STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 6, 2008

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

ATTENTION: Mr. Monte Matthews
NCDOT Coordinator

Dear Sir:

SUBJECT: **Application for Nationwide 33** for the replacement of Bridge No. 320 over Beech Creek on SR 1153 (Wiley Harmon Road) in Watauga County. Federal Project No. BRZ-1153(6), WBS Element 33653.1.1, Division 11, T.I.P. No. B-4316.

Please see the enclosed Pre-Construction Notification (PCN), US Fish and Wildlife (USFWS) concurrence letter, Approved Jurisdictional Determination Form, permit drawings and design plans for the above referenced project. A Categorical Exclusion (CE) was completed for this project on March 9, 2004, and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace the 51-foot, three-span Bridge No. 320 with a new 135-foot, three-span cored slab bridge over Beech Creek. The bridge will be replaced on a new location located upstream (east) of the existing bridge. Traffic will be maintained on the existing bridge during construction. There will be <0.01 acre of temporary impacts from a temporary work pad and temporary workbridge.

IMPACTS TO WATERS OF THE UNITED STATES

General Description:
The single water resource impacted for project B-4316 is Beech Creek. Beech Creek is located in the Watauga River Basin [Division of Water Quality (DWQ) subbasin 04-02-01] and is approximately 27 feet wide and 2 feet deep within the project area. The DWQ Index number for

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-715-1334
FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
PARKER LINCOLN BUILDING,
2728 CAPITAL BLVD.
RALEIGH NC 27604

this section of Beech Creek is 8-20 and the Hydrological Cataloguing Unit is 06010103. The DWQ classifies Beech Creek as "C Tr". There are no High Quality Waters (HQW), Water Supplies (WS-I or WSII), Outstanding Resource Waters (ORW) or 303(d) streams within one mile of the project study area. No wetlands will be impacted by this project.

Permanent Impacts:
There will be no permanent impacts as a result of this project.

Temporary Impacts:
There will be temporary impacts to Beech Creek from a temporary work pad. This work pad will be at the base of Bent 2, and will catch drilling spoils from drilled pier construction. There will also be temporary impacts from a temporary work bridge on the west side of the existing bridge. Temporary surface water impacts total < 0.01 acre.

Utility Impacts:
There will be no jurisdictional impacts associated with utilities for this project.

Bridge Demolition:
Bridge No. 320 consists of a three-span structure composed of timber and steel. The superstructure consists of a timber floor on a steel girder floor system. The substructure consists of timber caps and piles. There is no anticipated temporary fill resulting from bridge demolition. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices (BMPs) for the Protection of Surface Waters and BMPs for Bridge Demolition and Removal.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 31, 2008, the USFWS lists eight federally protected species for Watauga County (Table 1).

Table 1. Federally Protected Species for Watauga County

Common Name	Scientific Name	Status	Habitat Notes	Biological Conclusion
Bog turtle	*Clemmys muhlenbergii*	T(S/A)	N/A	N/A
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	E	No Habitat	No Effect
Virginia big-eared bat	*Corynorhinus townsendii virginianus*	E	Foraging Habitat Present	May Affect, Not Likely to Adversely Affect
Spruce-fir moss spider	*Microhexura montivaga*	E	No Habitat	No Effect
Blue ridge goldenrod	*Solidago spithamaea*	T	No Habitat	No Effect
Heller's blazing star	*Liatris helleri*	T	No Habitat	No Effect
Roan mountain bluet	*Hedyotis purpurea* var. *montana*	E	No Habitat	No Effect
Spreading avens	*Geum radiatum*	E	No Habitat	No Effect

The biological conclusion for seven of these species is "No Effect" due to lack of habitat. There is potential foraging habitat for the remaining species, the Virginia big-eared bat. The biological conclusion for the Virginia big-eared bat is "May Affect, Not Likely to Adversely Affect". The USFWS concurred with this biological conclusion in a letter dated September 25, 2008.

MITIGATION

Avoidance and Minimization:
Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States." The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional stages; minimization measures were incorporated as part of the project design.

- The new bridge will be longer than the existing bridge, spanning Beech Creek.
- A temporary work bridge will be used, minimizing in-stream activities.
- There is a moratorium on in-stream activities from October 15 to April 15 to protect the egg and fry stages of trout (The North Carolina Wildlife Resources Commission (NCWRC) changed the moratorium start date from November 1st to October 15th since the CE was completed).
- The project will adhere to Design Standards for Sensitive Watersheds.
- Water will not be directly discharged into the Beech Creek via deck drains.

In addition, Best Management Practices will be followed as outlined in "NCDOT's Best Management Practices for Construction and Maintenance Activities".

Compensatory Mitigation:
NCDOT proposes no mitigation for this project as all impacts are temporary and not considered a "loss of waters of the U.S.".

PROJECT SCHEDULE

The project schedule calls for a February 17, 2009 Let date and a review date of December 30, 2008.

REGULATORY APPROVALS

Section 404 Permit:
It is anticipated that the temporary dewatering of Beech Creek will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing the temporary dewatering of Beech Creek.

Section 401 Permit:
We anticipate 401 General Certification number 3688 will apply to this project. The NCDOT will adhere to all general conditions of the Water Quality Certification. Therefore, in accordance with 15A NCAC 2H .0501(a), we are not requesting written concurrence. We are providing two

copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their records.

This Project is located in a trout county, therefore comments from the NCWRC will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC Review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers and the NCDOT within 30 calendar days of receipt of this application.

A copy of this application will be posted on the NCDOT website at http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Erin Cheely at ekcheely@ncdot.gov or (919) 715-5529.

Sincerely,

E. L. Lusk

for Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch

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

W/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Michael A. Pettyjohn, P.E. Division 11 Engineer
Mr. Heath Slaughter, Division 11 Environmental Officer
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Derrick Weaver, P.E., PDEA Consultant Engineering Unit Head
Mr. Scott McLendon, USACE, Wilmington

Office Use Only: Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☐ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NW 33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☐

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: 1598 Mail Service Center
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: ekcheely@ncdot.gov

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name:
   Company Affiliation:
   Mailing Address:
   Telephone Number: Fax Number:
   E-mail Address:

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Bridge No. 320 over Beech Creek on SR 1153

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4316

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Watauga Nearest Town: Banner Elk
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.):

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 36°14'10.92" °N -81°53'15.01" °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Watauga River

8. River Basin: Watauga River Basin
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: 90% forested, 10% residential/agricultural

10. Describe the overall project in detail, including the type of equipment to be used: Standard construction equipment will be used (backhoes, bulldozers, cranes and/or other heavy machinery)

11. Explain the purpose of the proposed work: The purpose of the project is to replace a functionally deficient and structurally obsolete structure (sufficiency rating 29.9 out of 100).

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: Permanent: No permanent impacts. Temporary: <0.01 total impacts - <0.01 acre of impact from a temporary workpad and <0.01 acre of impacts from a temporary workbridge.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
No Wetlands					
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property: N/A

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Site 1	Beech Creek	Temporary	Perennial	27 ft.	10	<0.01
Site 2	Beech Creek	Temporary	Perennial	27 ft.	10	<0.01
Total Permanent Stream Impact (by length and acreage)					0	0

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
No open water impacts				
Total Open Water Impact (acres)				

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	<0.01 (temp) 0 (permanent)
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	<0.01 (temp) 0 (permanent)
Total Stream Impact (linear feet):	20 (temp) 0 (permanent)

7. Isolated Waters
   Do any isolated waters exist on the property? ☐ Yes ☒ No
   Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.
   N/A

8. Pond Creation
   If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
   Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
   Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):_____
   Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____
   Current land use in the vicinity of the pond:_____
   Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. The new bridge will be longer than the old bridge and will span Beech Creek. A temporary work pad and temporary work bridge will minimize in-stream activities during construction. An in-stream work moratorium from October 15 – April 15 will be implemented to protect trout and the project will strictly adhere to Design Standards for Sensitive Watersheds. Water will not be directly discharged into Beech Creek via deck drains. NCDOT's Best Management Practices will be followed.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

   No mitigation is proposed for this project because the <0.01 acre (20 linear feet) of impacts are temporary and will not cause an adverse effect or significant loss of waters of the United States.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

   Amount of stream mitigation requested (linear feet): 0
   Amount of buffer mitigation requested (square feet): 0

Amount of Riparian wetland mitigation requested (acres): 0
Amount of Non-riparian wetland mitigation requested (acres): 0
Amount of Coastal wetland mitigation requested (acres): 0

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes ☒ No ☐

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation. Yes ☒ No ☐

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? Yes ☐ No ☒

2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3 (2 for Catawba)	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the

Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. Impervious surfaces will not significantly increase as a result of this project.

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.
N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
Yes ☐ No ☒

Is this an after-the-fact permit application? Yes ☐ No ☒

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:
The new bridge will be constructed adjacent to the old bridge.

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).
N/A

E. L. Lusk 10-7-08

Applicant/Agent's Signature **Date**
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

CR 9-29-08
CC: L Williams

Cheek

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801
September 25, 2008

Dr. Gregory J. Thorpe, Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: Endangered Species Concurrence, Proposed Replacement of Bridge No. 320 over Beech Creek on SR 1153 (Wiley Harmon Road) in Watauga County, North Carolina, Federal Project No. BRZ-1153(6), WBS Element No. 33653.1.1, T.I.P. No. B-4316

As requested by the North Carolina Department of Transportation (NCDOT), we have reviewed the design plans and accompanying report describing the habitat analysis and survey that was conducted for the federally endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus*) with regard to the subject proposed bridge replacement. Our comments are provided in accordance with the National Environmental Policy Act (42 U.S.C. 4332(2)(c)); the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e); section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act); and the Migratory Bird Treaty Act (16 U.S.C. 703, et seq.) (MBTA).

The NCDOT proposes to construct a spanning structure that will replace Bridge No. 320 (a 51-foot, three-span bridge) with a new bridge (a 125-foot, three-span bridge) over Beech Creek. The bridge will be replaced on a realignment located upstream (east) of the existing bridge, and traffic will be maintained on the existing bridge during construction.

Federally Listed Species – The listed species concurrence request we received was for the NCDOT's determination that the subject project is not likely to adversely affect the Virginia big-eared bat. It was determined that the project would have no effect on the Carolina northern flying squirrel (*Glaucomys sabrinus coloratus*), spruce-fir moss spider (*Microhexura montivaga*), Blue Ridge goldenrod (*Solidago spithamaea*), Heller's blazing star (*Liatris helleri*), Roan Mountain bluet (*Hedyotis purpurea* var. *montana*), or spreading avens (*Geum radiatum*), all of which occur in Watauga County.

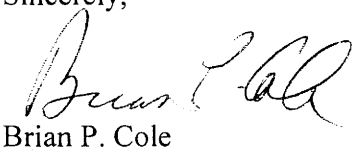
A habitat assessment was conducted on June 28, 2006. No evidence of bats roosting on the bridge was found, and there are no caves or mines within the project area. A rock outcrop in the vicinity was examined and did not appear to be suitable for bat roosting. Beech Creek is designated as a trout

water by the North Carolina Division of Water Quality and the North Carolina Wildlife Resources Commission. The NCDOT has agreed to sediment- and erosion-control measures that adhere to Design Standards for Sensitive Watersheds. The NCDOT should minimize impacts to the riparian area by removing as little vegetation as possible to construct the bridge. If these measures are implemented, we concur with the NCDOT's determination that the bridge construction and demolition may affect, but is not likely to adversely affect, the Virginia big-eared bat. Therefore, 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.

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

If you have questions about these comments, please contact Mr. Troy Wilson of our staff at 828/258-3939, Ext. 226. In any future correspondence concerning this project, please reference our Log Number 4-2-08-295.

Sincerely,



Brian P. Cole
Field Supervisor

cc:
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APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

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

SECTION I: BACKGROUND INFORMATION

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

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: B-4316 - Replacement of Bridge No. 320 over Beech Creek on SR 1153 (Wiley Harmon Road)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: North Carolina County/parish/borough: Watauga City: Banner Elk
Center coordinates of site (lat/long in degree decimal format): Lat. 36 14'10.92° N, Long. -81 53'15.01° W.
Universal Transverse Mercator:
Name of nearest waterbody: Beech Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Watauga River
Name of watershed or Hydrologic Unit Code (HUC): 06010103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

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

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 1200 linear feet: 27 width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

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

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

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

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

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

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

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

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

(i) General Area Conditions:
Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through Pick List tributaries before entering TNW.

Project waters are Pick List river miles from TNW.
Project waters are Pick List river miles from RPW.
Project waters are Pick List aerial (straight) miles from TNW.
Project waters are Pick List aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

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

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

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

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

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

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

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

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

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

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

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

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

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

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

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

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

(b) General Flow Relationship with Non-TNW:

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

Surface flow is: **Pick List**

Characteristics: .

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

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

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

(d) Proximity (Relationship) to TNW

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

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

Flow is from: **Pick List**.

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

(ii) Chemical Characteristics:

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

Identify specific pollutants, if known: .

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

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

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

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

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

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

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

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

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

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

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

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

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: The NCDWQ stream form score for Beech Creek is >30.
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **1200** linear feet **27** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

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

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

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

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

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

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

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[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

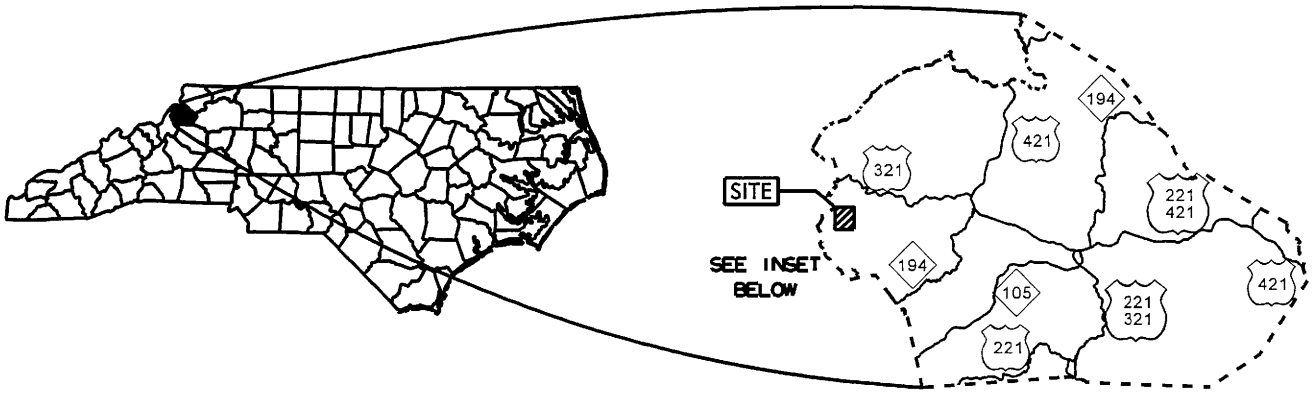
Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

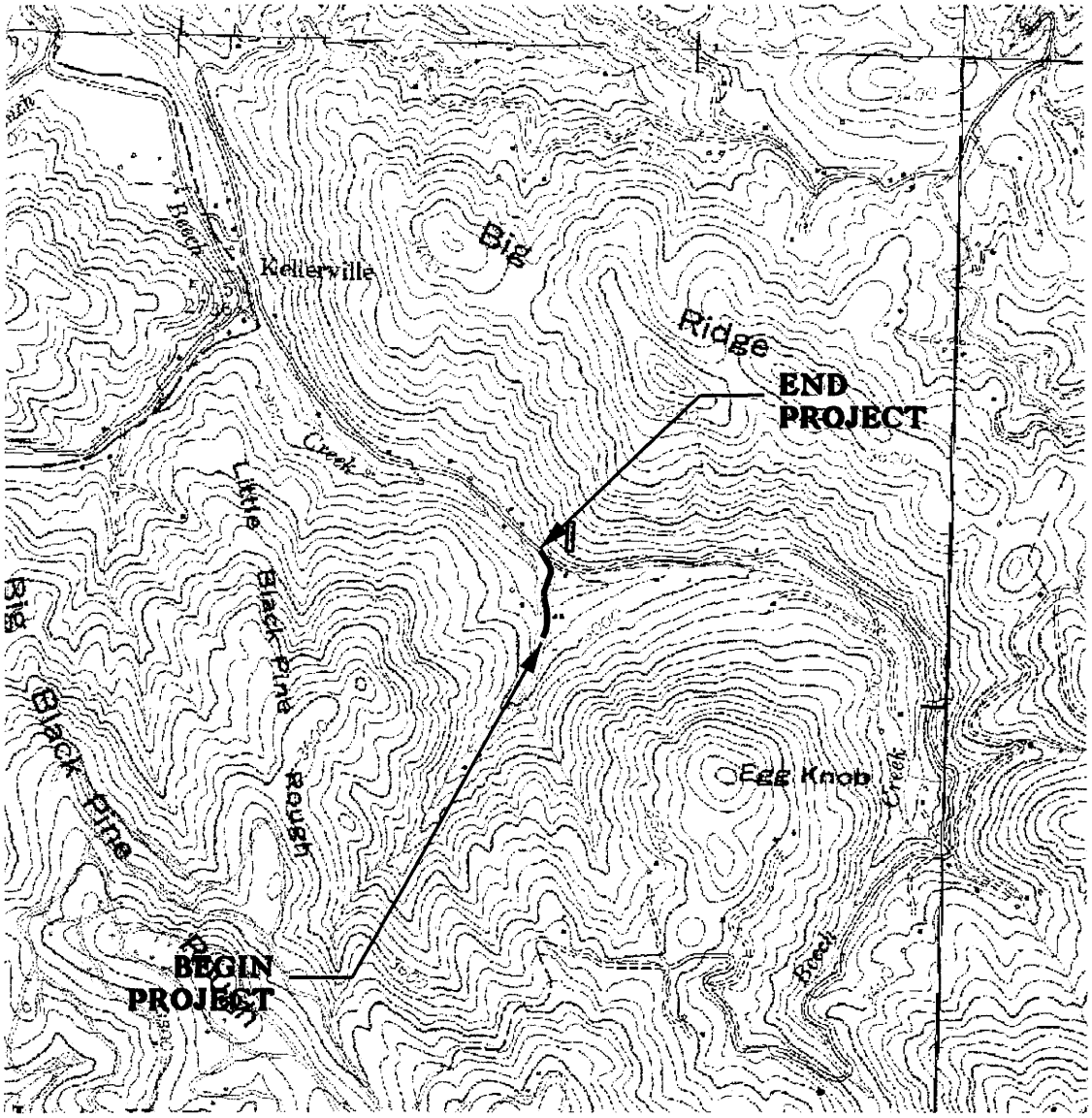
SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☐ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: .
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☐ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date): .
  - or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .



