gerris* spp.), water beetle (Dytiscidae), stonefly (Plecoptera)*, dragonfly (Odonata), crane fly (*Tipula* spp.), caddisfly (Trichoptera), stream mayfly (Ephemeroptera) and black-winged damselfly (*Calopteryx maculata*).

Aquatic insects found in this community may be eaten by gamefish and other fishes that may occur in Right Fork Cane Creek and the tributary. Gamefish such as rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), and sunfishes (*Lepomis* spp.) may occupy these tributaries. Other fishes, such as shiners (*Notropis* spp.), golden shiners (*Notemigonus crysoleucas*), eastern mosquitofish (*Gambusia affinis*), darters (*Etheostoma* spp.)*, chubs (*Semotilus* spp.), daces (*Clinostomus* spp.), and catfishes (Ictaluridae) may occupy this tributary, as well.

Several other animals representing all vertebrate classes are integral parts of the aquatic system. The northern dusky salamander (*Desmognathus fuscus*) and the two-lined salamander (*Eurycea bislineata*) may occur under rocks and logs within the riverbed. Frogs, such as pickerel frog (*Rana palustris*), upland chorus frog (*Pseudacris triseriata*), southern leopard frog (*Rana sphenoccephala*), and bullfrog (*Rana catesbeiana*), may occur in this habitat along stream banks feeding on aquatic invertebrates. Other reptiles and amphibians occurring in this habitat feeding on small fish and mussels, may include, northern water snake (*Nerodia sipedon*) and snapping turtle (*Chelydra serpentina*).

Summary of Anticipated Impacts

Construction of the proposed project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies potential impacts to the natural communities within the project area in terms of the area impacted and the organisms affected. Temporary and permanent impacts are considered here as well, along with recommendations to minimize or eliminate impacts.

Terrestrial Impacts

Impacts to terrestrial communities will result from project construction due to the clearing and paving of portions of the project area, and thus the loss of community area. Table 3 summarizes potential losses to these communities, resulting from project construction. Calculated impacts to terrestrial communities reflect the relative abundance of each community present in the study area. Estimated impacts are derived based on the entire proposed right-of-way width of 18.2 meters (60.0 feet) for the bridge replacement for alternate 1 and 2 and a proposed right-of-way width of 18.2 meters (60 feet.) for the on-site detour. However, project construction often does not require the entire right-of-way; therefore, actual impacts may be considerably less.

Table 3. Estimated Area Impacts to Terrestrial Communities.

Community	Impacted Area hectares (acres)		
	Alt. 1*	Alt. 2*	On-Site for Alt.1 Detour **
Maintained / Disturbed	0.01 ha (0.02 ac)	0.07 ha (0.17 ac)	0.07 ha (0.17 ac)
Riparian Community	0.00 ha (0.01 ac)	0.03 ha (0.07 ac)	0.03 ha (0.07 ac)
Total Impacts	0.01 ha (0.03 ac)	0.10 ha (0.24 ac)	0.10 ha (0.24 ac)

*Permanent Impacts

**Temporary Impacts

Aquatic Impacts

Impacts to the aquatic communities of Right Fork Cane Creek will result from the replacement of Bridge No. 175. Impacts are likely to result from the physical disturbance of aquatic habitats (i.e. substrate and water quality). Disturbance of aquatic habitats has a detrimental effect on aquatic community composition by reducing species diversity and the overall quality of aquatic habitats. Physical alterations to aquatic habitats can result in the following impacts to aquatic communities:

- Inhibition of plant growth.
- Algae blooms resulting from increased nutrient concentrations.
- Loss of benthic macroinvertebrates through scouring resulting from an increased sediment load.

Impacts to aquatic communities can be minimized by strict adherence to Best Management Practices (BMP's).

From a natural resources perspective, Alternate 2 is the preferred alternate.

JURISDICTIONAL TOPICS

This section provides inventories and impact analyses pertinent to two significant regulatory issues: Waters of the United States and rare and protected species. These issues retain particular significance because of federal and state mandates that regulate their protection. This section deals specifically with the impact analyses required to satisfy regulatory authority prior to project construction.

Waters of the United States

Surface waters and wetlands fall under the broad category of "Waters of the United States," as defined in Section 33 of the Code of Federal Register (CRF) Part 328.3. Any action that proposes to dredge or place fill material into surface waters or wetlands falls under the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344). Surface waters include all standing or flowing waters which have commercial or recreational value to the public. Wetlands are identified based on the presence of hydric soils, hydrophytic vegetation, and saturated or flooded conditions during all or part of the growing season.

Characteristics of Wetlands and Surface Waters

Criteria to delineate jurisdictional wetlands include evidence of hydric soils, hydrophytic vegetation and hydrology. **There are no jurisdictional wetlands located in the project area, therefore no wetland impacts will result from the construction of this project.** Impacts to jurisdictional surface waters are calculated based on the linear feet of the stream that is located within the proposed right-of-way. Physical aspects of surface waters are described earlier. Impacts to jurisdictional surface waters within in the project right-of-way could possibly impact, but not to exceed, 60 linear feet (18.3 meters) of creek (proposed right-of-way) for Alternate 1 and Alternate 2. The on-site detour possible impacts would not exceed 60 linear feet (18.3 meters) of surface water (proposed right-of-way).

Permits

Impacts to jurisdictional surface waters are anticipated from the proposed project. As a result, construction activities will require permits and certifications from various regulatory agencies in charge of protecting the water quality of public water resources.

A **Nationwide Permit** 33 CFR 330.5(a) (23) is likely to be applicable for all impacts to Waters of the United States resulting from the proposed project. This permit authorizes activities undertaken, assisted, authorized, regulated, funded or financed in whole, or part, by another Federal agency or department where that agency or department has determined that pursuant to the council on environmental quality regulation for implementing the procedural provisions of the National Environmental Policy Act:

- (1) that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and;
- (2) that the office of the Chief of Engineers has been furnished notice of the agency' or department's application for the categorical exclusion and concurs with that determination.

This project will also require a **401 Water Quality Certification** from the DWQ prior to the issuance of the Nationwide Permit. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to Waters of the United States. Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. The issuance of a 401 certification from the DWQ is a prerequisite to issuance of a Section 404 permit.

Avoidance, Minimization, Mitigation

The COE 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, specifically wetlands. Mitigation of wetland impacts has been defined by the 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 mitigation examines all appropriate and practicable possibilities of averting impacts to Waters of the United States. According to a 1990 Memorandum of Agreement

(MOA) between the Environmental Protection Agency (EPA) and the COE, 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.

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to Waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction to median widths, right-of-way widths, fill slopes and/or road shoulder widths.

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. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation and enhancement of Waters of the United States, specifically wetlands. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site.

Compensatory mitigation is required for those projects authorized under Nationwide Permits that result in the fill or alteration of:

- More than 0.41 hectares (1.0 acres) of wetlands;
- And/or more than 45.7 meters (150.0 linear feet) of streams.

Written approval of the final mitigation plan is required from the DWQ prior to the issuance of a 401 Certification. Final permit/mitigation decisions rest with the COE; although, **compensatory mitigation will not be required due to wetland impacts. Compensatory stream mitigation is not expected due to impacts (i.e. \leq 150 feet of linear streams).**

Rare and Protected Species

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to coexist with human development. Federal law (under the provisions of the Endangered Species Act of 1973, as amended) requires that any action, likely to adversely affect a species classified as federally-protected, be subject to review by the United States Fish and Wildlife Service (FWS). Other species may receive additional protection under separate state laws.

Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of the current listing, the FWS lists eight species as federally-protected for Mitchell County. A brief description of each species and their habitat follows Table 4.

Table 4. Federally Protected Species for Mitchell County

Common Name	Scientific Name	Status
Carolina northern flying squirrel	<i>Glaucomys sabrinus coloratus</i>	Endangered
Indiana Bat	<i>Myotis sodalis</i>	Endangered
Appalachian elktoe	<i>Alasmidonta raveneliana</i>	Endangered
Spreading Avens	<i>Geum radiatum</i>	Endangered
Heller's blazing star	<i>Liatris helleri</i>	Threatened
Blue Ridge goldenrod	<i>Solidago spithamae</i>	Threatened
Virginia spiraea	<i>Spiraea virginiana</i>	Threatened
Rock gnome lichen	<i>Gymnoderma lineare</i>	Endangered

Note:

Endangered - A taxon "in danger of extinction throughout all or a significant portion of its range".

Threatened - A taxon "likely to be becoming endangered within the foreseeable future throughout all or a portion of its range".

Glaucomys sabrinus coloratus (Carolina northern flying squirrel) **E**

Animal Family: Sciuridae

Date Listed: 7/1/85

Distribution in N.C.: Avery, Buncombe, Graham, Haywood, Jackson, McDowell, Mitchell, Swain, Transylvania, Watauga, Yancey.

The Carolina northern flying squirrel has a large well furred flap of skin along either side of its body. This furred flap of skin is connected at the wrist in the front and at the ankle in the rear. The skin flaps and its broad flattened tail allow the northern flying squirrel to glide from tree to tree. It is a solely nocturnal animal with large dark eyes.

There are several isolated populations of the Carolina northern flying squirrel in the western part of North Carolina, along the Tennessee border. This squirrel is found above 5000.0 ft (1517.0 m) in the vegetation transition zone between hardwood and coniferous forests. Both forest types are used to search for food and the hardwood forest is used for nesting sites.

Biological Conclusion:

No Effect

The Carolina northern flying squirrel is found at elevations exceeding 5,000 feet (1524 meters). The project site is located at an elevation around 3,000 feet (914 meters). Therefore, habitat for the squirrel does not exist in the project area. It can be concluded that construction of this project will have no effect on this species.

Myotis sodalis (Indiana bat) **E**

Animal Family: Vespertilionidae

Date Listed: 3/11/67

Distribution in N.C.: Jackson, Mitchell, Rutherford, Swain.

Adult Indiana bats are the smallest bats found in western North Carolina. Several characteristics can be used to distinguish them from other bats; the hair on the feet is short and does not extend past the tips of the claws, the tail membrane is attached to the

base of the keel, and the calcar (cartilaginous spur from the bats heel which helps support tail or interfemoral membrane) is keeled. The Indiana bats dorsal fur is brown in color and the ventral fur is lighter with a cinnamon hue.

The range of the Indian bat centers around cavernous limestone regions in the eastern United States. The Indiana bat has different summer and winter habitat requirements. Winter habitat is in caves and abandoned mines that usually has standing water on the floor. The bat migrate to the winter habitat between September and November; they stay there with occasional periods of activity until they emerge in mid-March to early May. Hibernation only occurs in regions where winter temperatures are stable and are around four degrees Celcius. Little is known of the summer habitat of the Indiana bat, it is thought that they disperse throughout their range and spend the summer foraging alone over streams or along forest margins. They have been found under loose bark on dead and living trees along small to medium-sized streams.

Optimum foraging is over streams with mature riparian vegetation overhanging the water by more than 9 feet (3 meters). Streams that have been stripped of their riparian vegetation do not appear to offer suitable foraging habitat. Rivers as foraging areas and as migration routes are extremely important to this species.

Biological Conclusion:

No Effect

Habunacula habitat for the Indiana Bat, which are specific sites such as caves or mines that attain appropriate temperature of around 50 degrees Fahrenheit do not exist within the project vicinity. Summer roost habitat used by the bat are dead or dying trees that the bark has begun to loosen and fall. The bats use the area between the loose bark and the tree for roost. The riparian area that would be impacted by this project totals approximately 30 feet (9 meters) on either side of the stream. Trees in this area ranged from 5 to 50 years old. There were no dead or dying trees located in the project area that would provide suitable roosting habitat for the bats. The Mitchell county listing for this species is based on one sighting that has no reference to a date. It can be concluded that the construction of this project will have no effect on this species.

Alasmidonta raveneliana (Appalachian elktoe) E

Animal Family: Unionidae

Date Listed: 9/3/93

Distribution in N.C.: Buncombe, Graham, Haywood, Macon, Mitchell, Swain, Transylvania, Yancey.

The Appalachian elktoe is a small mussel with a maximum length reaching up to 8.0 cm. Its shell is thin although the shell is not fragile nor subovate (kidney-shaped). The periostracum (outer shell) of the adult Appalachian elktoe is dark brown in color, while juveniles have a yellowish-brown color.

Two known populations of the Appalachian elktoe exist in North Carolina; the Nolichucky River (including its tributaries of the Cane River and the North Toe River), and the Little Tennessee River and its tributaries. The Appalachian elktoe has been observed in gravelly substrates often mixed with cobble and boulders, in cracks of bedrock and in relatively silt-free, coarse sandy substrates.

Biological Conclusion:

Not Likely to Adversely Affect

This bridge replacement project crosses Right Fork Cane Creek which is a tributary to the North Toe River. Populations of the Appalachian elktoe are known to exist in the North Toe River. Stream dimensions of Right Fork Cane Creek at the project site would not be considered conducive to maintaining a population of Appalachian elktoe. The stream is approximately 3 to 5 feet (1 to 1.5 meters) wide and ranged in depth from 1 to 6 inches. Much of the streambed is made up of pebble and large cobble. Mussel surveys were not conducted during the field survey of this project. This was due to the lack of good habitat and the unlikeliness of finding mussels in this area of Right Fork Cane Creek. Erosion control for high quality waters (design standards in sensitive water sheds) should be implemented to avoid potential impacts to the area population downstream in the North Toe River. If these standards are adhered to it can be concluded that the construction of this bridge is not likely to adversely affect the Appalachian elktoe.

Geum radiatum (spreading avens) E

Plant Family: Rosaceae

Federally Listed: April 5, 1990

Flowers Present: June - early July

Distribution in N.C.: Ashe, Avery, Buncombe, Burke, Caldwell, Mitchell, Stokes, Transylvania, Watauga, Yancey.

Spreading avens is a perennial herb having stems with an indefinite cyme of bright yellow radially symmetrical flowers. Flowers of spreading avens are present from June to early July. Spreading avens has basal leaves which are odd-pinnately compound; terminal leaflets are kidney shaped and much larger than the lateral leaflets, which are reduced or absent.

Spreading avens is found only in the North Carolina and Tennessee sections of the Southern Appalachian Mountains. Spreading avens occurs on scarps, bluffs, cliffs and escarpments on mountains, hills, and ridges. Known populations of this plant have been found to occur at elevations of 5060-5080 (feet 1535-1541 meters), 5680-5760 feet (1723-1747 meters) and 5800 feet (1759 meters). Other habitat requirements for this species include full sunlight and shallow acidic soils. These soils contain a composition of sand, pebbles, humus, sandy loam, clay loam, and humus. Most populations are pioneers on rocky outcrops.