WATAUGA COUNTY



WETLAND/STREAM IMPACTS
VICINITY MAP

Permit Drawing
Sheet 1 of 8

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WATAUGA COUNTY

PROJECT:33653.1.1 (B-4316)
BRIDGE NO. 320 OVER
BEECH CREEK ON
SR 1153 (WILEY HARMON RD)

SHEET ___ OF___ **7/16/08**

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES

NONE AFFECTED

Permit Drawing
Sheet 2 of 5

NCDOT

DIVISION OF HIGHWAYS

WATAUGA COUNTY

PROJECT: 33653.1.1 (B-4316)
BRIDGE NO. 320 OVER
BEECH CREEK ON
SR 1153 (WILEY HARMON RD)

SHEET OF 7/16/08

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	15+50-15+60 -L- RT	BRIDGE							<.01		10	
2	15+33 -L- LT	WORKBRIDGE							<.01		10	
TOTALS:			0.00	0.00	0.00	0.00	0.00	0.00	<.01	0	20	0

Permit Drawing Sheet 3 of 8

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

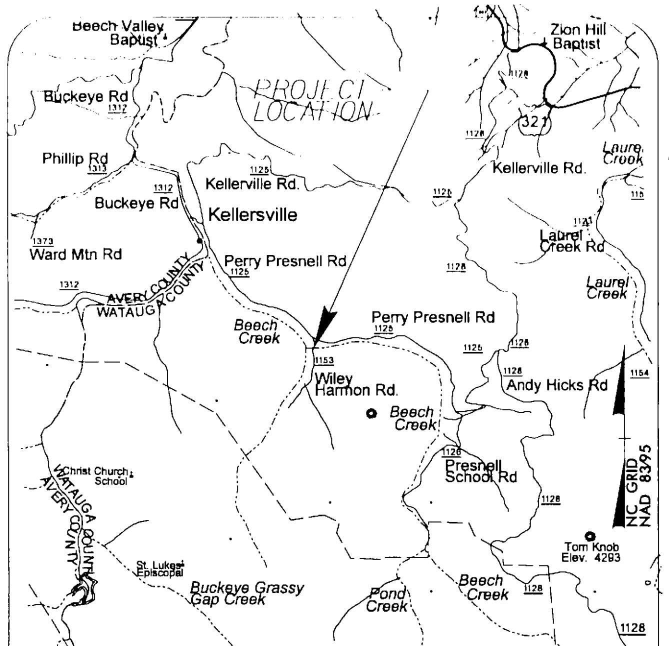
WATAUGA COUNTY
PROJECT: 33653.1.1 (B-4316)

SHEET 7/16/2008

09/08/99

TIP PROJECT: B-4316

See Sheet 1 A For Index of Sheets



VICINITY MAP

ROW PROJECT SUBMITTAL

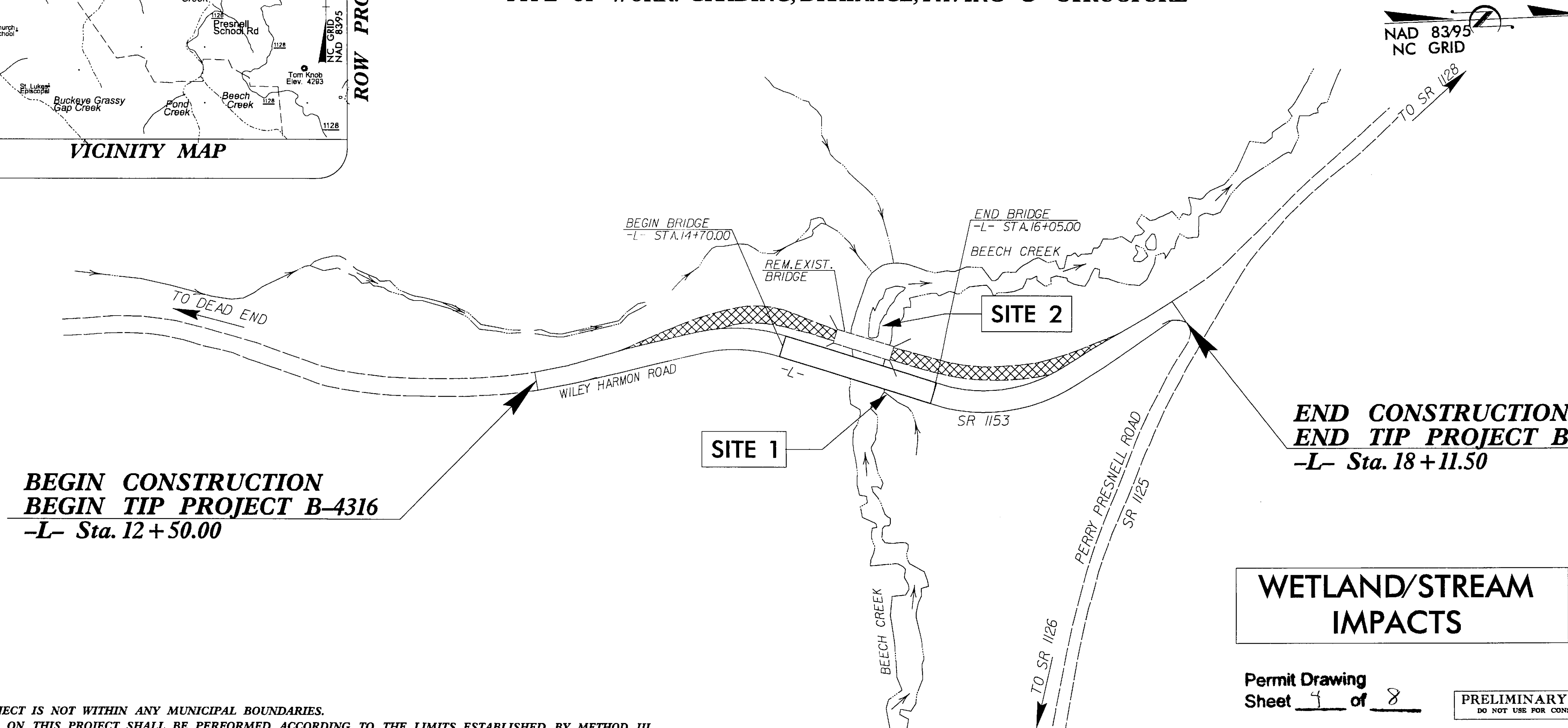
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

LOCATION: BRIDGE NO. 320 OVER BEECH CREEK ON SR 1153 (WILEY HARMON ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	B-4316		1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION		
33653.1.1	BRZ-1153(6)	PE		
33653.2.1	BRZ-1153(6)	R/W & UTIL		



WETLAND/STREAM IMPACTS

Permit Drawing
Sheet 4 of 8

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED ACCORDING TO THE LIMITS ESTABLISHED BY METHOD III.

CONTRACT:

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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 160
ADT 2029 = 335
DHV = 12 %
D ≐ 55 %
T = 3 % *
V = 30 MPH
* TTST 1% DUAL 2%
FUNC. CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4316	=	*0.080 MILES*
LENGTH STRUCTURE TIP PROJECT B-4316	=	*0.026 MILES*
TOTAL LENGTH TIP PROJECT B-4316	=	*0.106 MILES*

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258

WETHERILL ENGINEERING

Prepared for the North Carolina Department of Transportation in the Office of:

559 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 20, 2006

LETTING DATE:
FEBRUARY 17, 2009

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT
DOUG TAYLOR, PE
ROADWAY DESIGN PROJECT ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4316	4
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

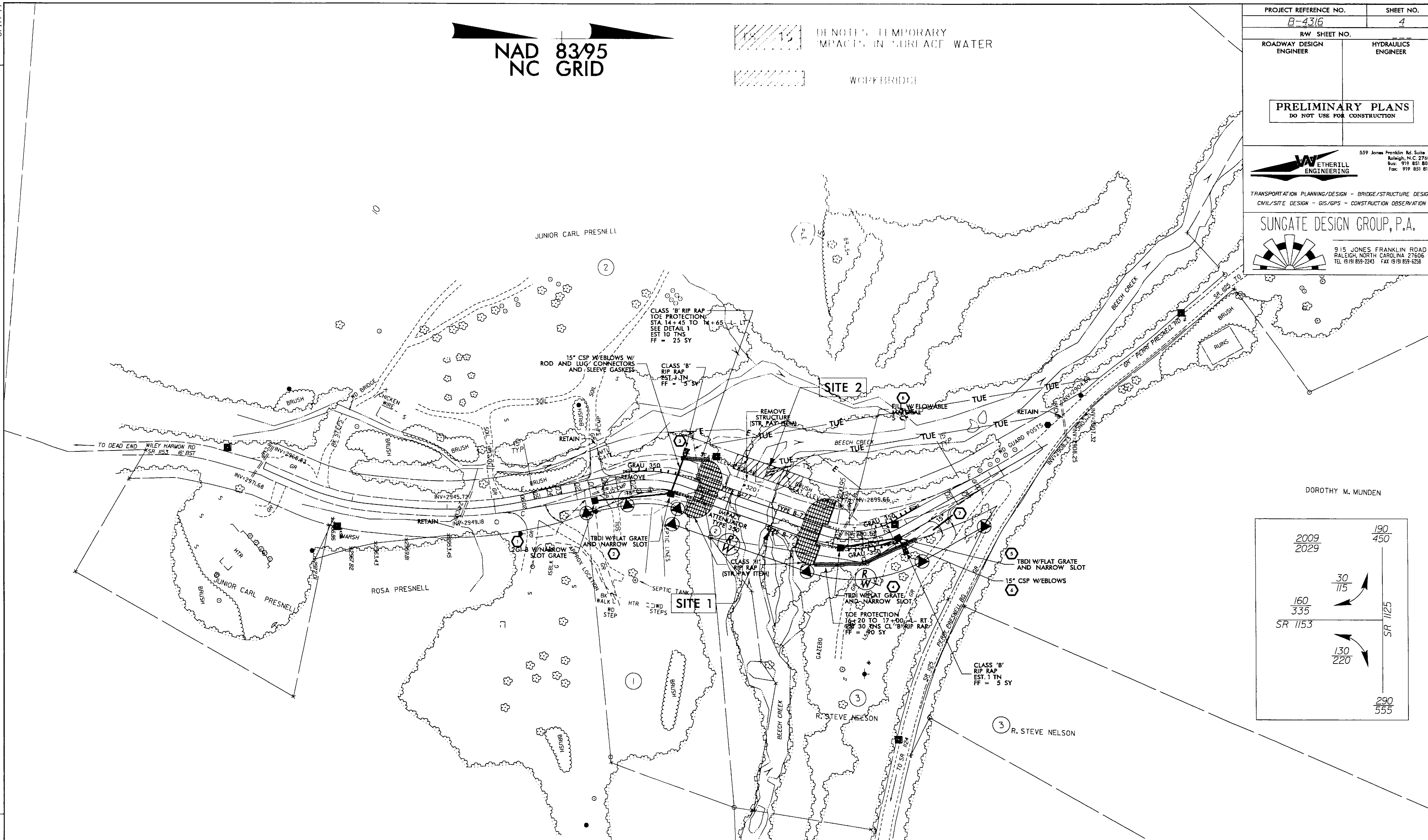
WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258

NAD 83/95
NC GRID

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

WORK BRIDGE

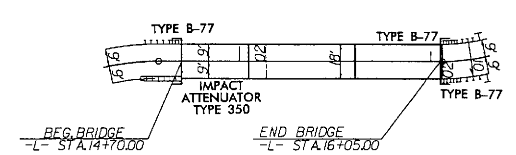


REVISIONS

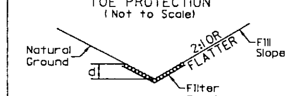
R/W REVISION - ADDED TEMPORARY UTILITY EASEMENT ALONG PARCEL NO.2 BAM
R/W REVISION - REVISED THE PROPERTY OWNER NAME FROM ROSA PRESNELL TO JUNIOR CARL PRESNELL,ET. AL. BAM
R/W REVISION - ADDED TEMPORARY CONST. EASEMENT ALONG PARCEL NO.2. BAM

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

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP



DETAIL 1
TOE PROTECTION
(Not to Scale)



Type of Liner= Class B Rip-Rap

FROM STA. 14+45 TO STA. 14+65 -L- Lt
FROM STA. 16+20 TO STA. 17+00 -L- Rt.

NOTE: NO DECK DRAINS REQUIRED

Permit Drawing
Sheet 5 of 8

SEE SHEET 5 FOR PROFILE
SEE SHEETS S-1 THRU S-__ FOR STRUCTURE PLANS

8/17/99

REVISIONS

R/W REVISION - ADDED TEMPORARY UTILITY EASEMENT ALONG PARCEL NO.2 BAM
R/W REVISION - REVISED THE PROPERTY OWNER NAME FROM ROSA PRESNELL TO JUNIOR CARL PRESNELL,ET AL. BAM
R/W REVISION - ADDED TEMPORARY CONST. EASEMENT ALONG PARCEL NO.2. BAM

PROJECT REFERENCE NO.	SHEET NO.
B-4316	4
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WETHERILL ENGINEERING
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RALEIGH, NORTH CAROLINA 27606
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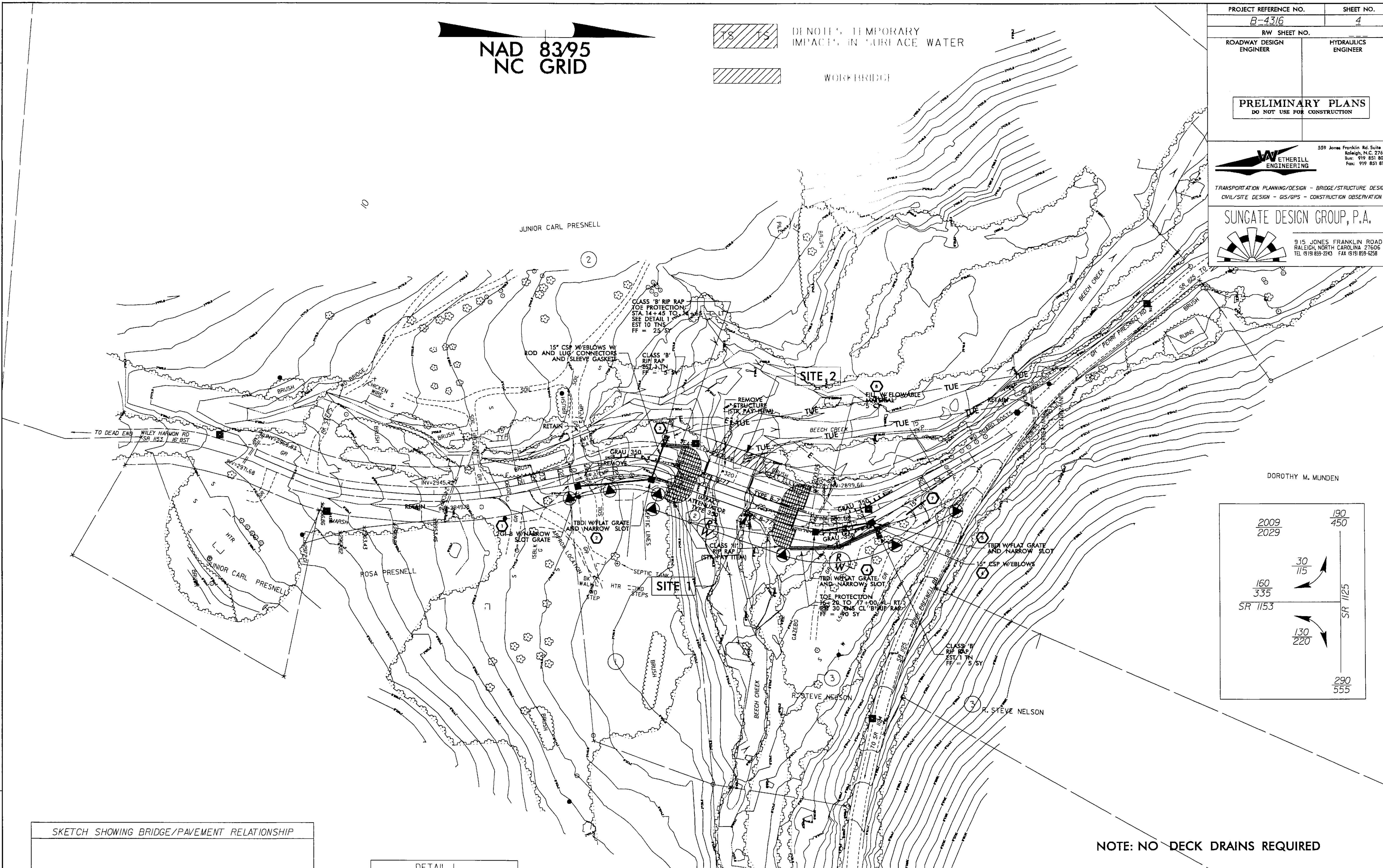
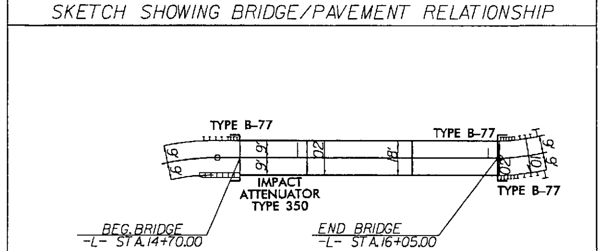
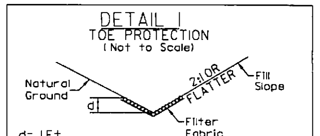


NOTE: NO DECK DRAINS REQUIRED

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP



DETAIL 1
TOE PROTECTION
(Not to Scale)



d= 1Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 14+45 TO STA. 14+65 -L- Lt
FROM STA. 16+20 TO STA. 17+00 -L- Rt.