Biological Conclusion:

No Effect

Habitat for this species is at elevations at or above 5060 feet (1542 meters). The project site is located at an elevation of approximately 3000 feet (914 meters) with no outcrops. Therefore, habitat for spreading avens does not exist in the project area. It can be concluded that the construction of this project will have no effect on this species.

Liatris helleri (Heller's blazing star) T

Plant Family: Asteraceae

Federally Listed: November 19, 1987

Flowers Present: late June - August

Distribution in N.C.: Ashe, Avery, Burke, Caldwell, Mitchell, Watauga.

Heller's blazing star is a short, stocky plant that has one or more erect stems that arise from a tuft of narrow, pale green basal leaves. Leaves are acuminate and diminish in size and breadth upward on the stem. Heller's blazing star has small lavender flowers and its fruits appear from September to November.

Heller's blazing star is endemic to high elevation ledges of rock outcrops of the northern Blue Ridge Mountains in North Carolina. Known populations of this plant occur at elevations of 1067-1829 meters (3500-6000 feet). Heller's blazing star is an early pioneer species growing on grassy rock outcrops where it is exposed to full sunlight. Heller's blazing star prefers shallow acid soils associated with granite rocks.

Biological Conclusion:

No Effect

Heller's blazing star is found at elevations at or above 3500 feet (1067 meters) on ledges of rock outcrops. The project area is located in a valley along a stream crossing at an elevation around 3000 feet (914 meters). Habitat does not exist for Heller's blazing star within project area. It can be concluded that the construction of this project will have no effect on this species.

Solidago spithamaea (Blue Ridge goldenrod) T

Plant Family: Asteraceae

Federally Listed: March 28, 1985

Flowers Present: mid July - August

Distribution in N.C.: Avery, Caldwell, Mitchell, Watauga.

Blue Ridge goldenrod is a perennial herb having erect stems that grows from a short stout rhizome. This herb is usually covered with whitish hairs. The yellow flowers are borne in heads arranged in a corymbiform inflorescence.

Blue Ridge goldenrod is found only on high mountain peaks in North Carolina and Tennessee. The Blue Ridge goldenrod inhabits rock outcrops, ledges, cliffs, and balds at elevations above 1400 meters (4592 feet). It grows in humus or clay loams on igneous and metasedimentary rock. Sites are usually exposed to full sun and have shallow acidic (pH 4.0) soils. Ideal sites are intermittently saturated but excessively to moderately poorly drained.

Biological Conclusion:

No Effect

The Blue Ridge goldenrod is found on mountain peaks at elevations above 4592 feet (1400 meters). The project area is located in a river valley along a stream crossing at an elevation around 3000 feet (914 meters). There is no habitat for the Blue Ridge goldenrod within the project area. It can be concluded that the construction of this project will have no effect on this species.

Spiraea virginiana (Virginia spiraea) T

Plant Family: Rosaceae

Federally Listed: June 15, 1990

Flowers Present: June - July

Distribution in N.C.: Ashe, Buncombe, Clay, Graham, Macon, Mitchell, Yancey.

This shrub has arching and upright stems that grow from one to three meters tall. Virginia spiraea often grows in dense clumps, having alternate leaves which vary greatly in size, shape, and degree of serration. The leaves are green above and usually somewhat glaucous below. The cream colored flowers are present from June to July and occur in branched, flattened inflorescences. Virginia spiraea is easily located during the late fall

while herbaceous growth is minimal and the leaves are down.

Virginia spiraea is found in a very narrow range of habitats in the mountains of North Carolina. Habitats for the plants consist of scoured banks of high gradient streams, on meander scrolls, point bars, natural levees, or braided features of lower reaches. The scour must be sufficient to prevent canopy closure, but not extreme enough to completely remove small, woody species. This species occurs in the maximum floodplain, usually at the water's edge with various other disturbance-dependent species. It is most successful in areas with full sunlight, but can survive in shaded areas until it is released from competition.

Biological Conclusion:

No Effect

Habitat does not exist within the project area for Virginia spiraea. The riparian area around Right Fork Cane Creek is well developed on both sides of the creek. This riparian community is made up of a well established tree canopy from 5 to 60 years old that shade out areas in the understory and around the creek banks. The width of the creek is 3 to 6 feet (1 to 2 meters) at the water's edge and is not wide enough to allow an opening in the canopy that would allow adequate sunlight for such species as Virginia spiraea. It can be concluded that the construction of this project will have no effect on this species.

Gymnoderma lineare (rock gnome lichen) E

Plant Family:

Federally Listed: December 28, 1994

Distribution in N.C.: Ashe, Avery, Buncombe, Graham, Haywood, Jackson, Mitchell, Rutherford, Swain, Transylvania, Yancey.

The rock gnome lichen is a squamulose lichen in the reindeer moss family. The lichen can be identified by its fruiting bodies which are born singly or in clusters, black in color, and are found at the tips of the squamules. The fruiting season of the rock gnome lichen occurs from July through September.

The rock gnome lichen is a narrow endemic, restricted to areas of high humidity. These high humidity environments occur on high elevation (≥ 4000 feet/1220 meters) mountaintops and cliff faces which are frequently bathed in fog or lower elevation (<2500 feet /762 meters) deep gorges in the Southern Appalachians. The rock gnome lichen primarily occurs on vertical rock faces where seepage water from forest soils above flows at (and only at) very wet times. The rock gnome lichen is almost always found growing with the moss Adreaea in these vertical intermittent seeps. The major threat of extinction to the rock gnome lichen relates directly to habitat alteration/loss of high elevation coniferous forests. These coniferous forests usually lie adjacent to the habitat occupied by the rock gnome lichen. The high elevation habitat occurs in the counties of Ashe, Avery, Buncombe, Graham, Haywood, Jackson, Mitchell, Rutherford, Swain, Transylvania, and Yancey. The lower elevation habitat of the rock gnome lichen can be found in the counties of Jackson, Rutherford and Transylvania

Biological Conclusion:

No Effect

Habitat for the rock gnome lichen is found at high elevations around 4000 feet (1219 meters) on mountaintops and cliff faces. The project area is located in a river valley at an elevation of approximately 3000 feet (914 meters). There is no habitat for the rock gnome lichen within the project area. It can be concluded that the construction of this project will have no effect on this species.

Federal Species of Concern and State Listed Species

Federal species of concern are not afforded federal protection under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. However, the status of these species is subject to change, and so should be included for consideration. Federal Species of Concern (FSC) are defined as a species that is under consideration for listing for which there is insufficient information to support listing. In addition, organisms which are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the North Carolina Natural Heritage Program list of Rare Plant and Animal Species are afforded state protection under the NC State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979. There are twenty federal species of concern listed by the FWS for Mitchell County. (Table 5)

Table 5. Federal Species of Concern for Mitchell County.

Scientific Name	Common Name	NC Status	Habitat
<i>Aegolius acadicus</i>	Southern Appalachian saw-whet owl	SC/PT	NO
<i>Contopus cooperi</i>	Olive-sided flycatcher	SC	NO
<i>Loxia curvirostra</i>	Southern Appalachian red crossbill	SR/PSC	NO
<i>Neotoma magister</i>	Alleghany woodrat	SC*	NO
<i>Parus atricapillus praticus</i>	Southern Appalachian black-capped chickadee	SC	NO
<i>Percina squamata</i>	Olive darter	SC	YES
<i>Sphyrapicus varius appalaciensis</i>	Southern Appalachian yellow-bellied sapsucker	SR/PSC	NO
<i>Sylvilagus obscurus</i>	Appalachian cottontail	SR	NO
<i>Paravitrea varidens</i>	Roan supercoil	T	YES
<i>Speyeria diana</i>	Diana fritillary butterfly	SR*	YES
<i>Abies fraseri</i>	Fraser fir	C	NO
<i>Buckleya distichophylla</i>	Piratebush	E	NO
<i>Carex roanensis</i>	Roan sedge	C	NO
<i>Delphinium exaltatum</i>	Tall larkspur	E-SC *	NO
<i>Euphorbia purpurea</i>	Glade spurge	C	NO
<i>Geum geniculatum</i>	Bent avens	T	NO
<i>Juglans cinerea</i>	Butternut	W5	NO
<i>Lilium grayi</i>	Gray's lily	T-SC	NO
<i>Paxistima canbyi</i>	Canby's mountain lover (=cliff green)	W4*	NO
<i>Plagiochila sullivanii</i> var. <i>sullivanii</i>	A liverwort	C	NO
<i>Sphenolobopsis pearsonii</i>	A liverwort	PE	NO

"E"--An Endangered species is one whose continued existence as a viable component of the State's flora is determined to be in jeopardy.

"T"--A Threatened species is one which is likely to become endangered species within the foreseeable future throughout all or a significant portion of its range.

"SC"--A Special Concern species is one which requires monitoring but may be taken or collected and sold under regulations adopted under the provisions of Article 25 of Chapter 113 of the General Statutes (animals) and the Plant Protection and Conservation Act (plants). Only propagated material may be sold of Special Concern plants that are also listed as Threatened or Endangered.

"C"--A Candidate species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat

destruction, direct exploitation or disease. The species is also either rare throughout its range or disjunct in North Carolina from a main range in a different part of the country or the world.

“SR”--A Significantly Rare species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species is generally more common elsewhere in its range, occurring peripherally in North Carolina.

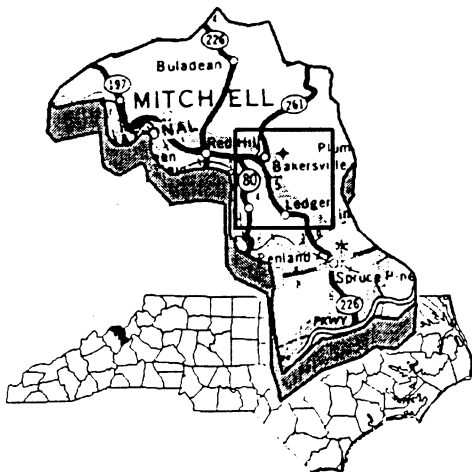
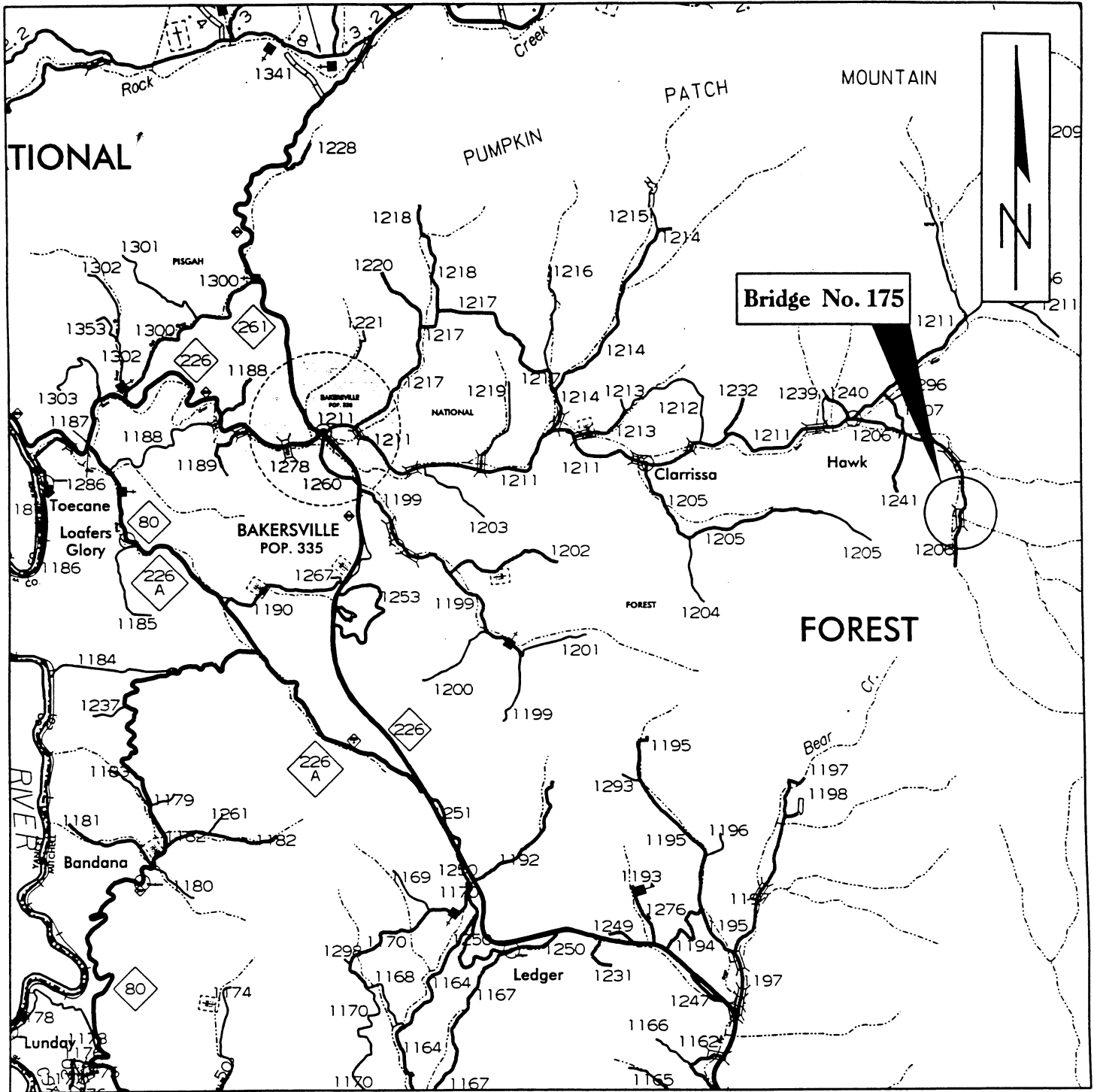
“W4”--A Watch Category 4 species is a species known to occur in North Carolina, which current data indicates is not native to North Carolina, but whose native occurrence is plausible.

“W5”--A Watch Category 5 species is a species with increasing amounts of threats to its habitat; populations may or may not be known to be declining.

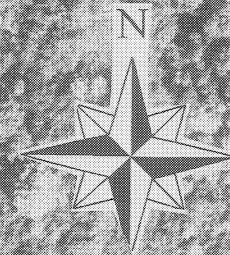
“/P_”--denotes a species which has been formally proposed for listing as Endangered, Threatened, or Special Concern, but has not yet completed the listing process.

* -- Historic record - the species was last observed in the county more than 50 years ago.

A review of the NCNHP database of rare species and unique habitats shows no occurrences of rare species within the project vicinity.