Permit Drawing
Sheet 6 of 8

SEE SHEET 5 FOR PROFILE
SEE SHEETS S-1 THRU S-__ FOR STRUCTURE PLANS

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

5/14/99

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
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PROJECT REFERENCE NO.	SHEET NO.
B-4316	5

ROADWAY DESIGN ENGINEER

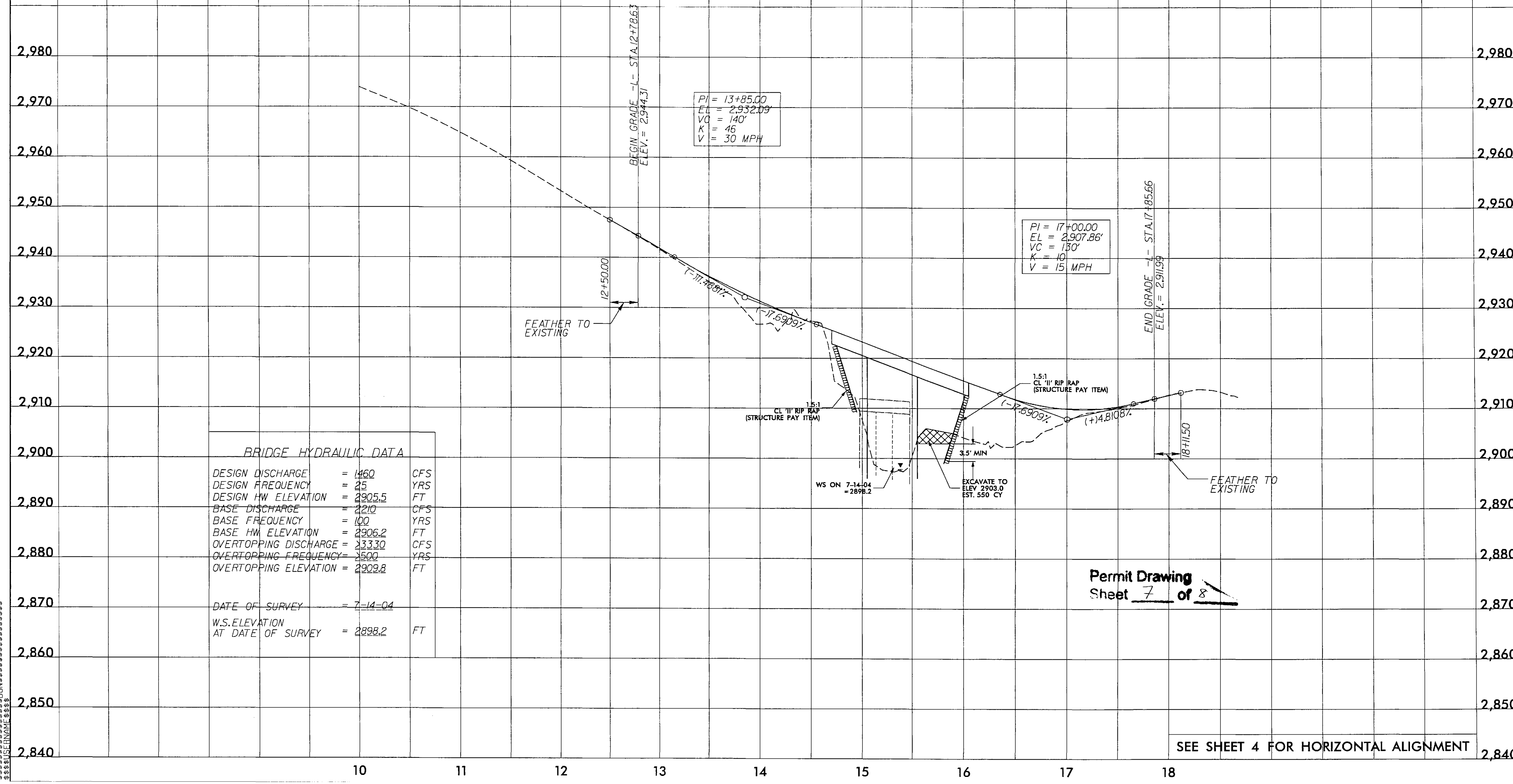
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BM #1
8" SPIKE IN ROOT OF A 18" GUM
N 916760 E 1148408
BL STA.5+00.00 DIST.41.65' LT.
ELEV.= 2972.00'

BM #2
8" SPIKE IN ROOT OF A 12" POPLAR
N 917348 E 1148407
L STA.15+36.00 DIST.115.00 LT.
ELEV.= 2900.32'



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1460	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	2905.5	FT
BASE DISCHARGE	=	2210	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2906.2	FT
OVERTOPPING DISCHARGE	=	>3330	CFS
OVERTOPPING FREQUENCY	=	>500	YRS
OVERTOPPING ELEVATION	=	2909.8	FT
DATE OF SURVEY	=	7-14-04	
W.S.ELEVATION AT DATE OF SURVEY	=	2898.2	FT

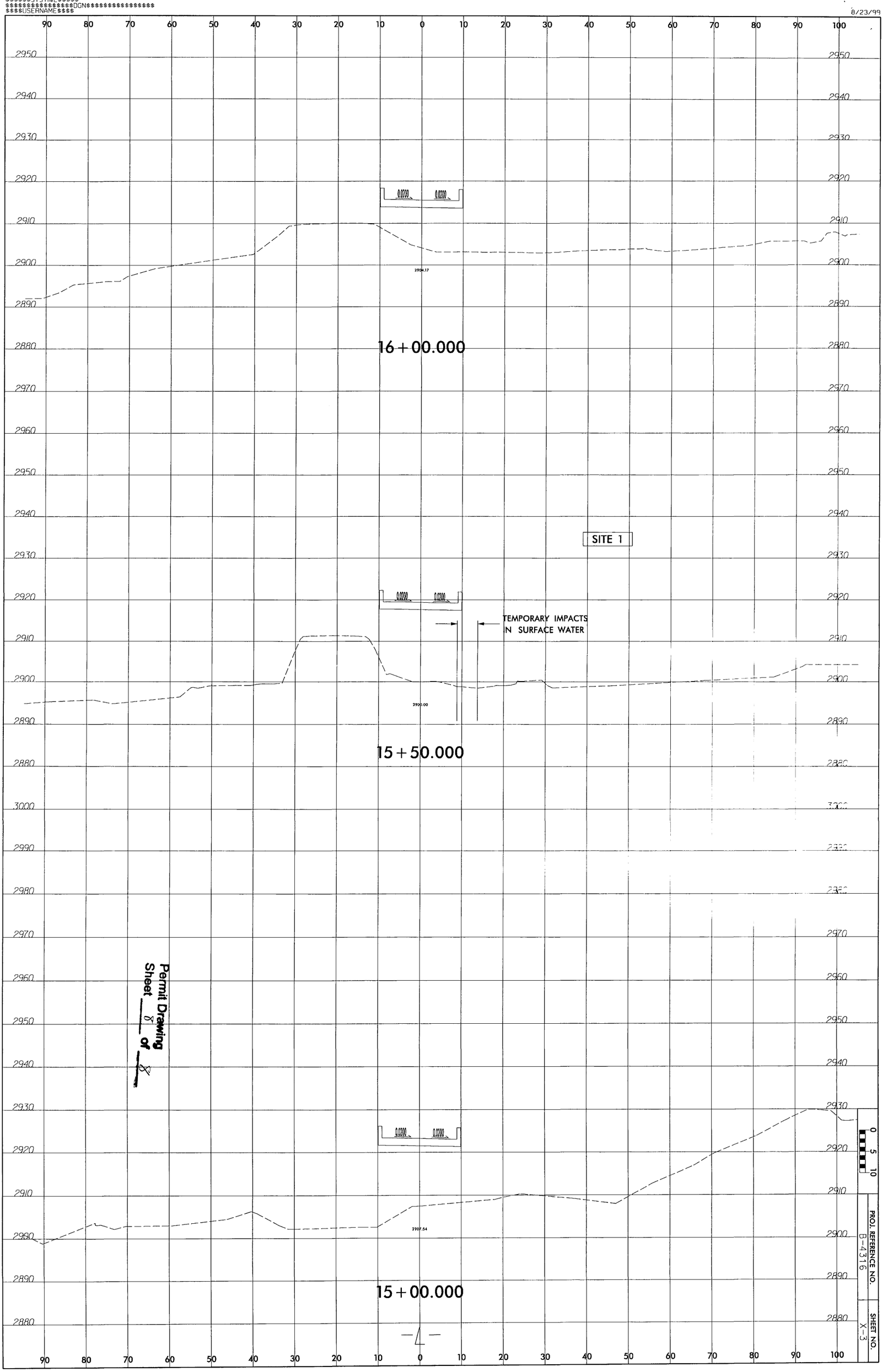
Permit Drawing
Sheet 7 of 8

SEE SHEET 4 FOR HORIZONTAL ALIGNMENT

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

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

8/23/99



Permit Drawing
Sheet 8 of 8

PROJ. REFERENCE NO.
B-4316

SHEET NO.
X-3

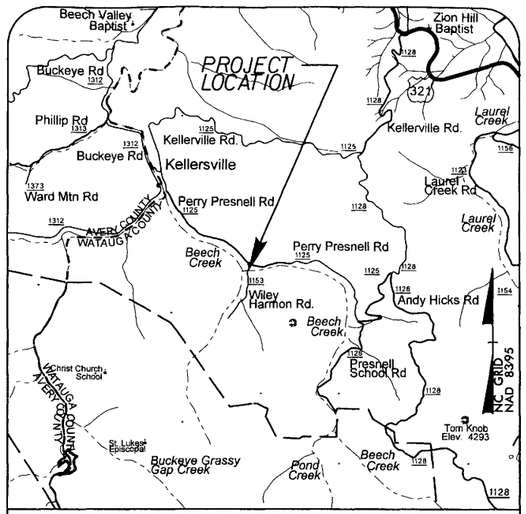
-4-

09/08/95

TIP PROJECT: B-4316

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

ROW PROJECT SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

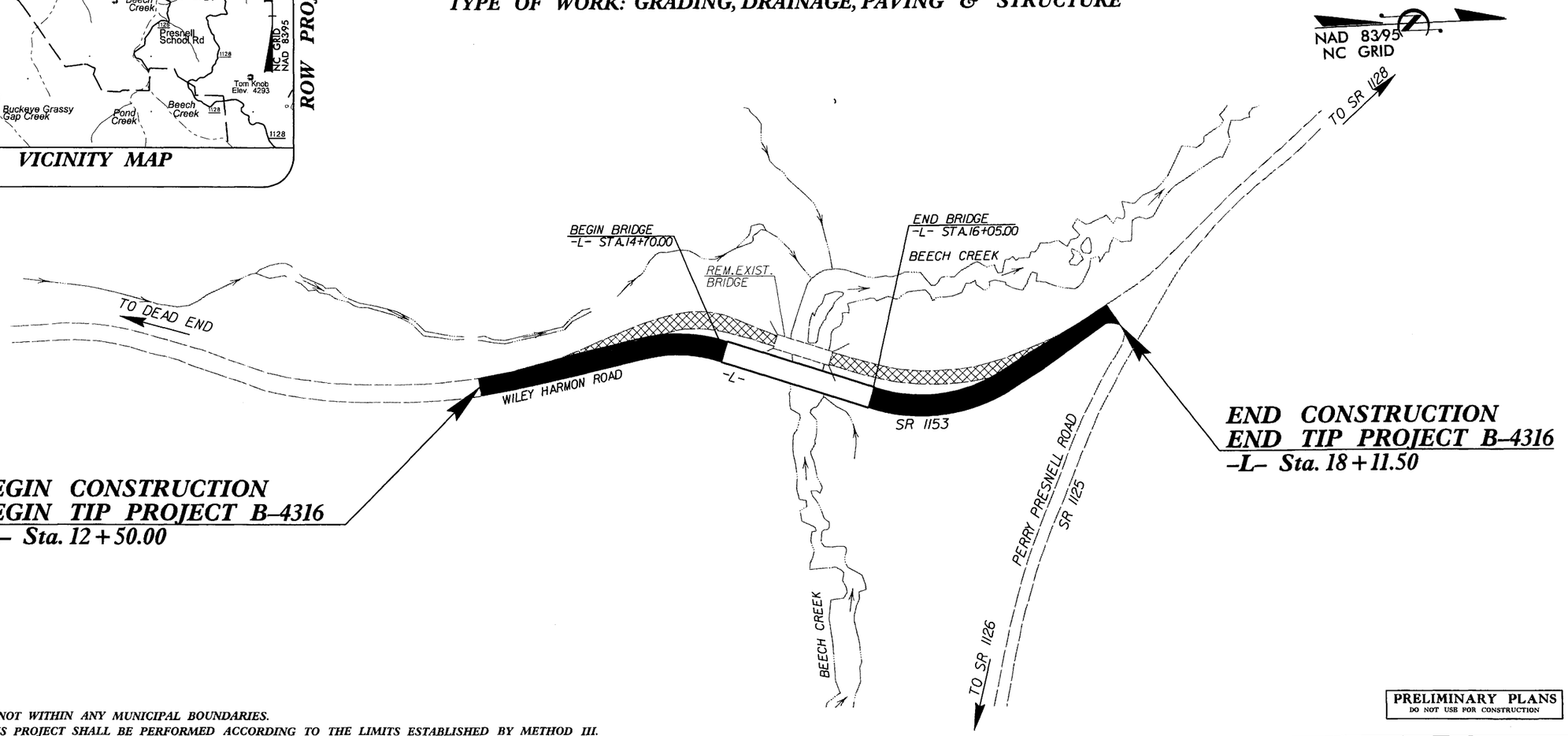
WATAUGA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4316	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33653.1.1	BRZ-1153(6)	PE
33653.2.1	BRZ-1153(6)	R/W & UTIL

LOCATION: BRIDGE NO. 320 OVER BEECH CREEK ON SR 1153 (WILEY HARMON ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



BEGIN CONSTRUCTION
BEGIN TIP PROJECT B-4316
-L- Sta. 12+50.00

END CONSTRUCTION
END TIP PROJECT B-4316
-L- Sta. 18+11.50

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED ACCORDING TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009	=	160
ADT 2029	=	335
DHV	=	12 %
D	=	55 %
T	=	3 % *
V	=	30 MPH

* TTST 1% DUAL 2%

FUNC. CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4316	=	*0.080 MILES*
LENGTH STRUCTURE TIP PROJECT B-4316	=	*0.026 MILES*
TOTAL LENGTH TIP PROJECT B-4316	=	*0.106 MILES*

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2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2006

LETTING DATE: FEBRUARY 17, 2009

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
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NCDOT CONTACT DOUG TAYLOR, PE
ROADWAY DESIGN PROJECT ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

7:14:11 AM
P:\B-4316\Roadway\Proj\B4316_rdy_tsh.dgn
1/27/2008

PROJECT REFERENCE NO.	SHEET NO.
B-4316	1-A

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing High Quality Wetland Boundary (HQ WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer (RBB)
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Guage (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line (RW)
- Proposed Right of Way Line with Iron Pin and Cap Marker (RW)
- Proposed Right of Way Line with Concrete or Granite Marker (RW)
- Existing Control of Access (CA)
- Proposed Control of Access (CA)
- Existing Easement Line (E)
- Proposed Temporary Construction Easement (E)
- Proposed Temporary Drainage Easement (TDE)
- Proposed Permanent Drainage Easement (PDE)
- Proposed Permanent Utility Easement (PUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Wheel Chair Ramp (WCR)
- Curb Cut for Future Wheel Chair Ramp (CCFR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equaility Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole (HH)
- H-Frame Pole
- Recorded U/G Power Line (P)
- Designated U/G Power Line (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Booth
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- Recorded U/G Telephone Cable (T)
- Designated U/G Telephone Cable (S.U.E.*) (T)
- Recorded U/G Telephone Conduit (TC)
- Designated U/G Telephone Conduit (S.U.E.*) (TC)
- Recorded U/G Fiber Optics Cable (T FO)
- Designated U/G Fiber Optics Cable (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line (W)
- Designated U/G Water Line (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Satellite Dish
- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- Recorded U/G TV Cable (TV)
- Designated U/G TV Cable (S.U.E.*) (TV)
- Recorded U/G Fiber Optic Cable (TV FO)
- Designated U/G Fiber Optic Cable (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line (G)
- Designated U/G Gas Line (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- Recorded SS Forced Main Line (FSS)
- Designated SS Forced Main Line (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line (?UTL)
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

PROJECT REFERENCE NO.	SHEET NO.
B-4316	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
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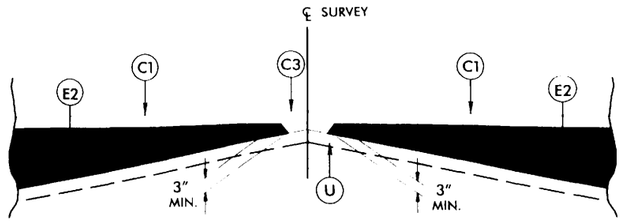
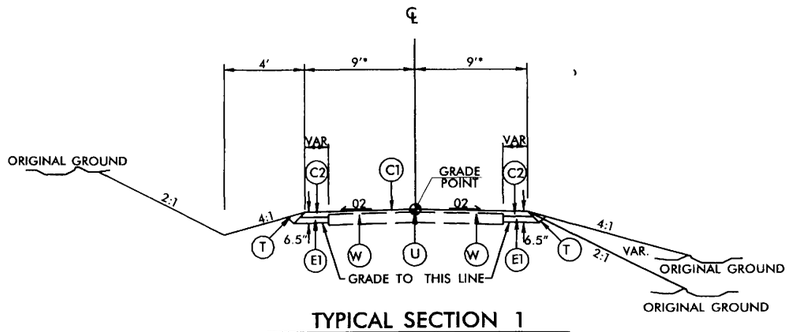
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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 5½" IN DEPTH.
R	CONCRETE EXPRESSWAY GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT

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



Detail Showing Method of Wedging



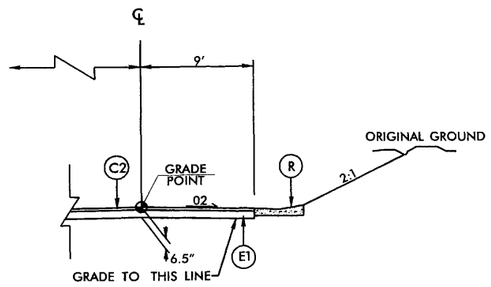
TYPICAL SECTION 1

–L– STA. 12+78.63 TO –L– STA. 13+73.31
–L– STA. 16+87.74 TO –L– STA. 17+85.66

* IN GUARDRAIL LOCATIONS INCREASE SHOULDER WIDTH 3'

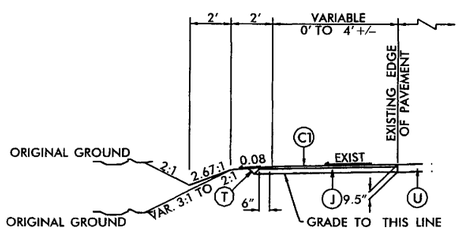
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
–L– STA. 12+50.00 TO –L– STA. 12+78.63

TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING
–L– STA. 17+85.66 TO –L– STA. 18+11.50



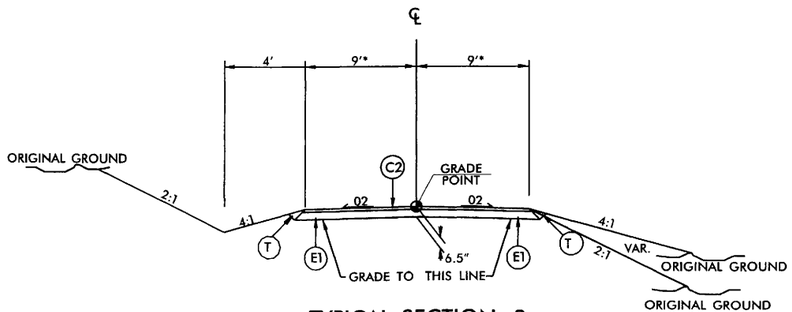
TYPICAL SECTION NO. 1A

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2
–L– STA. 13+90.00 TO –L– STA. 14+56.00 RIGHT



TYPICAL SECTION 4

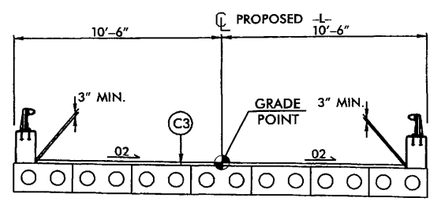
NOTE: USE TYPICAL SECTION 4 FOR TEMPORARY PAVEMENT LOCATIONS
–L– STA. 13+00+/– TO –L– STA. 14+10+/– LEFT



TYPICAL SECTION 2

–L– STA. 13+73.31 TO –L– STA. 14+70.00 (BEGIN BRIDGE)
–L– STA. 16+05.00 (END BRIDGE) TO –L– STA. 16+87.31

* IN GUARDRAIL LOCATIONS INCREASE SHOULDER WIDTH 3'



TYPICAL SECTION 3

–L– STA. 14+70.00 TO –L– STA. 16+05.00

PROJECT REFERENCE NO.	SHEET NO.
B-4316	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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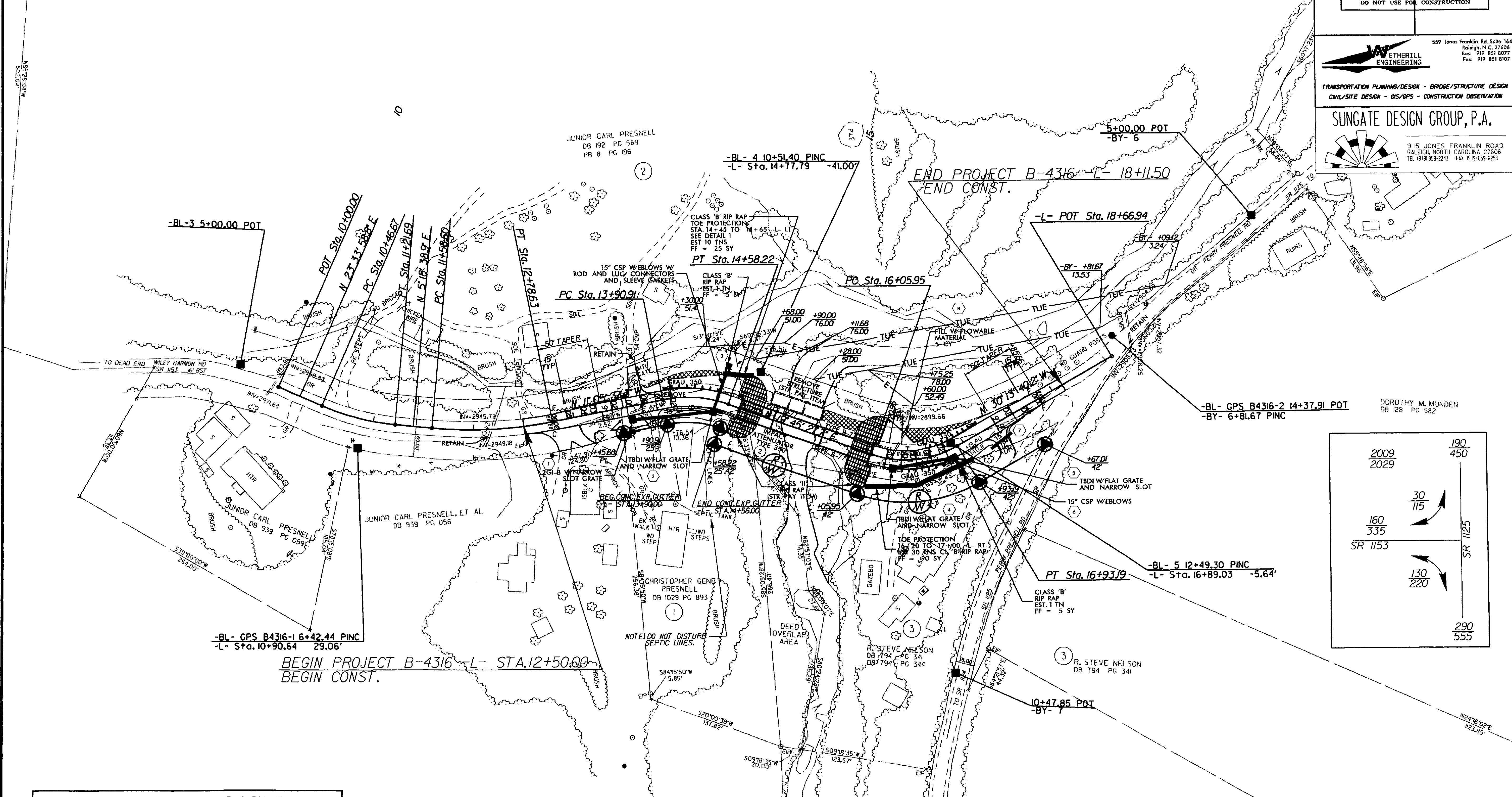
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258

8/17/99

-L-

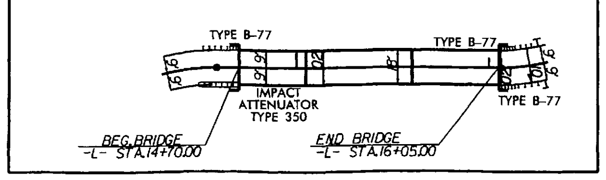
PI Sta 10+84.50	PI Sta 12+19.03	PI Sta 14+25.40	PI Sta 16+52.57
Δ = 18° 15' 20.0" (LT)	Δ = 16° 24' 16.2" (LT)	Δ = 30° 51' 05.0" (RT)	Δ = 49° 59' 07.8" (LT)
D = 24° 20' 00.0"	D = 13° 40' 00.0"	D = 45° 50' 11.8"	D = 57° 17' 44.8"
L = 75.02'	L = 120.03'	L = 67.31'	L = 87.24'
T = 37.83'	T = 60.43'	T = 34.49'	T = 46.62'
R = 235.46'	R = 419.24'	R = 125.00'	R = 100.00'
		SE = 0.02	SE = 0.02
		RO = SEE PLANS	RO = SEE PLANS

NAD 83/95
NC GRID

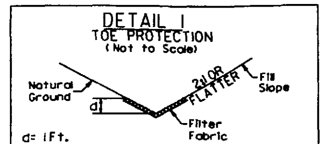


NOTE: NO DECK DRAINS REQUIRED

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP



DETAIL 1
TOE PROTECTION
(Not to Scale)



Type of Liner= Class B Rip-Rap
FROM STA. 14+45 TO STA. 14+65 -L- Lt
FROM STA. 16+20 TO STA. 17+00 -L- Rt.

SEE SHEET 5 FOR PROFILE
SEE SHEETS S-1 THRU S-__ FOR STRUCTURE PLANS

REVISIONS
R/W REVISION - ADDED TEMPORARY UTILITY EASEMENT ALONG PARCEL NO.2 BAM
R/W REVISION - REVISED THE PROPERTY OWNER NAME FROM ROSA PRESNELL TO JUNIOR CARL PRESNELL ET AL BAM
R/W REVISION - ADDED TEMPORARY CONST. EASEMENT ALONG PARCEL NO.2 BAM

7:15:27 AM
P:\B-4316\Roadway\Proj\B4316_Rdy_psh.dgn
7/7/2008

5/14/9

BM #1
8" SPIKE IN ROOT OF A 18" GUM
N 916760 E 1148408
-BL- STA 5+00.00 DIST. 41.65' LT.
ELEV. = 2972.00'

BM #2
8" SPIKE IN ROOT OF A 12" POPLAR
N 917348 E 1148407
-L- STA 15+36.00 DIST. 115.00 LT.
ELEV. = 2900.32'

559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107

ETHERILL ENGINEERING

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258

PROJECT REFERENCE NO.	SHEET NO.
B-4316	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

2,980
2,970
2,960
2,950
2,940
2,930
2,920
2,910
2,900
2,890
2,880
2,870
2,860
2,850
2,840

BEGIN GRADE -L- STA 12+78.63
ELEV. = 2944.31

PI = 13+85.00
EL = 2932.09'
VC = 140'
K = 46
V = 30 MPH

PI = 17+00.00
EL = 2907.86'
VC = 130'
K = 10
V = 15 MPH

END GRADE -L- STA 17+85.66
ELEV. = 2911.99

12+50.00

(-)11.48%

(-)7.69%

(-)7.69%

(+)4.81%

FEATHER TO EXISTING

1.5:1
CL III RIP RAP
(STRUCTURE PAY ITEM)

1.5:1
CL III RIP RAP
(STRUCTURE PAY ITEM)

3.5' MIN.

18+11.50

FEATHER TO EXISTING

WS ON 7-14-04
= 2898.2

EXCAVATE TO
ELEV. 2903.0
EST. 550 CY

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1460	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2905.5	FT
BASE DISCHARGE	= 2210	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2906.2	FT
OVERTOPPING DISCHARGE	= >3330	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 2909.8	FT
DATE OF SURVEY	= 7-14-04	
W.S. ELEVATION AT DATE OF SURVEY	= 2898.2	FT

SEE SHEET 4 FOR HORIZONTAL ALIGNMENT

10 11 12 13 14 15 16 17 18

7/6/08 AM
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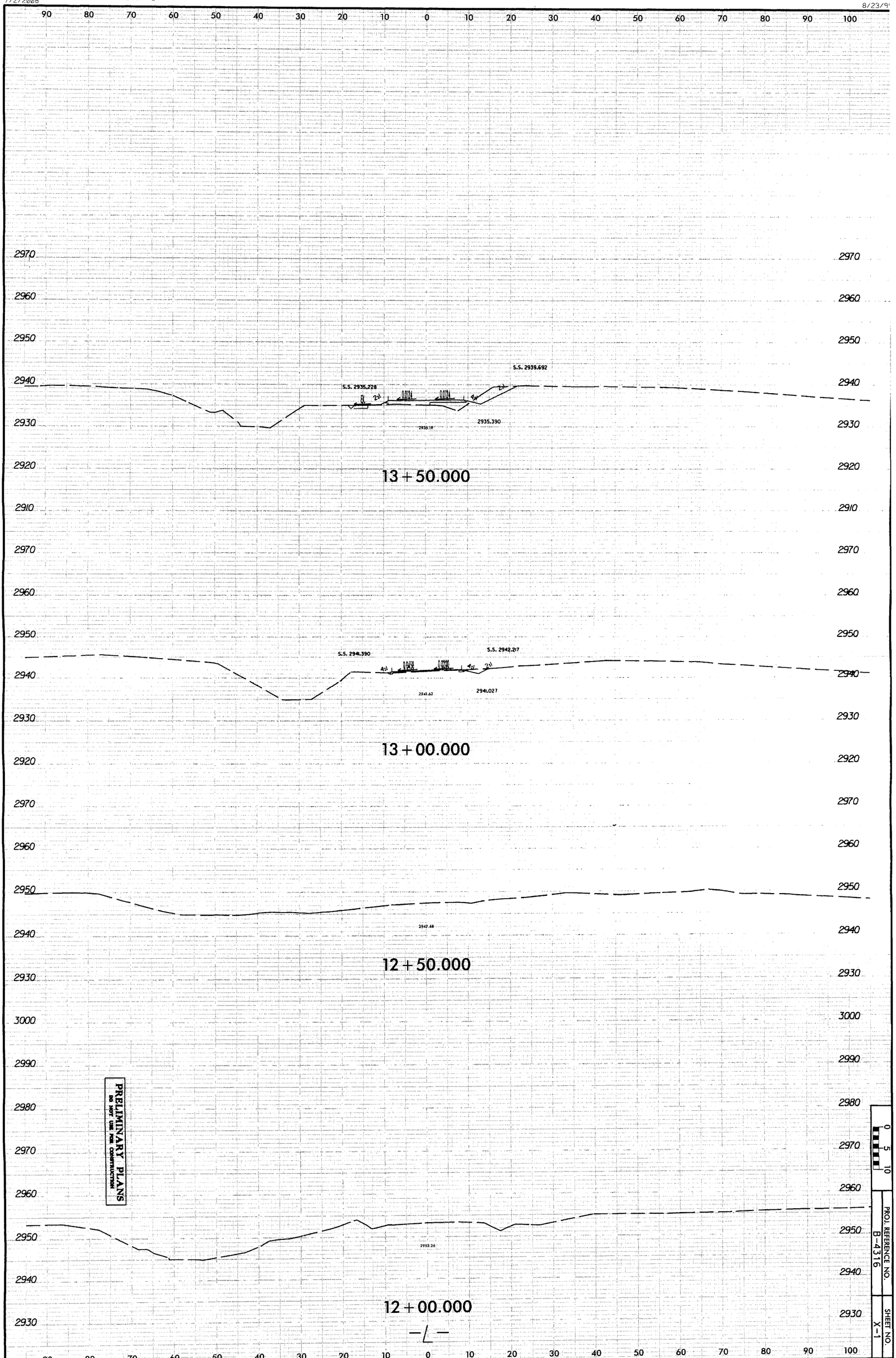
7/2/2008

8/23/9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S.S. 2935.228
2935.390
13 + 50.000
S.S. 2942.217
S.S. 2941.390
2941.027
13 + 00.000
2947.48
12 + 50.000
2953.26
12 + 00.000
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
0 5 10
PROJ. REFERENCE NO.
B-4316
SHEET NO.
X-1

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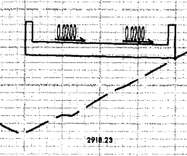

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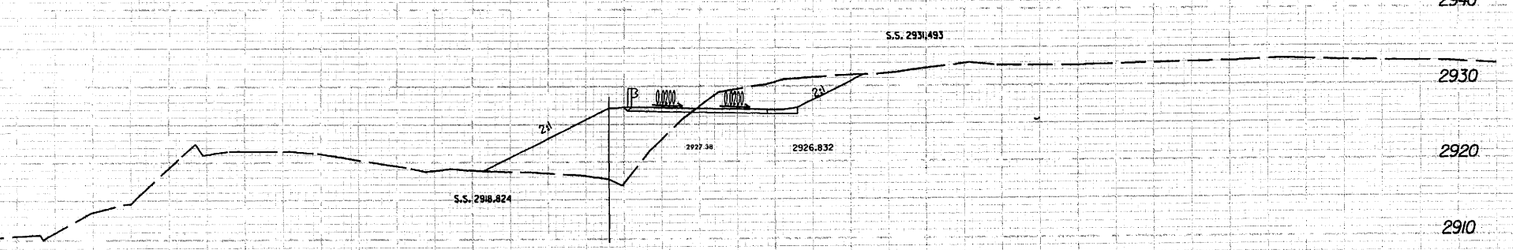

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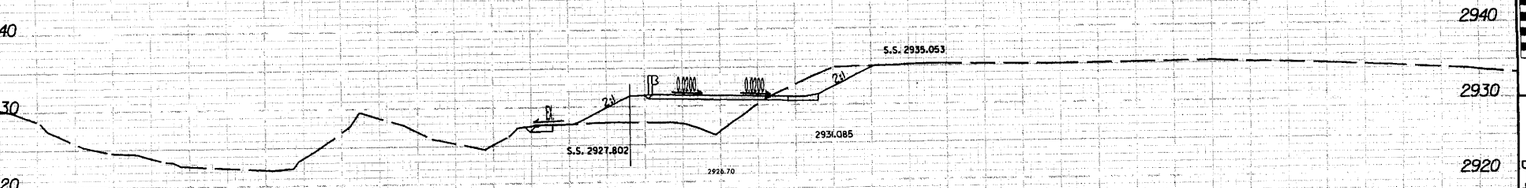