	<p>North Carolina Department of Transportation Division of Highways Project Development & Environmental Analysis Branch</p>
<p align="center">Mitchell County Replace Bridge No. 175 on SR 1206 Over Creek B-3678</p>	
<p>SCALE: 1 in = 1 mi</p>	<p align="right">Figure 1</p>



Proposed Alignment for
Alternate 1 Onsite Detour and
Alternate 2 New Alignment

Remove Existing
Bridge No. 175

	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH
	MITCHELL COUNTY REPLACE BRIDGE 175 ON SR 1206 OVER RIGHT FORK CANE CREEK B-3678
Scale 1:1250	Figure Two



Bridge No. 175
West Face of Bridge



Center of Bridge Facing South



Center of Bridge Facing North

FIGURE 4



☒ North Carolina Wildlife Resources Commission ☒

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188; 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: John Williams, Project Planning Engineer
Project Development & Environmental Analysis Branch, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program *David Cox*

DATE: March 10, 2000

SUBJECT: NCDOT Bridge Replacements in Cherokee, Chowan, McDowell,
Mitchell, Rutherford, and Swain counties. TIP Nos. B-3635, B-3636, B-
3675, B-3873, B-3678, B-3697 and B-3701.

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

On bridge replacement projects of this scope our standard recommendations 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, NCDOT biologist Mr. Tim Savidge 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.

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

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If multiple cells are required the second and/or third cells should be placed so that their bottoms are at stream bankfull stage (similar to Lyonsfield design). This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, baffle systems are required to trap gravel and provide resting areas for fish and other aquatic organisms.
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 so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.
4. Riprap should not be placed on the stream bed.

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. 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. B-3635 – Cherokee County – Bridge No. 26 over Junaluska Creek. Comments may have been submitted directly to the US Army Corps of Engineers on this project. Standard recommendations apply.
2. B-3636 – Chowan County – Bridge No. 16 over Rocky Hock Creek. We would prefer this bridge be replaced with a bridge. Standard recommendations apply.
3. B-3675 – McDowell County – Bridge No. 248 over Cove Creek. We would prefer this bridge be replaced with a bridge. If possible, we request that any temporary detours or in-water work occur downstream of the existing bridge. Standard recommendations apply.
4. B-3873 – McDowell County – Bridge No. 183 over Fork Muddy Creek. Standard recommendations apply.
5. B-3678 – Mitchell County – Bridge No. 175 over Un-named tributary of Cane Creek. This stream has excellent habitat for Brook and Rainbow trout. We request an in-water work moratorium from November 1 to April 15. Standard recommendations apply.
6. B-3697 – Rutherford County – Bridge No. 270 over Broad River. We would prefer this bridge be replaced with a bridge. Standard recommendations apply.
7. B-3701 – Swain County – Bridge No. 106 over Alarka Creek. Comments may have been submitted directly to the US Army Corps of Engineers on this project. Standard recommendations apply.

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 (919) 528-9886. Thank you for the opportunity to review and comment on these projects.



North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

September 12, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook *David Brook*
Deputy State Historic Preservation Officer

Re: Replacement of Bridge No. 175 on SR 1206 over Staggerweed Creek,
TIP No. B-3678, Mitchell County, ER 00-8443

On February 29, 2000, April Montgomery of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon our review of the photographs and the information discuss at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources, we are aware of no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources, which may be eligible for inclusion in the National Register of Historic Places, will be affected by the project construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

Having provided this information, we look forward to receipt of either a Categorical Exclusion or Environmental Assessment, which indicates how NCDOT addressed our comments.

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, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

January 17, 2002

Mr. John L. Williams
Planning Engineer
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Williams:

Subject: Endangered Species Concurrence for Replacement of Bridge No. 175 over the Right Fork Cane Creek, SR 1206, Mitchell County, North Carolina, Federal Aid Project No. BRZ-1206(2), State Project No. 8.2880601, TIP No. B-3678

As requested in your letter of October 17, 2001, we have reviewed the natural resources report and biological conclusions for federally protected species for the subject project. Our comments are provided in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e), and Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

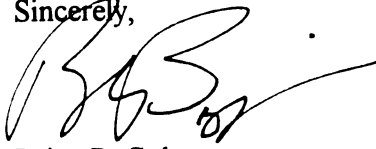
According to the information in your report, eight federally listed species were considered for Mitchell County. These include the endangered Appalachian elktoe (*Alasmidonta raveniliana*), Carolina northern flying squirrel (*Glaucomys sabrinus coloratus*), Indiana bat (*Myotis sodalis*), spreading avens (*Geum radiatum*), and rock gnome lichen (*Gymnoderma lineare*) and the threatened Blue Ridge goldenrod (*Solidago spithamae*), Heller's blazing star (*Liatris helleri*), and Virginia spirea (*Spiraea virginiana*). Given the lack of suitable habitat in the project area, we concur with your conclusion of "no effect" for the Carolina northern flying squirrel, Indiana bat, spreading avens, rock gnome lichen, Blue Ridge goldenrod, Heller's blazing star, and Virginia spirea.

A site investigation revealed that there is no suitable habitat for the Appalachian elktoe in the vicinity of the project. Right Fork Cane Creek is a tributary to the North Toe River, and while Appalachian elktoe mussels occur in the North Toe River, the project area is miles from occupied habitat. Bridge construction at this site requires no in-stream work, and the existing bridge will

be removed with no resulting temporary fill. Provided erosion control for high-quality waters is implemented and strictly adhered to, we concur with your conclusion of "not likely to adversely affect" for the Appalachian elktoe (*Alasmidonta raveniliana*). We believe the requirements under Section 7(c) of the Act are fulfilled. However, obligations under Section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning this project, please reference our Log Number 4-2-02-116.

Sincerely,


for Brian P. Cole
State Supervisor

cc:

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

Ms. Cynthia Van Der Wiele, North Carolina Department of Environment and Natural Resources, Division of Water Quality, Wetlands Section, 1621 Mail Service Center, Raleigh, NC 27699-1621

Ms. Mary Ellen Haggard, Highway Project Coordinator, North Carolina Wildlife Resources Commission, P.O. Box 387, Elkin, NC 28621



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 19, 2003

Memorandum To: John Williams, P.E., Project Planning Engineer
Project Planning Unit, PDEA Branch, NCDOT

From: Tim Basette, Environmental Specialist III
Office of Natural Environment, PDEA Branch, NCDOT

Subject: Construction Consultation for Bridge No. 175 in McDowell
County (TIP No. B-3678, State Project No. 8.2880601, Federal Aid
Project No. BRZ-1206(2))

Reference: - Categorical Exclusion, (USDOT, FHWA, and NCDOT; January
2002)

The proposed project calls for the replacement of Bridge No. 175 on SR 1206 (Stagger Weed Road) over Right Fork Cane Creek in Mitchell County. The following memorandum addresses the spruce-fir moss spider (*Microhexura montivaga*), a federally protected species listed by the United States Fish and Wildlife Service for Mitchell County. The memo also and serves to update the project's January 2002 Categorical Exclusion (CE) document.

The endangered spruce-fir moss spider was added to the list of federally protected species in Mitchell County per the January 29, 2003 update of this list, and subsequent to the completion of the Natural Resources Technical Report for this project. Likewise, the critical habitat area for this species was also added to the protected species information for Mitchell County in the January 29, 2003 list. For this reason, the proposed project site was recently assessed for the potential presence of this species. Information regarding this species and its protected habitat, as well as a Biological Conclusion, follows.