14+00.000

—℄—

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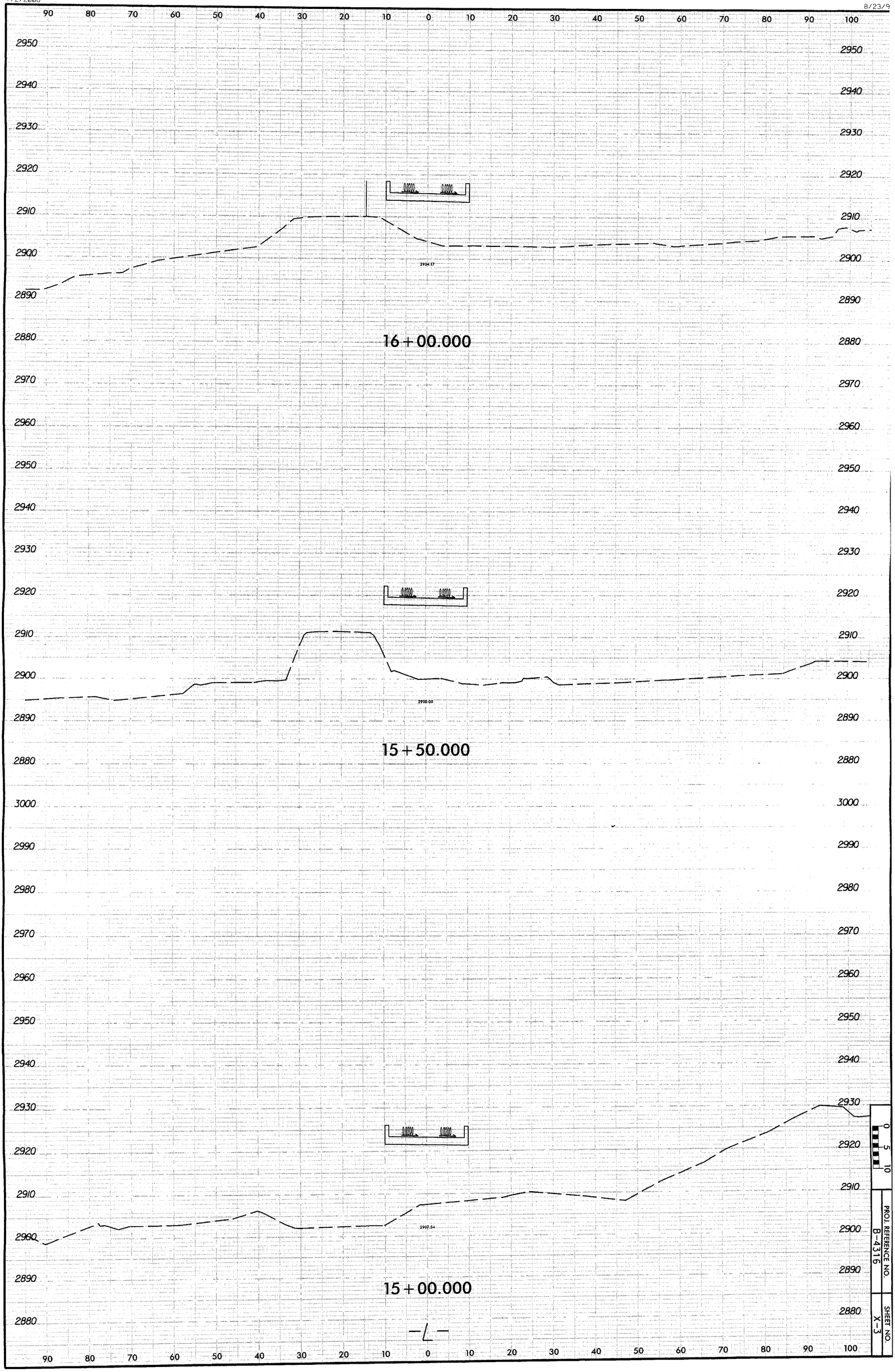
0 5 10

PROJ. REFERENCE NO. B-4316

SHEET NO. X-2

8/23/9



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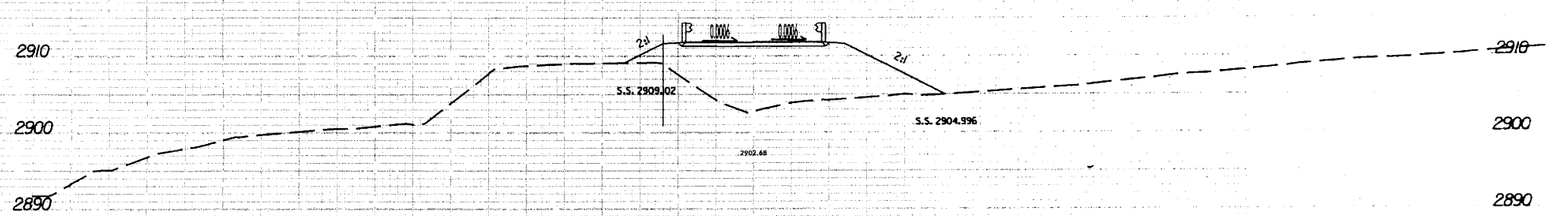

16+50.000

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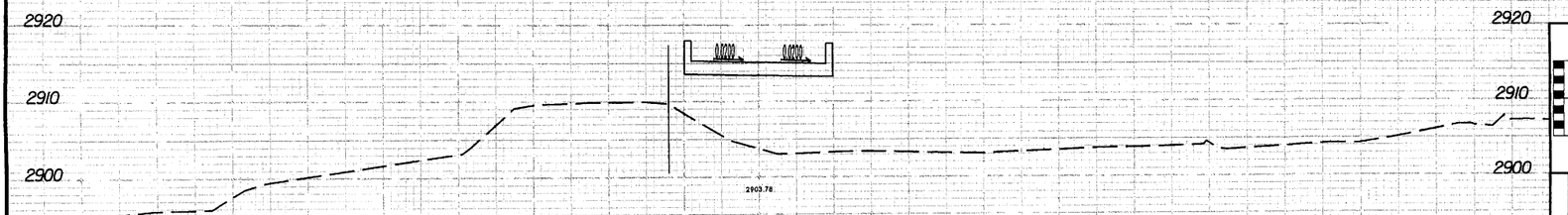

16+05.000

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0 5 10

PROJ. REFERENCE NO.
B-4316

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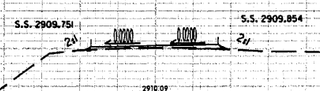

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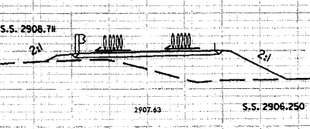

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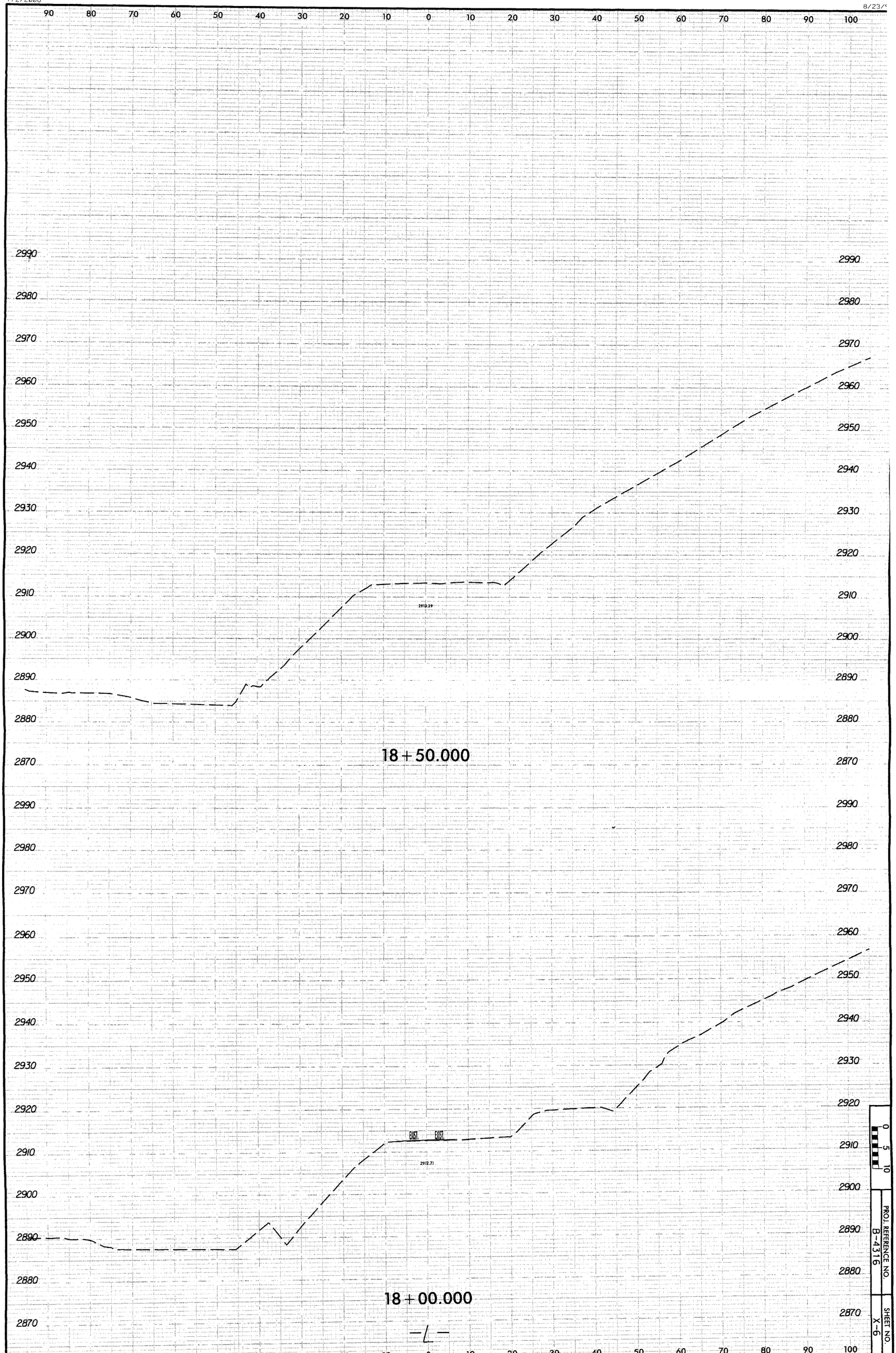
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2990
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2913.29
18+50.000
EXIST
EXIST
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18+00.000
0 5 10
PROJ. REFERENCE NO.
B-4316
SHEET NO.
X-6

Watauga County
SR 1153
Bridge No. 320 Over Beech Creek
Federal-Aid Project BRZ-1153 (6)
State Project 8.2752301
WBS 33653.1.1
TIP Project B-4316

Categorical Exclusion

US Department of Transportation
Federal Highway Administration
and
NC Department of Transportation

Approved:

3/9/04

Date:

FOR Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch

3/9/04

Date:

for John F. Sullivan, III
Division Administrator, FHWA

Watauga County
SR 1153
Bridge No. 320 Over Beech Creek
Federal-Aid Project BRZ-1153 (6)
State Project 8.2752301
WBS 33653.1.1
TIP Project B-4316

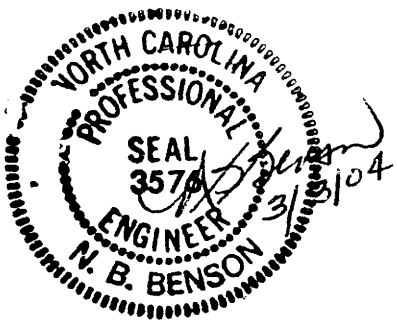
Categorical Exclusion

US Department of Transportation
Federal Highway Administration
and
NC Department of Transportation

March 2004

Document Prepared
By

Wetherill Engineering, Inc.



Nathan B. Benson, PE

In Coordination with
North Carolina Department of Transportation

Derrick G. Weaver, PE, Unit Head
Project Development and Environmental Analysis Branch

Mary Alice Dickens, PE, Project Manager
Project Development and Environmental Analysis Branch

Watauga County
SR 1153
Bridge No. 320 Over Beech Creek
Federal-Aid Project BRZ-1153 (6)
State Project 8.2752301
WBS 33653.1.1
TIP Project B-4316

SUMMARY OF ENVIRONMENTAL COMMITMENTS

Division 11 and Design Services: Beech Creek is Designated Public Mountain Trout Water. Wild brook trout are found in this stream; therefore, in-stream construction is prohibited from November 1 to April 15 to avoid impacts on trout reproduction.

Roadside Environmental, Design Services and Division 11: Sedimentation and Erosion Control for Sensitive Watersheds (15A NCAC 4B.0124) will be incorporated into the design and followed during the construction of this project.

Hydraulics and Structure Design: The bridge deck drains will be designed and constructed so that no discharge will go directly into the stream.

Project Development and Environmental Analysis: Since Beech Creek is classified as trout waters the NCWRC will be given the opportunity to review the project for additional measures to protect trout and trout habitat and the option of recommending processing of a individual '404' permit.

A survey for green floater – a federal species of concern – will be conducted prior to project letting.

Watauga County
SR 1153
Bridge No. 320 Over Beech Creek
Federal-Aid Project BRZ-1153 (6)
State Project 8.2752301
WBS 33653.1.1
TIP Project B-4316

INTRODUCTION

The replacement of Bridge No. 320 is included in the 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) as a Federal Aid Bridge Replacement. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion" (CE).

I. PURPOSE AND NEED STATEMENT

The existing narrow bridge, built in 1967, is structurally deficient with a posted load limit of 12 tons for single vehicles and 18 tons for truck-tractor-semi-trailers (TTST). According to the Bridge Maintenance Unit, at the time the bridge was last inspected on July 1, 2003, the bridge sufficiency rating was 29.9 out of a possible 100. The replacement of this inadequate structure will result in safer and more efficient traffic operations. The proposed replacement will allow the restrictive posted load limits for trucks to be removed from the bridge.

II. EXISTING CONDITIONS

SR 1153 (Wiley Harmon Road) is a two-lane unpaved highway and narrows to a single lane over Bridge No. 320. SR 1153 has a functional classification as a "local roadway" and ends about 1400 feet (427 meters) south of the bridge. The speed limit along SR 1153 is not posted; however, the alignment dictates low operating speeds. The project vicinity is rural with sparsely scattered residents.

The superstructure consists of a timber floor on a steel girder floor system. The substructure consists of timber caps and piles. It is 51 feet (15.5 meters) long and has a clear roadway width of 11.2 feet (3.4 meters) measured inside parapet to inside parapet. This width provides for one travel lane. The bridge crosses Beech Creek at an approximate 90-degree angle. Photographs of the existing bridge are included on Figures 2A and 2B.

The horizontal alignment of SR 1153 consists of a tangent on the bridge sandwiched between 7-9 degree curves on both ends of the bridge. SR 1153, reflecting the steep mountainous topography south of the bridge, has existing grades of 11 to 15 per cent. The approach roadway is unpaved and is about 16 feet (4.9 meters) wide. The width of the grass shoulders is approximately 3 feet (0.9 meter). The Division Right of Way Agent advised, by virtue of recorded and signed agreements, that the right of way width on SR 1153 is 60 feet (18.3 meters), symmetrical about the centerline of the existing roadway.

The Average Annual Daily Traffic (AADT) volume for the year 2002 is estimated to be 100 vehicles per day (VPD) and is projected to increase to 300 VPD in the year 2025. The percent of truck-tractor-semi-trailer (TTST) and dual tired trucks (DTT) are estimated to be 1 percent and 2 percent, respectively.

There were no accidents recorded occurring in the vicinity of the bridge in the three-year period from April 4, 1998 thru March 3, 2001.

The Watauga County School Transportation Director has been contacted regarding the proposed bridge replacement. Information received from the Director stated that no school buses use the bridge (letter attached in the Appendix A).

The Watauga County EMS Coordinator has been contacted and has advised that traffic must be maintained on-site during construction.

There are no utilities attached to the bridge. An overhead power line crosses over the southern end of the bridge and may be affected by the proposed project.

The land use in the project vicinity is rural with scattered residences.

Research of public records and an on-site inspection did not indicate any evidence of the presence of hazardous/toxic material in the immediate project area.

III. ALTERNATIVES

A. Project Description

Bridge No. 320 will be replaced with a new structure at or near the existing bridge (see Figure 1). The bridge typical section is included on Figure 4.

The duration of construction is estimated to be one year.

The roadway approaches to the bridge will consist of an 18-foot (5.5-meter) pavement and 4-foot (1.2-meter) wide shoulders (grassed).

The typical section for the roadway portion of the project is included on Figure 4.

The clear roadway width of the proposed bridge is 22 feet (6.7 meters). This minimum width is in conformance with the NCDOT's bridge policy for mountainous terrain with 300 VPD traffic volumes.

Traffic will be maintained on-site during construction.

Right of way acquisition is scheduled to begin in fiscal year 2006 and construction in fiscal year 2007.

B. Build Alternatives

Three alternatives were studied for B-4316. A comparison of the cost of each of the three alternatives is provided in Item V, Cost Estimate (see Table 1). The alternatives are:

Alternative 1 would replace Bridge No. 320 with a new bridge approximately 90 feet (27.4 meters) long on the existing alignment of SR 1153 and would construct a temporary one-lane detour structure, consisting of four 84-inch (213-cm) corrugated steel pipes (CSP), located downstream (west side) of the existing bridge. Alternative 1 is shown on Figure 3A.

Alternative 2 would replace Bridge No. 320 with a new bridge approximately 90 feet (27.4 meters long) on the existing alignment of SR 1153 and would construct a temporary one-lane detour structure, consisting of four 84-inch CSP located upstream (east side) of the existing bridge. Alternative 2 is shown on Figure 3B.

Alternative 3 (Preferred Alternative) would construct a permanent bridge approximately 110 feet (33.5 meters) long on a re-alignment of SR 1153 located upstream (east side) of the existing bridge. Traffic would be maintained on the existing bridge during construction. The existing bridge would be removed upon completion of the permanent bridge. Alternative 3 is shown on Figure 3C.

The NCDOT Division 11 Engineer has reviewed the proposed project and concurs with the recommended replacement.

The local officials have been made aware of the project and concur with the recommended replacement.

C. Alternatives Eliminated from Further Study

The alternative of closing SR 1153 and replacing the bridge at the existing location was eliminated from further study for the following reasons: SR 1153 is a dead end road so an off site detour route is not available. SR 1153 ends approximately 1400 feet (427 meters) south of the bridge and no public or private outlet is available for the residences located on this portion of SR 1153.

Rehabilitation of the existing single lane and deteriorating bridge is neither practical nor economically feasible. It would require significant repairs to the substructure and superstructure because of their overall poor condition.

The "do-nothing" alternative is not feasible. This will require the closing of the road as the existing bridge deteriorates to a point where it is unsafe at any posted weight limits.

D. Preferred Alternative

The preferred alternative is Alternative 3 and is shown on Figure 3C. Construction limits extend from approximately 220 feet (67.1 meters) north to 320 feet (97.5 meters) south of the existing bridge. The bridge is anticipated to have three spans, (1 at 35 feet (10.6 meters), 1 at 40 feet (12.2 meters) and 1 at 35 feet (10.6 meters) for a total of 110 feet (33.5 meters). The center span would be situated to span the creek from bank to bank. The clear roadway width of the bridge is 22 feet (6.7 meters). The 22-foot width provides a minimum 18-foot (5.5-meter) travel-way and 2-foot (0.6-meter) offsets to the bridge rails.