***Microhexura montivaga* (Spruce-fir moss spider)**

Endangered

Invertebrate family: Dipluridae
Federally Listed: 1995

The spruce-fir moss spider is a small spider, approximately 0.25 to 0.38 cm (0.1 to 0.15 in) in length. It ranges from light brown to yellow-brown to a darker reddish

brown, with no markings on its abdomen. This species is one of only two species belonging to the genus *Microhexura* in the family Dipluridae. Diplurids belong in the primitive suborder Mygalomorphae, which are often popularly referred to as “tarantulas”. The spruce-fir moss spider is distinguished by chelicerae that project forward beyond the anterior edge of the carapace. Other characteristics include long posterior spinnerets, and a second pair of book lungs that appear as light patches behind the genital furrow.

The spruce-fir moss spider constructs tube-shaped webs in the interface between damp, well-drained moss mats and rock surfaces. It prefers well-shaded areas of mature Fraser fir and red spruce forest communities in the highest elevations of the Southern Appalachian Mountains. The spider has not been observed feeding and prey has not been found in the webs. It is likely that the abundant springtails (collembolans), which occur in the moss mats, are the food source for the spider.

Biological Conclusion

No Effect

Critical Habitat for this species has been designated within the Pisgah National Forest in Mitchell County. This area is located approximately 6 miles north of the proposed project.

There is no appropriate habitat within the project area for the spruce-fir moss spider. The project is located at approximately 2,900 feet in elevation, and no spruce-fir forests are located in the study area. This spider requires spruce-fir forests about 5,000 feet in elevation. Base on this information, no site survey was conducted for this species. A search of North Carolina Natural Heritage Program records on March 4, 2003 found no occurrence of this species within a 2-mile (3.2 km) radius of the project site. Therefore, the proposed project will have “No Effect” on this federally endangered species.

If you have any additional questions or concerns, please contact Mr. Tim Bassette, Environmental Specialist III, at 919-715-1341.

cc: John Williams, P.E., Project Planning Engineer, PDEA Branch, NCDOT
B-3678 project file

09/08/99

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

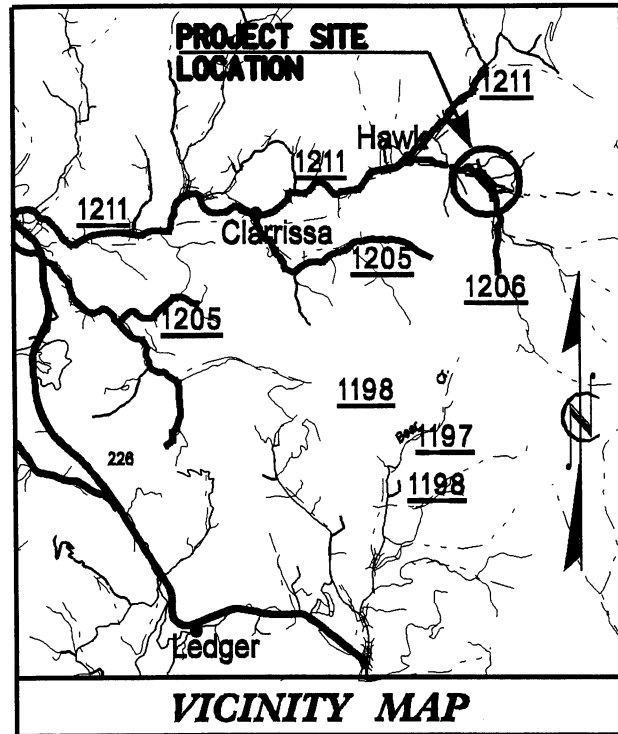
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MITCHELL COUNTY

LOCATION: REPLACE BRIDGE #175 OVER
MINE FORK CREEK ON SR 1206

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3678	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
8.2880601	BRZ-1206(2)	PE	
8.2880602	BRZ-1206(2)	ROW, UTIL.	
8.2880603	BRZ-1206(2)	CONST.	

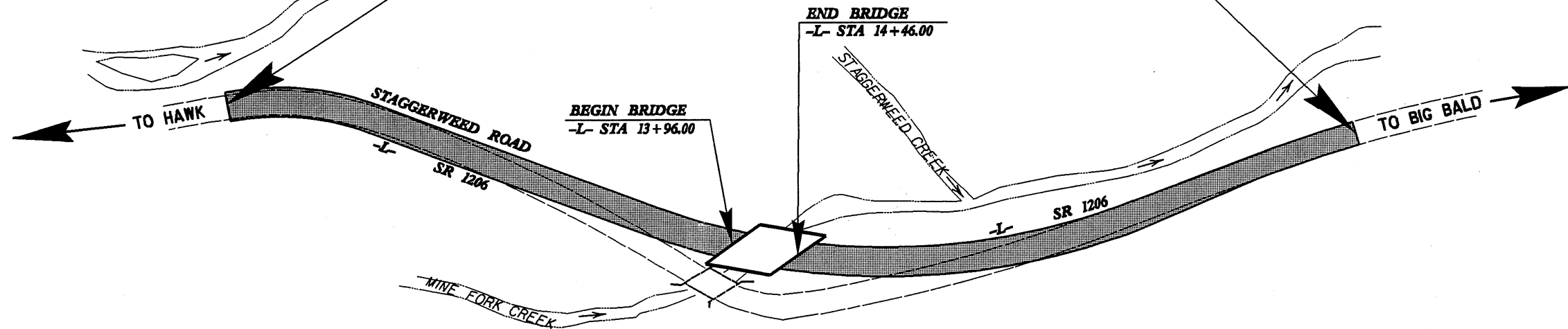


B-3678

PROJECT: 8.2880603

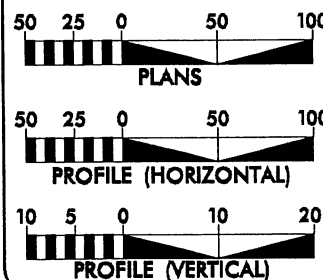
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-L- POC STA 9+80.00 BEG F. A. PROJ. BRZ-1206(2)

-L- POC STA 18+80.00 END STATE PROJ 8.2880603
-L- POC STA 18+80.00 END F. A. PROJ. BRZ-1206(2)



**DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT AND SUPERELEVATION

GRAPHIC SCALES



DESIGN DATA

ADT 2001 = 316
 ADT 2025 = 500
 DHV = 10 %
 D = 60 %
 *T = 4
 **V = 60 MPH
 * TTST 2 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY F. A. PROJECT BRZ-1206(2) = 0.160 MILES
 LENGTH STRUCTURE F. A. PROJECT BRZ-1206(2) = 0.0095 MILES
 TOTAL LENGTH STATE PROJECT 8.2880603 = 0.170 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 27, 2002