The proposed design speed is 30 miles per hour (45 kilometers per hour).

Alternative 3 was selected because it cost-effectively satisfies the project objective and causes the minimum effects to the natural environment. Alternative 3 avoids the impacts to Beech Creek that the temporary detour pipes associated with Alternative 1 and Alternative 2 would cause. Also, it is more cost effective to avoid constructing and removing a temporary detour.

IV. DESIGN EXCEPTIONS ANTICIPATED

Design exceptions to the statutory 55 mph speed limit are anticipated for a 30 mph (45 kilometer per hour) design speed. This design speed is commensurate with the overall mountainous terrain alignment of Wiley Harmon Road and its local traffic usage. Wiley Harmon Road dead ends approximately 1400 feet (427 meters) south of the bridge and is stop sign controlled approximately 200 feet (61 meters) north of the bridge. Providing a higher design speed is not practical, economically feasible or desirable on this section of the roadway.

V. ESTIMATED COST

Table 1

Item	Alternative 1	Alternative 2	Alternative 3
Structure	$158,400	$158,400	$193,600
Temporary Detour Structure	$67,200	$79,200	
Mobilization and clearing and grubbing	$202,619	$169,000	$135,151
Removal of existing bridge	$6,222	$6,222	$6,222
Roadway and misc. costs (including pavement removal, detour traffic control, construction surveys)	$263,435	$234,075	$172,685
Engineering & contingencies	$127,124	$103,103	$88,792
Right of way	$100,850	$97,200	$95,150
Total Cost	$925,850	$847,200	$691,600

The estimated cost in the 2004-2010 TIP is $400,000 including $40,000 for right of way costs.

VI. NATURAL RESOURCES

A. General

A study was performed to inventory and describe the various natural resources likely to be impacted by the proposed action. Assessments of the nature and severity of probable impacts to these natural resources are provided, along with recommendations for measures that will minimize resource impacts. This study is included in the natural system technical report on the subject bridge replacement prepared by Stantec Consulting Services, Inc., dated March 12, 2002.

Areas of particular concern are identified that may have affected the selection of a preferred alignment or may necessitate changes in design criteria. Such environmental concerns have been addressed during the preliminary planning stages of the proposed project in order to maintain environmental quality in the most efficient and effective manner. The analyses contained in this document are relevant only in the context of the existing preliminary project boundaries. It may become necessary to conduct additional field investigations should design parameters and/or criteria change.

1. Methodology

Prior to the field investigation published resource information pertaining to the project study area was gathered and reviewed. The information sources used to prepare this report include:

- U.S. Geological Survey (USGS) quadrangle map (Elk Park);
- Soil Survey of Watauga County, North Carolina (Draft);
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory Map;
- USFWS list of protected species (February 25, 2003);

- North Carolina Natural Heritage Program (NCNHP) database of rare species and unique habitats (May 2003);
- NCDOT aerial photography of the project study area (1:100); and
- North Carolina Division of Water Quality (DWQ) water resource data.

Investigation into wetland occurrence in the project study area was conducted using methods outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987).

A general field survey was conducted within the project study area on August 28, 2001. Water resources were identified and their physical characteristics were recorded. Terrestrial community classifications generally follow Schafale and Weakley (1990) where possible, and plant taxonomy follows Radford, *et al.* (1968). Vegetative communities were mapped utilizing aerial photography of the project site. Wildlife was identified using a variety of observation techniques including active searching, visual observations with binoculars, and identifying characteristic signs of wildlife (sounds, tracks, scat, and burrows). Cursory surveys for aquatic organisms, including tactile searches for benthic macroinvertebrates, were performed as well.

B. Physical Resources

1. Physiography and Soils

The project lies within the Blue Ridge Mountain Physiographic Province. The topography of the project vicinity is characterized as rolling hills with moderate to steeply sloping banks along the major streams. Elevations in the project vicinity range from approximately 2,800 to 3,800 feet (853 to 1,158 meters) above mean sea level (msl). The elevation in the project study area varies from approximately 2,880 to 2,920 feet (878 to 890 meters) above msl.

Watauga County does not have a published soil survey; however, field sheets were available for review. The soil series found within the project study area are described below.

Dellwood very gravelly loamy fine sand, two to five percent slopes, occasionally flooded, is mapped along the stream. This soil is a nearly level to gently sloping, very deep, moderately well-drained soil found on flood plains in the Southern Appalachian Mountains. Permeability is moderately rapid. The seasonal high water table is within a depth of two to four feet (0.6 to 1.2 meters). This mapping unit is not listed on the hydric soils list.

Cullasaja very cobbly loam, eight to 15 percent slopes, extremely bouldery, is mapped along the hillsides north and south of the stream. This soil is a very deep, well-drained soil found on benches, toe slopes, foot slopes, drainageways, and fans in coves in the Southern Appalachian Mountains. Permeability is moderately rapid. The seasonal high water table is below six feet (1.8 meters). This mapping unit is not listed on the hydric soils list.

2. Water Resources

The proposed project falls within the Watauga River Basin, with a subbasin designation of 04-02-01. Waters within the project study area include Beech Creek and two unnamed tributaries to Beech Creek.

a. Water Resource Characteristics

Beech Creek flows west through the proposed project study area with a width of approximately 27 feet (8.2 meters). The flow was moderate on the day of the field investigation. The substrate consisted of bedrock, boulders, and cobbles, with some fine sand. The stream is comprised of step/pool sequences. The water was clear on the day of the site visit. The

depth of the water ranged from a few inches in the riffles to over two feet (0.6 meters) in the pools.

A small, unnamed tributary merges with Beech Creek on the northeast side of Bridge No. 320. The tributary is approximately two feet (0.6 meters) wide and a few inches deep. The substrate consists of gravel and sand.

A second tributary merges with Beech Creek southwest of the bridge. This tributary is approximately five feet (1.5 meters) wide and two to six inches (five to 15.0 centimeters) deep. The substrate consisted of gravel, cobbles, and sand.

Streams have been assigned a best usage classification by the North Carolina Division of Water Quality (DWQ) [formerly the Division of Environmental Management (DEM)], which reflects water quality conditions and potential resource usage. Within the project study area, the classification for Beech Creek (Index No. 8-20, 5/15/63) is "C Tr". Class "C" waters are suitable for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, and agriculture. The "Tr" denotes trout waters, which is a supplemental classification to protect freshwaters for natural trout propagation and survival of stocked trout.

No waters classified as High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watershed, or WS-II: predominately undeveloped watersheds), or Outstanding Resource Waters (ORW) occur within one mile (1.6 kilometers) of the project study area. Beech Creek flows into the Watauga River more than three miles downstream of the project study area. The Watauga River is classified as HQW.

Point sources, such as wastewater discharges, located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program. No NPDES permits are located in or directly upstream from the project study area.

Non-point source refers to runoff that enters surface waters through stormwater flow or no defined point of discharge. Stormwater runoff from SR 1153 and the surrounding residential properties may reach Beech Creek and cause water quality degradation through the addition of oil or gas residuals, particulate rubber, or other sources of contamination.

The Basinwide Monitoring Program, managed by the DWQ, is part of an ongoing ambient water quality-monitoring program that addresses long-term trends in water quality. The program monitors ambient water quality by sampling at fixed sites for selected benthic macroinvertebrates, 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. Stream and river reaches are assigned a final bioclassification of either Excellent, Good, Good/Fair, Fair, or Poor.

According to the information obtained from the Watauga River Basinwide Water Quality Management Plan (NCDENR, 1997), the DWQ does not have a sampling station on Beech Creek at the project study area; the closest station is located approximately 2,300 feet (701 meters) upstream of the

project site at SR 1126. The station was last sampled in September 1987 and received a rating of Good.

b. Anticipated Impacts to Water Resources

Impacts to water resources in the project study area are likely to result from activities associated with project construction, such as clearing and grubbing on streambanks, riparian canopy removal, instream construction, fertilizers and pesticides used in revegetation, and pavement construction. 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 study 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;
- Changes in dissolved oxygen (DO) levels;
- Increased nutrient loading during construction via runoff from exposed areas;
- Increased concentrations of toxic compounds in roadway runoff;
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles; and
- 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 study area, NCDOT's Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the construction phase of the project. Impacts will be further reduced by limiting instream activities and revegetating stream banks immediately following the completion of grading.

C. Biotic Resources

Living systems described in the following sections include communities of associated plants and animals. These descriptions refer to the dominant flora and fauna in each community and the relationship of these biotic components. Classification of plant communities is based on a system used by the NCNHP (Schafale and Weakley, 1990). If a community is modified or otherwise disturbed such that it does not fit into an NCNHP classification, it is given a name that best describes current characteristics. Scientific nomenclature and common names (when applicable) are used for the plant and animal species described. Subsequent references to the same species include the common name only.

1. Terrestrial Communities

The predominant terrestrial communities found in the project study area are maintained/disturbed and rich cove forest. Dominant faunal components associated with these terrestrial areas are discussed in each community description. Many species are adapted to the entire range of habitats found within the project study area but may not be mentioned separately in each community description.

a. Maintained/Disturbed Community

The maintained/disturbed community includes the road shoulders and residential properties within the project study area. Many plant species are adapted to these disturbed and regularly maintained areas. The dominant species within the project study area include fescue (*Festuca* sp.), ryegrass (*Lolium* sp.), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), flowering raspberry (*Rubus odoratus*), ragweed (*Ambrosia artemisiifolia*), goldenrod (*Solidago* sp.), thistle (*Cirsium* sp.), aster (*Aster* sp.), wild onion (*Allium cernuum*), dandelion (*Taraxacum officinale*), blackberry (*Rubus* sp.), and plantain (*Plantago* sp.).

The animal species present in these disturbed habitats are opportunistic and capable of surviving on a variety of resources, ranging from vegetation (flowers, leaves, fruits, and seeds) to both living and dead faunal components. An American Robin (*Turdus migratorius*) was observed during the site visit. Other species such as Eastern chipmunk (*Tamias striatus*), Eastern mole (*Scalopus aquaticus*), House Sparrow (*Passer domesticus*), Eastern Bluebird (*Sialia sialis*), American Crow (*Corvus brachyrhynchos*), American Goldfinch (*Carduelis tristis*), Northern Mockingbird (*Mimus polyglottos*), and garter snake (*Thamnophis sirtalis*) are often attracted to these disturbed habitats.

b. Rich Cove Forest Community

This community is found along both sides of Beech Creek adjacent to the maintained/disturbed community. The canopy layer includes tulip poplar (*Liriodendron tulipifera*), red oak (*Quercus rubra*), cucumber tree (*Magnolia acuminata*), sugar maple (*Acer saccharum*), yellow buckeye (*Aesculus*

octandra), yellow birch (*Betula lutea*), and Eastern hemlock (*Tsuga canadensis*). The understory consists of dogwood (*Cornus florida*) and rhododendron (*Rhododendron* sp.). The herbaceous layer includes violets (*Viola* sp.), Christmas fern (*Polystichum acrostichoides*), trillium (*Trillium* sp.), spikenard (*Aralia racemosa*), common greenbrier (*Smilax rotundifolia*), poison ivy (*Toxicodendron radicans*), and grapevine (*Vitis* sp.).

A Northern Cardinal (*Cardinalis cardinalis*) and Carolina Chickadee (*Poecile carolinensis*) were observed during the site visit. Other species which may reside or forage in these areas include Tufted Titmouse (*Baeolophus bicolor*), Carolina Wren (*Thryothorus ludovicianus*), Ovenbird (*Seiurus aurocapillus*), White-breasted Nuthatch (*Sitta carolinensis*), American toad (*Bufo americanus*), Eastern box turtle (*Terrapene carolina carolina*), hairy-tailed mole (*Parascalops breweri*), white-footed mouse (*Peromyscus leucopus*), and white-tailed deer (*Odocoileus virginianus*).

2. Aquatic Communities

The aquatic community in the project study area includes Beech Creek and two unnamed tributaries. Vegetation along the stream banks includes the tree species mentioned above as well as red elderberry (*Sambucus pubens*), cut-leaved coneflower (*Rudbeckia laciniata*), pale jewelweed (*Impatiens pallida*), spotted jewelweed (*Impatiens capensis*), and Virgin's bower (*Clematis virginiana*). Mountain dusky salamanders (*Desmognathus ochrophaeus*) were observed in Beech Creek and the tributaries. A Queen snake (*Regina septemvittata*) was also observed in the larger tributary. Stoneflies (Plecoptera), mayflies (Ephemeroptera), caddisflies (Trichoptera), water pennies (Coleoptera), and crayfish (Decapoda), were found under stones and woody debris in Beech Creek.

According to Mr. Kevin Hining, District 7 Assistant Fisheries Biologist for the North Carolina Wildlife Resource Commission (NCWRC), wild brown trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*), and brook trout (*Salvelinus fontinalis*) are found in Beech Creek.

3. Summary of Anticipated Impacts to Biotic Communities

Biotic community impacts resulting from project construction are addressed separately as terrestrial impacts and aquatic impacts. Impacts to terrestrial communities, particularly in locations exhibiting slopes, can result in the aquatic community receiving heavy sediment loads as a consequence of erosion. Construction impacts may not be restricted to the communities in which the construction activity occurs.

a. Terrestrial Communities

The rich cove forest and the maintained/disturbed communities serve as nesting, foraging, and shelter habitat for fauna. Removal of plants and other construction related activities would result in the displacement and mortality of faunal species in residence. Individual mortalities are likely to occur to terrestrial animals from construction machinery used during clearing activities.

Project construction will result in clearing and degradation of portions of these communities. Often, project construction does not require the use of the entire right-of-way; therefore, actual impacts may be considerably less.

b. Aquatic Communities

Impacts to the aquatic community of Beech Creek will result from the replacement of Bridge No. 320. Impacts are likely to result from the physical disturbance of aquatic habitat. Activities such as the removal of trees, as well as the construction of the bridge and approach work will likely result in an increase in sediment loads and water temperatures and a decrease in dissolved oxygen. Construction activities can also increase the possibility of toxins, such as engine fluids and particulate rubber, entering the waterways. The combination of these factors can potentially cause the displacement and mortality of fish and local populations of invertebrates, which inhabit these areas. Impacts to aquatic communities will be minimized by strict adherence to NCDOT's BMPs.

D. Special Topics

1. Waters of the United States: Jurisdictional Issues

Wetlands and surface waters fall under the broad category of "Waters of the United States" as defined in 33 CFR 328.3 and in accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344). Waters of the United States are regulated by the United States Army Corps of Engineers (USACE).

Investigation into wetland occurrence in the project impact area was conducted using methods outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987). No jurisdictional wetlands were found within the project study area.

Project construction cannot be accomplished without infringing on jurisdictional surface waters. Anticipated surface water impacts fall under the jurisdiction of the USACE.

2. Permits

In accordance with Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit is required from the USACE for projects of this type for the discharge of dredged or fill material into "Waters of the United States".

A Nationwide Permit 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, pursuant to the Council on Environmental Quality (CEQ) Regulation for the 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 environment, and

(2) the office of the Chief of Engineers has been furnished notice of the agency's or department's application for the categorical exclusion and concurs with that determination.

A Nationwide Permit 33 will be required if an on-site temporary detour is needed during construction of Bridge No. 320. This permit authorizes temporary structures, work and discharges, including cofferdams, necessary for construction activities or

access fills or dewatering of construction sites; provided the associated primary activity is authorized by the USACE or the U.S. Coast Guard, or for other construction activities not subject to the USACE or U.S. Coast Guard regulations.

A 401 Water Quality Certification, administered through the DWQ, will also be required. This certification is issued for any activity, which may result in a discharge into waters for which a federal permit is required.

a. Bridge Demolition

NCDOT's BMPs for Bridge Demolition (Case 2) will be implemented. The existing bridge consists of timber and steel.

b. Mitigation

The USACE has adopted, through 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, 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 - Avoidance 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 USACE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes.

Minimization - Minimization includes examination of appropriate and practicable steps to reduce 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 reduction of median widths, right-of-way widths, fill slopes and/or road shoulder widths.

Compensatory Mitigation - 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. Such actions should be undertaken in areas adjacent to or contiguous with the discharge site.

Compensatory Mitigation is required for those projects authorized under Section 404 Nationwide Permits that result in the fill or alteration of more

than 0.5 acre (0.2 hectares) of wetlands and/or 300 linear feet (91.4 meters) of streams.

3. Rare and Protected Species

Some populations of plants and animals have been or are in the process of decline due to factors such as natural forces, competition from introduced species, or human related impacts such as destruction of habitat. Rare and protected species listed for Watauga County and any likely impacts to these species as a result of the proposed project construction are discussed in the following sections.

a. Federally Protected Species

Plants and animals with federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended.

The United States Fish and Wildlife Service (USFWS) lists six federally protected species for Watauga County as of the February 25, 2003 listing (Table 2).

A review of the NCNHP database of rare species and unique habitats indicates no recorded occurrences of federally protected species within the project study area.

TABLE 2-FEDERALLY PROTECTED SPECIES FOR ASHE COUNTY

Scientific Name (Common Name)	Status
Glyptemy muhlenbergii (Bog turtle)	T(S/A)
Glaucomys sabrinus coloratus (Carolina northern flying squirrel)	E
Microhexura montivaga (Spruce-fir moss spider)	E
Geum radiatum (Spreading avens)	E
Houstonia montana (Roan mountain bluet)	E
Liatris helleri (Heller's blazing star)	T

NOTES:

E Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).

T Threatened (a species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range).

T(S/A) Threatened Due to Similarity of Appearance (a species that is threatened due to similarity of appearance with other rare species and is listed for its protection).

Glyptemys muhlenbergii	(Bog turtle)	T(S/A)
Family:	Emydidae	
Date Listed:	November 4, 1997	

Bog turtles are small [three to 4.5 inches (7.6 to 11.4 centimeters)] semi-aquatic turtles that have a dark brown carapace and black plastrons. They

usually exhibit distinctive orange or yellow blotches on each side of the head and neck.

The bog turtle inhabits shallow, spring fed fens, sphagnum bogs, swamps, marshy meadows, pastures which have soft, muddy bottoms, and clear, cool, slow-flowing water, often forming a network of rivulets. Bog turtles inhabit damp grassy fields, bogs, and marshes in the mountains and upper Piedmont.