LETTING DATE:
SEPTEMBER 16, 2003

ROGER D. THOMAS, PE
PROJECT ENGINEER

BRIAN P. ROBINSON
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE
ROADWAY DESIGN
ENGINEER

SIGNATURE

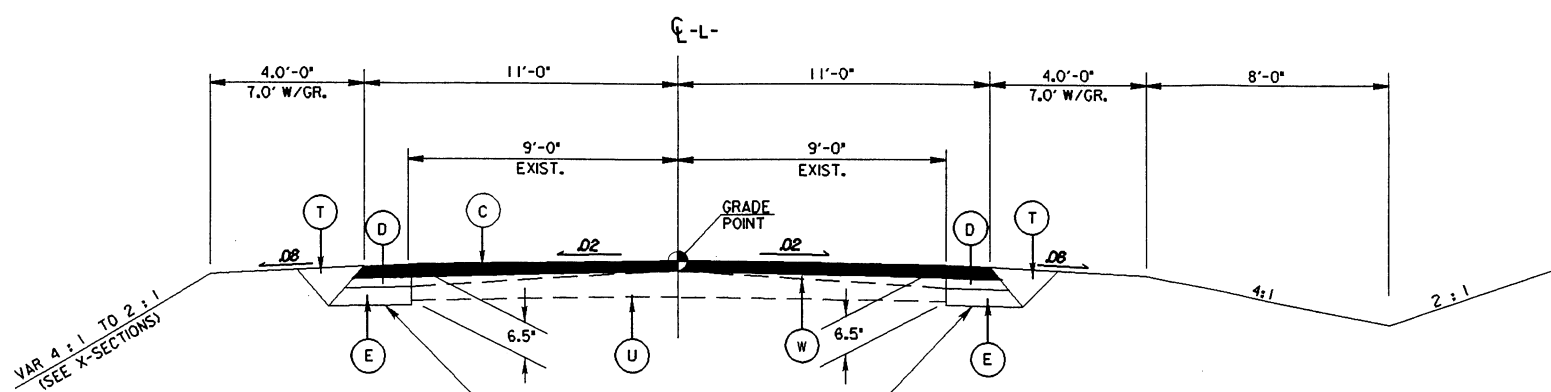
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

3-MAR-2003 15:35
PROJECT: 8.2880603
DRAWN BY: [unreadable]
CHECKED BY: [unreadable]

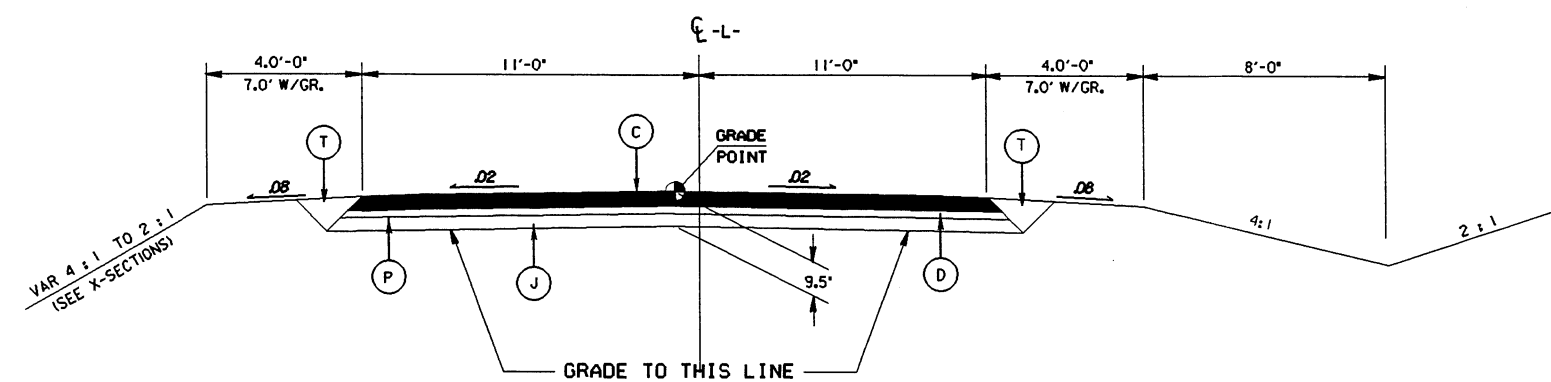
PROJECT REFERENCE NO. B-3678	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



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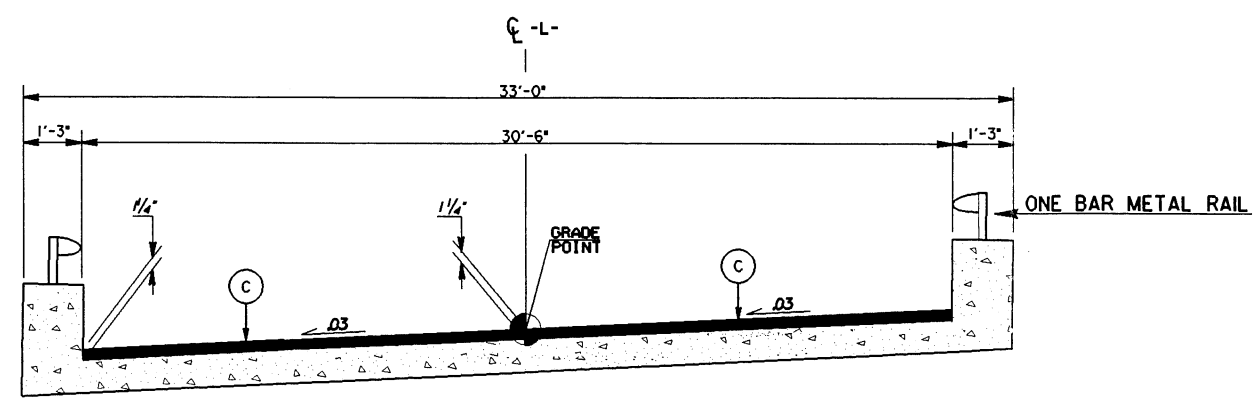
USE TYPICAL SECTION NO. 1
 -L- STA 10+00 TO 12+00
 -L- STA 17+00 TO 18+00

NOTE: OVERLAY EXISTING PAVEMENT WITH (C)
 -L- STA 9+80 TO 10+00
 -L- STA 18+00 TO 18+80



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
 -L- STA 12+00 TO 13+96.00 (BEGIN BRIDGE)
 -L- STA 14+46.00 (END BRIDGE) TO 17+00

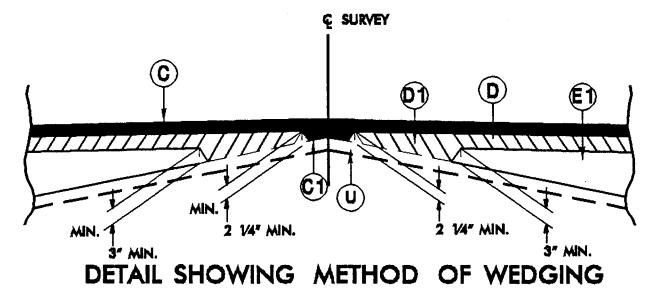


DETAIL FOR WEARING SURFACE ON CORED SLAB BRIDGE

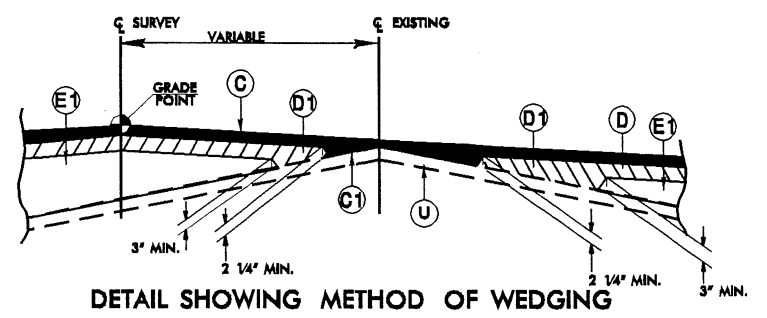
USE DETAIL AT THE FOLLOWING LOCATION
 -L- STA 13+96.00 (BEGIN BRIDGE)
 TO -L- STA 14+46.00 (END BRIDGE)

PAVEMENT SCHEDULE	
C	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 80.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD.
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 80.5A, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D	PROP. APPROX. 2.25" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 268.8 LBS. PER SQ. YD.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE WEDGING DETAIL)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



DETAIL SHOWING METHOD OF WEDGING



DETAIL SHOWING METHOD OF WEDGING

8/17/99

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BRETAR" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 838697.299(ft) EASTING: 108910.1398(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999909897 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BRETAR" TO -L- STATION 9+80.00 IS N 11 16 36.00 W 2472.8407(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

**** DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT AND SUPERELEVATION**

-L-


PI Sta 10+56.71 Δ = 30° 58' 54.4" (RT) D = 28' 00" 00.0" L = 10.65' T = 56.71' R = 204.63' SE = SEE PLANS	**PI Sta 15+31.67 Δ = 42° 58' 31.9" (LT) D = 10' 59' 50.2" L = 390.78' T = 205.10' R = 521.00' SE = SEE PLANS	PI Sta 18+98.82 Δ = 14° 20' 37.5" (RT) D = 5' 30" 00.0" L = 260.80' T = 131.08' R = 1041.74' SE = SEE PLANS
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-DRI-

PI Sta 10+39.90 Δ = 58° 58' 48.6" (RT) D = 190' 59" 09.4" L = 30.88' T = 16.97' R = 30.00'	PI Sta 11+55.00 Δ = 32° 27' 00.4" (LT) D = 286' 28" 44.0" L = 11.33' T = 5.82' R = 20.00'
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-DR2-

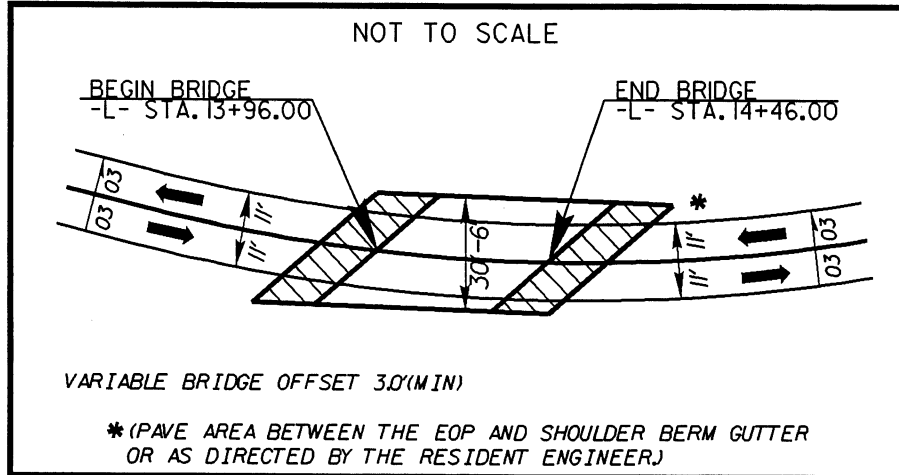
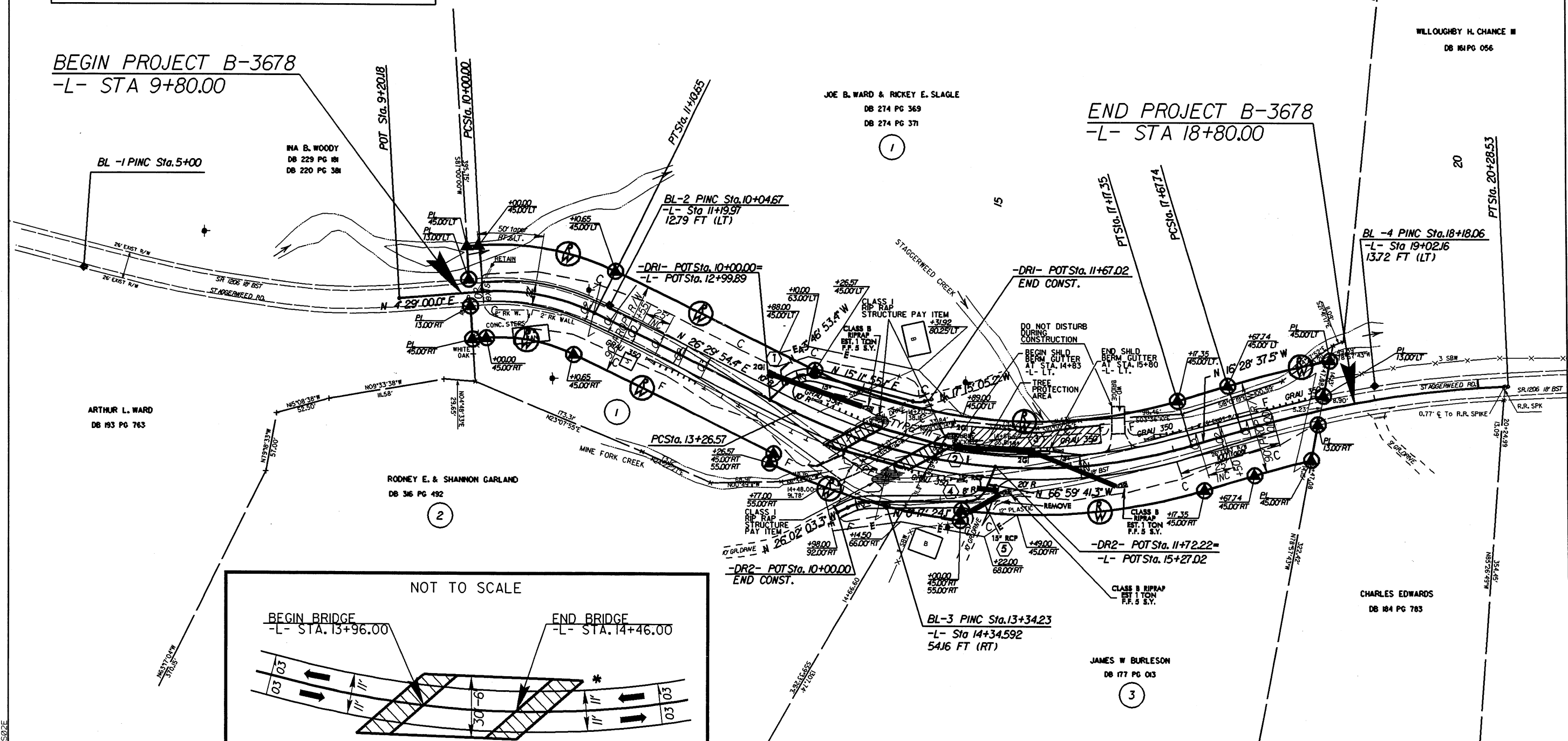
PI Sta 10+21.45 Δ = 23° 40' 22.6" (RT) D = 114' 35" 29.6" L = 20.66' T = 10.48' R = 50.00'	PI Sta 11+38.97 Δ = 66° 42' 17.1" (LT) D = 286' 28" 44.0" L = 23.28' T = 13.16' R = 20.00'
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PROJECT REFERENCE NO. B-3678	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER

NAD 83

BEGIN PROJECT B-3678
-L- STA 9+80.00

END PROJECT B-3678
-L- STA 18+80.00



 APPROACH SLAB

NOTE : SEE SHEET 5 FOR -L-, -DRI-, AND -DR2- PROFILE
NOTE : SEE SHEET S-1 THRU S-22 FOR STRUCTURE PLANS

18-MAR-2003 10:53:37
C:\PROJECTS\B-3678\PLANS\B-3678-04.DWG
PLANS