The bog turtle is not biologically endangered or threatened and is not subject to Section 7 consultation.

Glaucomys sabrinus coloratus	(Carolina northern flying squirrel)	E
Family:	Sciuridae	
Date Listed:	July 1, 1985	

Carolina northern flying squirrels are small nocturnal mammals that are three to five ounces (85 to 142 grams) in weight and 10 to 12 inches (25 to 31 centimeters) in length. They possess a long, broad, flattened tail, prominent eyes, and dense fur. The northern flying squirrels closely resemble southern flying squirrels but are larger and have richer colors. Adults are gray with a brownish, tan, or reddish wash on the back, and grayish white or buffy white undersides. The northern flying squirrel can apparently subsist on lichens and certain fungi, but also eats certain seeds, buds, fruit, staminate cones, insects, and other animal material.

They typically live at elevations above 5,000 feet (1,524 meters) in spruce-fir forests and forests of mixed conifers and hardwoods. They use both

areas to search for food, while the hardwood areas are needed for nesting sites. Research suggests that the more aggressive southern flying squirrel has begun to force the northern species out of the hardwood forests, which reduces favorable nesting sites and, therefore, reproduction by the northern flying squirrel.

Habitat is not present in the project study area; the project study area is located at approximately 2,900 feet (884 meters) above msl, which is well below the elevation for suitable habitat. A search of the NCNHP database showed no recorded occurrences of this species within the project vicinity. It can be concluded that the construction of the proposed project will not impact the Carolina northern flying squirrel.

BIOLOGICAL CONCLUSION: NO EFFECT

Microhexura montivaga	(Spruce-fir moss spider)	E
Family:	Dipluridae	
Date Listed:	February 6, 1995	

The **spruce-fir moss spider** is a small [0.10 to 0.15 inches (0.25 to 0.38 centimeters)] spider which ranges in color from light brown to yellow-brown to a darker reddish brown. It has no markings on its abdomen. It is identified by its chelicerae which project forward beyond the anterior edge of the carapace. It also has very long spinnerets and a second pair of book lungs.

The spruce-fir moss spider inhabits only mature Fraser fir and red spruce forest communities of the highest elevations [greater than 5,000 feet (1,524 meters)]. The typical habitat is well drained, damp moss mats growing on

rocks and boulders. It prefers well-shaded places in these forests where it constructs tube shaped webs in the interface between the moss mat and rock surface.

No habitat is present for the spruce-fir moss spider within the project study area. The project study area is located at approximately 2,900 feet (884 meters) above msl, which is well below the elevation for suitable habitat. A search of the NCNHP showed no recorded occurrences of this species within the project vicinity. It can be concluded that the construction of the proposed project will not impact the spruce-fir moss spider.

BIOLOGICAL CONCLUSION: NO EFFECT

Geum radiatum	(Spreading avens)	E
Family:	Rosaceae	
Date Listed:	April 5, 1990	

Spreading avens is a perennial herb topped with an indefinite cyme of large, bright, yellow flowers. Its leaves are mostly basal with large terminal lobes and small laterals, and they arise from horizontal rhizomes. Plant stems grow eight to 20 inches (20 to 51 centimeters) tall. Flowering occurs from June to September, and the fruits are produced from August to October.

Spreading avens inhabits high elevation cliffs, outcrops, and steep slopes which are exposed to full sun. It is also found in thin, gravelly soils or grassy balds near summit outcrops. The adjacent spruce/fir forests [generally found above 5,500 feet (1,676 meters) in elevation] are dominated by red spruce and Fraser fir. The substrate at all the population sites is composed of various igneous, metamorphic, and sedimentary rocks.

No habitat is located in the project study area for this species; the project study area is approximately 2,900 feet (884 meters) above msl, which is well below the elevation for suitable habitat. A search of the NCNHP database showed no recorded occurrences of this species within the project vicinity. It can be concluded that the construction of the proposed project will not impact spreading avens.

BIOLOGICAL CONCLUSION: NO EFFECT

Houstonia montana	(Roan mountain bluet)	E
Family:	Rubiaceae	
Date Listed:	April 5, 1990	

Roan mountain bluet is a perennial herb with erect or ascending, unbranched or weakly terminally branched stems up to 8.5 inches (21 centimeters) tall. Its inflorescence is a few-flowered cyme with bright, deep purple flowers. Flowering occurs from late May through August, with peak flowering usually in June and July. This variety is distinguished from other bluets by its relatively large reddish purple flowers, compact stature and clump-forming growth habit, and its exposed mountaintop habitat.

Roan mountain bluet inhabits high elevation [4,200 to 6,300 feet (1,280 to 1,920 meters)] cliffs, outcrops, and steep slopes that are exposed to full sunlight.

No habitat is located in the project study area for Roan mountain bluet; the project study area is located at approximately 2640 feet (805 meters) above msl, which is well below the elevation for suitable habitat. A search

of the NCNHP database showed no recorded occurrences of this species within the project vicinity. It can be concluded that the construction of the proposed project will not impact Roan mountain bluet.

BIOLOGICAL CONCLUSION: NO EFFECT

Liatris helleri	(Heller's blazing star)	T
Family:	Asteraceae	
Date Listed:	November 19, 1987	

Heller's blazing star is a perennial herb with one or more erect or arching stems, which arise from a tuft of narrow pale green basal leaves. Its stems reach up to 16 inches (41 centimeters) in height and are topped by a showy spike of lavender flowers [three to eight inches (eight to 20 centimeters) long], which are present from July through September. Fruits are present from September through October.

Heller's blazing star is endemic to the northern Blue Ridge Mountains where it occurs on high elevation rocky summits. It grows in shallow, acidic soils which are exposed to full sunlight.

No habitat is located in the project study area for Heller's blazing star; the project study area is located at approximately 2,640 feet (805 meters) above msl, is well below the summit, and contains no rocky outcrops. A search of the NCNHP database showed no recorded occurrences of this

species within the project vicinity. It can be concluded that the construction of the proposed project will not impact Heller's blazing star.

BIOLOGICAL CONCLUSION: NO EFFECT

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b. Federal Species of Concern

Federal Species of Concern (FSC) are not legally protected 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 of Endangered. FSC are defined as species that are under consideration for listing for which there is insufficient information to support listing.

Some of these species are listed as Endangered, Threatened, or Special Concern by the NCNHP list of Rare Plant and Animal Species and are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. Table 3 includes listed FSC species for Watauga County and their state classifications (May 2003)

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

TABLE 3

FEDERAL SPECIES OF CONCERN FOR WATAUGA COUNTY

Scientific Name (Common Name)	North Carolina Status	Habitat Present
*Neotoma magister** (Alleghany woodrat)	SC	Yes
*Sylvilagus obscurus** (Appalachian cottontail)	SR	Yes
Dendroica cerulea (Cerulean Warbler)	SR	Yes
Cryptobranchus alleganiensis (Hellbender)	SC	Yes
Phenacobius teretulus (Kanawha minnow)	SC	Yes
Poecile atricapillus practicus (Southern Appalachian Black-capped Chickadee)	SC	No
Loxia curvirostra (Southern Appalachian Red Crossbill)	SR (PSC)	No
Aegolius acadicus (Southern Appalachian Saw-whet Owl)	SC (PT)	No
Sphyrapicus varius appalachiensis (Southern Appalachian Yellow-bellied Sapsucker)	SR (PSC)	No
*Sorex palustris punctulatus** (Southern water shrew)	SC	Yes
Speyeria diana (Diana fritillary butterfly)	SR	Yes
Lasmigona subviridus (Green floater)	E	Yes

Scientific Name (Common Name)	North Carolina Status	Habitat Present
Geum geniculatum (Bent avens)	T	Yes
*Poa paludigena** (Bog bluegrass)	E	No
Juglans cinerea (Butternut)	W5	Yes
Abies fraseri (Fraser fir)	C	No
*Euphorbia purpurea*** (Glade spurge)	C	Yes
Lilium grayi (Gray's lily)	T-SC	Yes
Cardamine clematitis (Mountain bittercress)	C	Yes
Delphinium exaltatum (Tall larkspur)	E-SC	Yes

NOTES:

- C Candidate (species for which population monitoring and conservation action is recommended).
- E Endangered (species which are afforded protection by state laws).
- T Threatened (species which are afforded protection by state laws).
- SC Special Concern (species which are afforded protection by state laws).
- SR Significantly Rare (species for which population monitoring and conservation action is recommended).
- P Proposed (species that have been formally proposed for listing, but have not yet completed the legally mandated listing process).
- W Watch list (any other species believed to be rare and of conservation concern in the state but not warranting active monitoring at this time)
- * Historic record - the species was last observed in the county more than 50 years ago (USFWS)
- ** Obscure record – the date and/or location of observation is uncertain (USFWS)

c. Summary of Anticipated Impacts

No habitat is present in the project study area for any federally protected species. According to the NCNHP, there have been no recorded occurrences of any rare or protected species within the project vicinity. Therefore, no impacts to either federal or state listed species are anticipated.

A survey for green floater will be conducted prior to project letting.

VII. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation for Compliance with Section 106, codified as 35 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

A field survey of the Area of Potential Effect (APE) was conducted on September 23, 2002. All structures within the APE were photographed, and later reviewed by the State Historic Preservation Office (SHPO). In a concurrence form dated November 8, 2002 and a memorandum dated December 20, 2002 the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed in or eligible for

listing in the National Register of Historic places within the APE. A copy of the concurrence form and the memorandum are included in Appendix A.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated December 20, 2002, did not recommend an archaeological investigation be conducted in connection with this project. A copy of the SHPO memorandum is included in Appendix A.

VIII. ENVIRONMENTAL EFFECTS

The project will have the following benefits: The proposed improvements will cost-effectively replace the structurally deficient bridge with a structurally improved bridge. The load restriction will be removed from the bridge for truck traffic. The new bridge will provide improved safety due to the wider typical section. The design of the new bridge will not change the visual character of the area and should be aesthetically acceptable to the residences in proximity to the bridge. The proposed improvement is anticipated to require a limited amount of additional existing right of way. There will be no impact on development as the closest residential development is located approximately 150 feet (46 meters) or more from the bridge. In summary, the project is expected to have an overall positive impact. Replacement of the inadequate bridge and construction of safety improvements will result in safer and overall more efficient traffic operations.

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.

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine whether minority of low income populations were receiving disproportionately high and adverse human

health and environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

The studied route does not contain any bicycle accommodations, nor is it a designated bicycle route; therefore, no bicycle accommodations have been included as part of this project.

There are no publicly owned parks, recreational facilities, or wildlife and waterfowl refuges of national, state of local significance in the immediate vicinity of the project.

No adverse effects to air quality are expected to result from this project. This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis (if applicable), and a project level CO analysis is not required. Since the project is located in an attainment area, 40 CFR Part 51 is not applicable. If vegetation or wood debris is disposed of by open burning, it shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520 and 1990 Clean Air Act Amendments and the National Environmental Policy Act. This evaluation completes the assessment requirements for air quality, and no additional reports are required.

Ambient noise levels may increase during the construction of this project; however this increase will be only temporary and usually confined to daylight hours. There should be no notable change in traffic volumes after this project is completed. Therefore, this project will have no adverse effect on existing noise levels. Noise Receptors in the project area will not be impacted by this project. This evaluation completes the assessment requirements for highway noise set forth in 23 CFR Part 772. No additional reports are required.

The proposed project is not likely to adversely affect threatened or endangered species.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the 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 the project.

No adverse impact on families or communities is anticipated. No relocation of homes or businesses is expected with the implementation of the proposed project.

The proposed project will not involve lands protected in Section 4(f) of the U.S. Department of Transportation Act of 1966.

No geodetic survey markers will be impacted.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Since the bridge will be replaced at the existing location the Farmland Protection Policy Act does not apply.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

Watauga County is a participant in the National Flood Insurance Program. The bridge is not within a Detailed Study Area. The new structure will be designed to match or lower the existing 100-year storm elevation upstream of the roadway. Since the proposed replacement for the bridge will be a structure similar in waterway opening size, it is not anticipated to have any substantial adverse impact on the existing floodplain and floodway. Additional hydraulic information is included in the technical memorandum prepared by Sungate Design Group, P.A.

All borrow and solid waste sites will be the responsibility of the Contractor. Solid waste will be disposed of in strict adherence to the NC Division of Highways "Standard Specifications for Roads

and Structures." The Contractor will observe and comply with all laws, ordinances, regulations, orders, and decrees regarding the disposal of solid waste. Solid waste will not be placed into any existing land disposal site that is in violation of state or local rules and regulations. The Contractor will provide for and dispose of waste and debris in areas that are outside the right of way.

On the basis of the above discussion, it is concluded that no significant adverse environmental effects will result from the implementation of this project. The project is a Federal "Categorical Exclusion" due to its limited scope and lack of significant environmental consequences.

IX. PUBLIC INVOLVEMENT

A mailing list was developed based upon property owners located near the bridge. The mailing list included approximately 25 names. A newsletter, mailed in early March 2003, announced that three alternatives for replacing Bridge No. 320 were being studied. The newsletter was also made available to the local news media (see news article in Appendix B). The newsletter also included an announcement of a Citizen's Informational Workshop to obtain public comments on the alternatives. A copy of the newsletter is included in Appendix B.

The workshop was held on March 31, 2003 at Bethel Elementary School in the community of Sugar Grove. Due to snow, the school was closed that day and no one arrived at the school to admit DOT staff. Consequently, DOT staff met with a few citizens in the parking lot for about an hour. Then signs were posted at the school to advise any citizens arriving later of the opportunity to meet with DOT staff the following day at Foscoe Christian Church in Foscoe Village at a workshop scheduled for TIP Project B-4318. Three citizens, consisting of property owners living near the bridge attended. After becoming informed of the details of the replacement, the property owners were generally in agreement with the proposed replacement. However, the property owner who owns the right of way involved with the replacement supported the replacement at the existing location with the temporary detour on the north (or northwest) side (referred to as Alternative 1). The other two

property owners were non-committal as to favoring one alternative over the other. A copy of the handout presented at the workshop is included in the Appendix B.

A Local Public Officials meeting was held on April 1, 2003 at 10:00 am at the Watauga County Court House. The three studied alternates for B-4316 were presented. Large displays, which basically were enlargements of the Figure 3 A, 3B & 3C were shown. Additional copies of the newsletter, previously sent to those on the mailing list, were also made available to those attending. Five officials attended, including the Watauga County Manager, a Watauga County Commissioner, the Watauga County Fire Marshall, and two representatives of the Watauga County Planning and Inspections Department.

Summary of Questions and Comments Received on B-4316 and Responses Provided at Meetings

- What are the costs of the alternates?
  Estimates are not available and are being developed.
- How will traffic be maintained on the project during construction?
  The road dead-ends and would require on-site detours.
- What are the project schedules?
  Right of way in 2004 and Construction in 2005

No opposition was expressed and there appeared to be over-all general support for the bridge replacement.

X. AREAS OF CONTROVERSY

No controversial issues have been identified during the project planning process and none are anticipated.

XI. AGENCY COMMENTS

Scoping comments were sent to the following agencies. Agencies that responded are marked with an asterisk. Comment letters are included in Appendix A.

Federal Agencies

US Fish and Wildlife Service-Asheville*
US Army Corps of Engineers-Asheville
US Army Corps of Engineers-Wilmington
Environmental Protection Agency-Raleigh

State Agencies

NC Wildlife Resources Commission*
NC Department of Environment and Natural Resources*
Division of Water Quality/Wetlands*
Division of Archives and History*
The Eastern Band of Cherokee Indians, Tribal Historic Preservation Officer*
State Clearinghouse
Department of Public Instruction

Regional and Local Agencies

Region D Council of Government

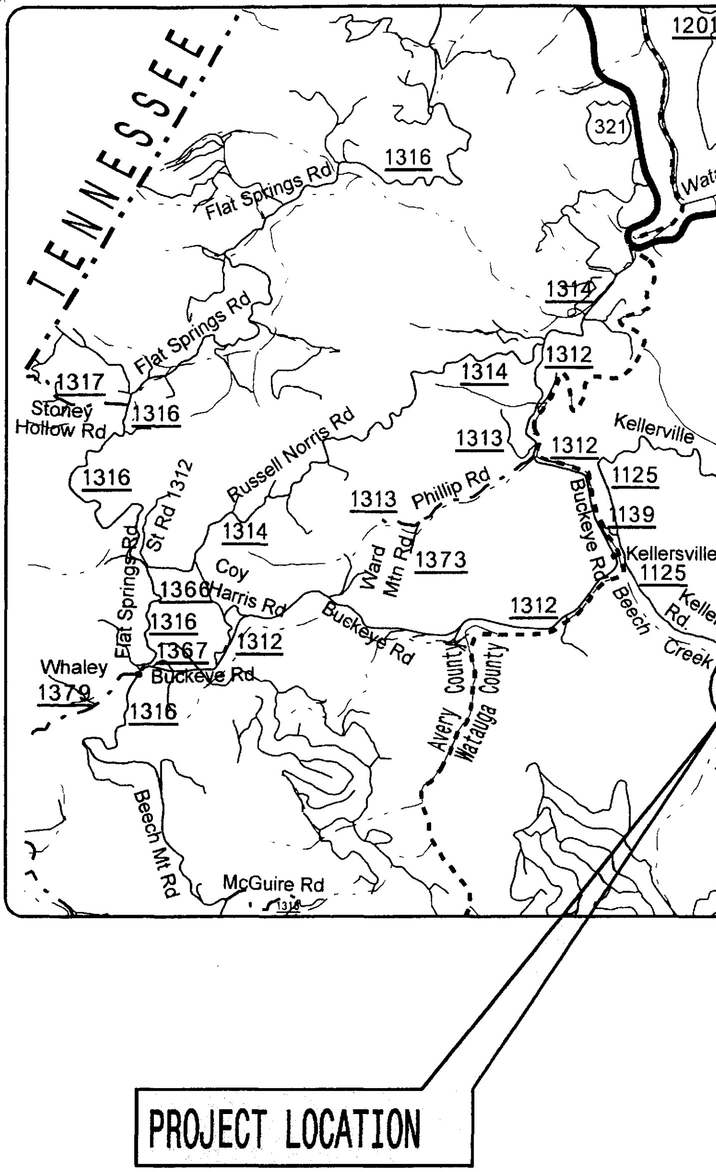
Watauga County Commissioners, chairperson

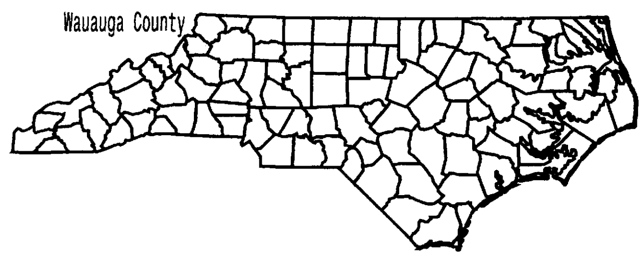
Watauga County Fire Marshall/Emergency Management

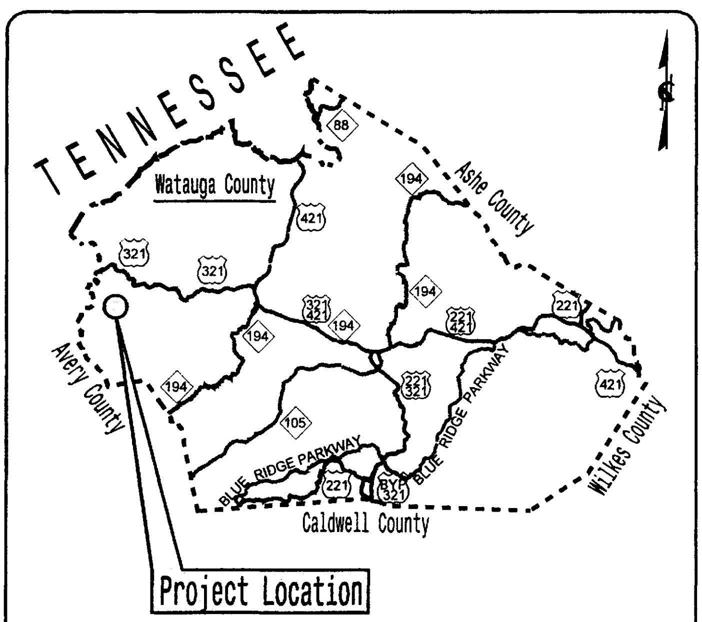
Watauga County Department of Planning & Inspections

Watauga County Board of Education*

FIGURES







SR 1153
(WILEY HARMON ROAD)
REPLACE BRIDGE NO. 320 over
Beech Creek

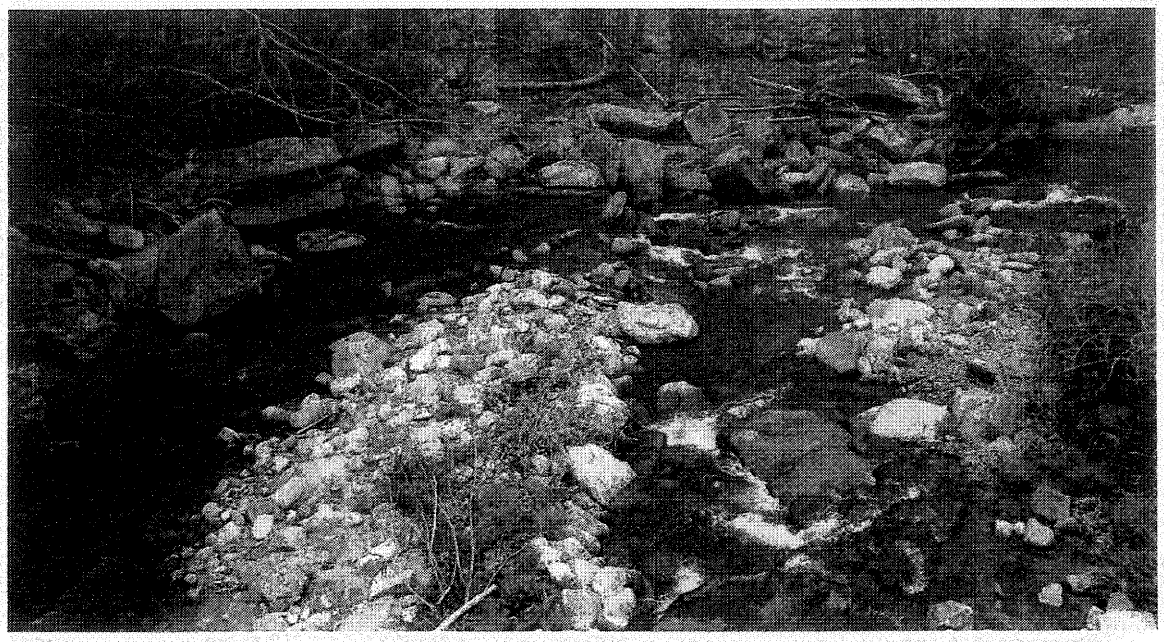
B-4316

Watauga County, North Carolina

PROJECT VICINITY

Figure 1

B-4316- VIEW OF BRIDGE NO. 320 LOOKING SOUTH



B-4316- VIEW OF BEECH CREEK
FROM BRIDGE LOOKING WEST (DOWNSTREAM)

FIGURE 2 A

**B-4316-VIEW BENEATH BRIDGE NO. 320
ON ITS EAST OR UPSTREAM SIDE**

**B-4316-VIEW FROM THE BRIDGE, LOOKING NORTH ON
WILEY HARMON ROAD**

FIGURE 2 B

END PROJECT
ALTERNATE 1

BEECH CREEK

SR 1125

KELLERVILLE ROAD

TEMPORARY DETOUR
(WITH PIPES)

SR 1125

PERRY PRESNELL ROAD

SR 1153

WILEY HARMON ROAD

BEECH CREEK

BEGIN PROJECT
ALTERNATE 1

PERMANENT ALIGNMENT

TEMPORARY DETOUR

PERMANENT BRIDGE

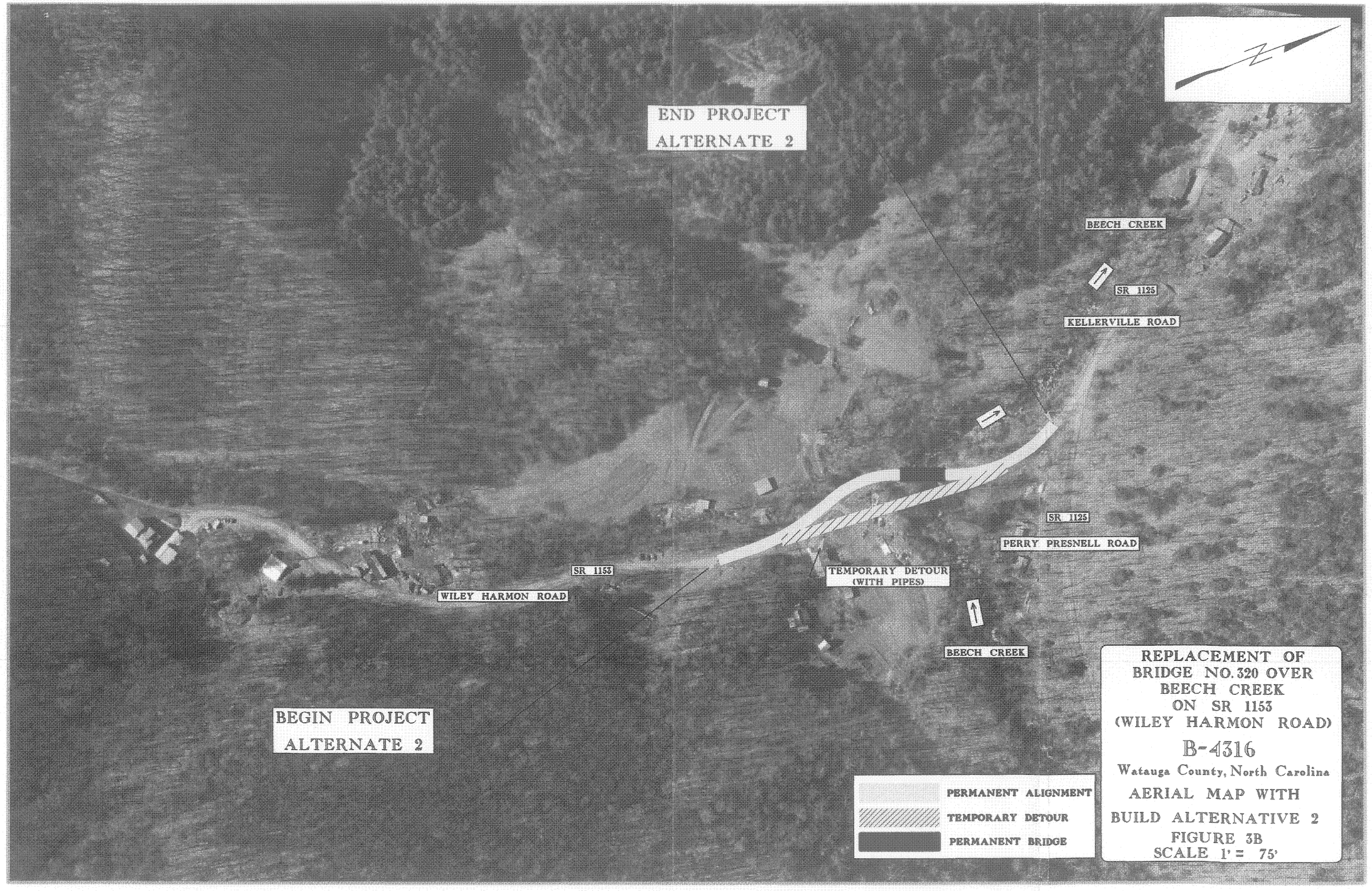
REPLACEMENT OF BRIDGE NO. 320 OVER BEECH CREEK ON SR 1153 (WILEY HARMON ROAD)

B-4316

Watauga County, North Carolina

AERIAL MAP WITH
BUILD ALTERNATE 1

FIGURE 3A
SCALE 1' = 75'



REPLACEMENT OF BRIDGE NO. 320 OVER BEECH CREEK ON SR 1153 (WILEY HARMON ROAD)

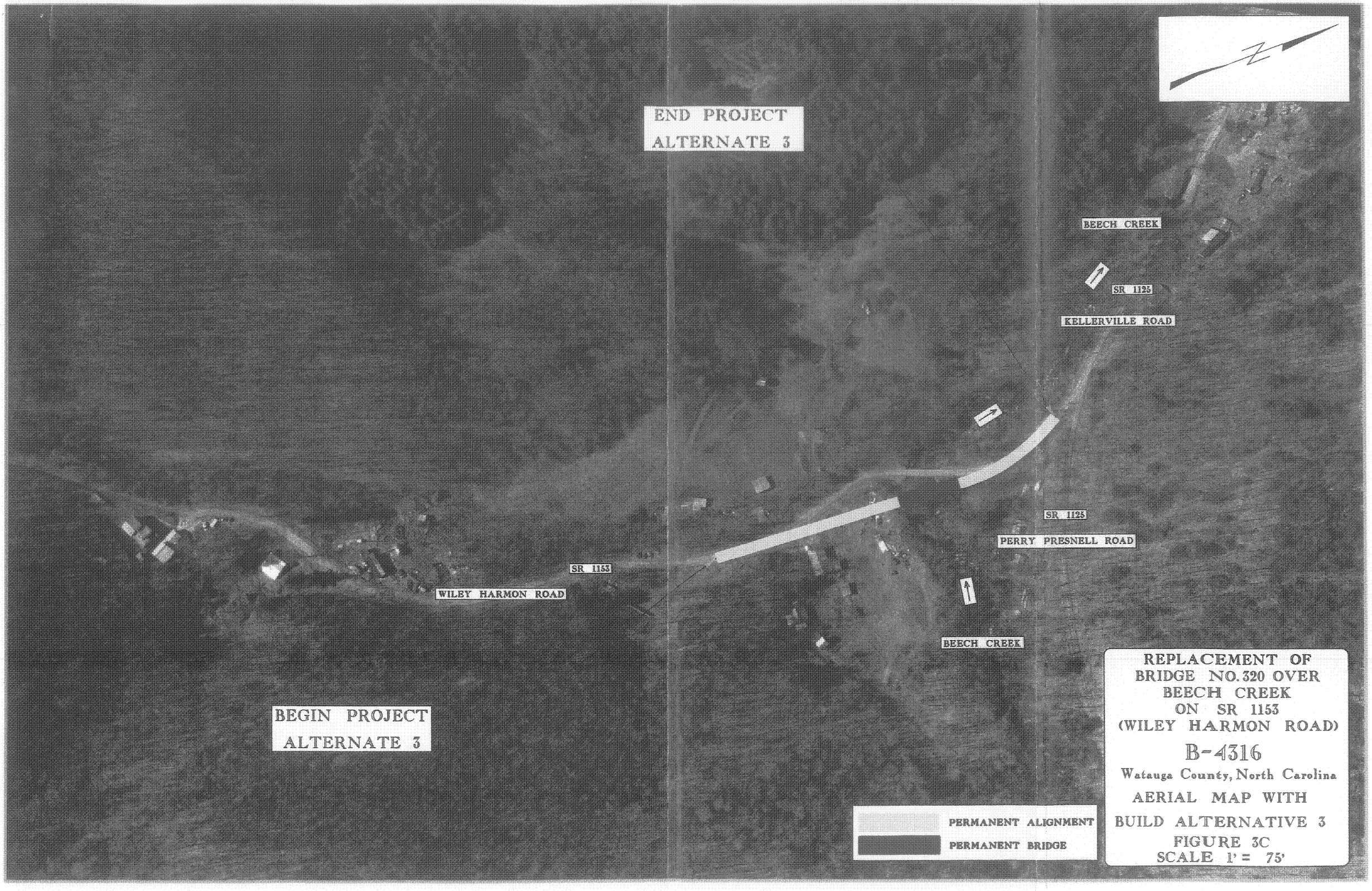
B-4316

Watauga County, North Carolina

AERIAL MAP WITH BUILD ALTERNATIVE 2

FIGURE 3B

SCALE 1' = 75'



REPLACEMENT OF BRIDGE NO. 320 OVER BEECH CREEK ON SR 1153 (WILEY HARMON ROAD)

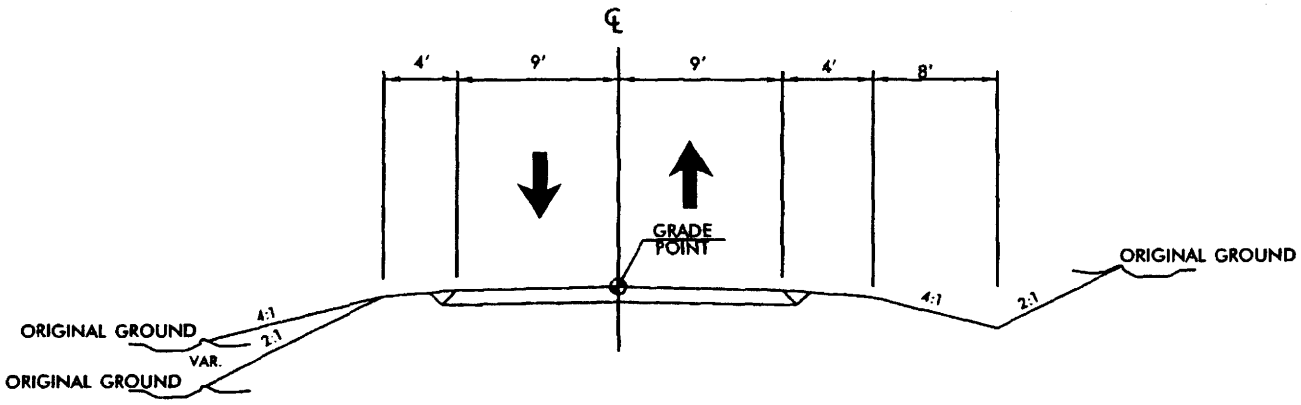
B-4316

Watauga County, North Carolina

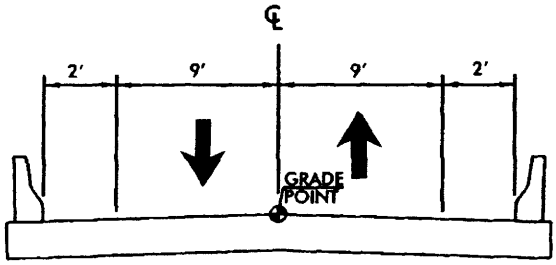
AERIAL MAP WITH BUILD ALTERNATIVE 3

FIGURE 3C

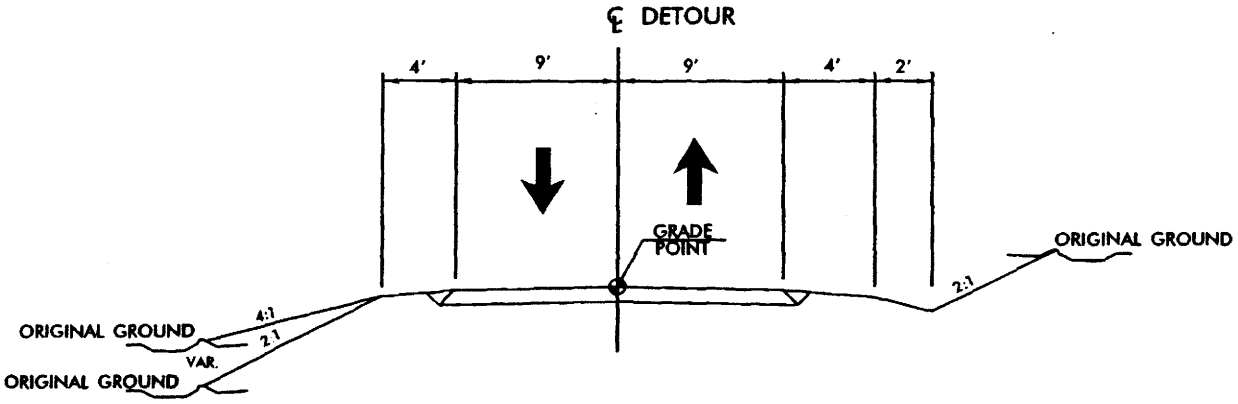
SCALE 1' = 75'



ROADWAY TYPICAL SECTION



BRIDGE TYPICAL SECTION



DETOUR ROADWAY TYPICAL SECTION

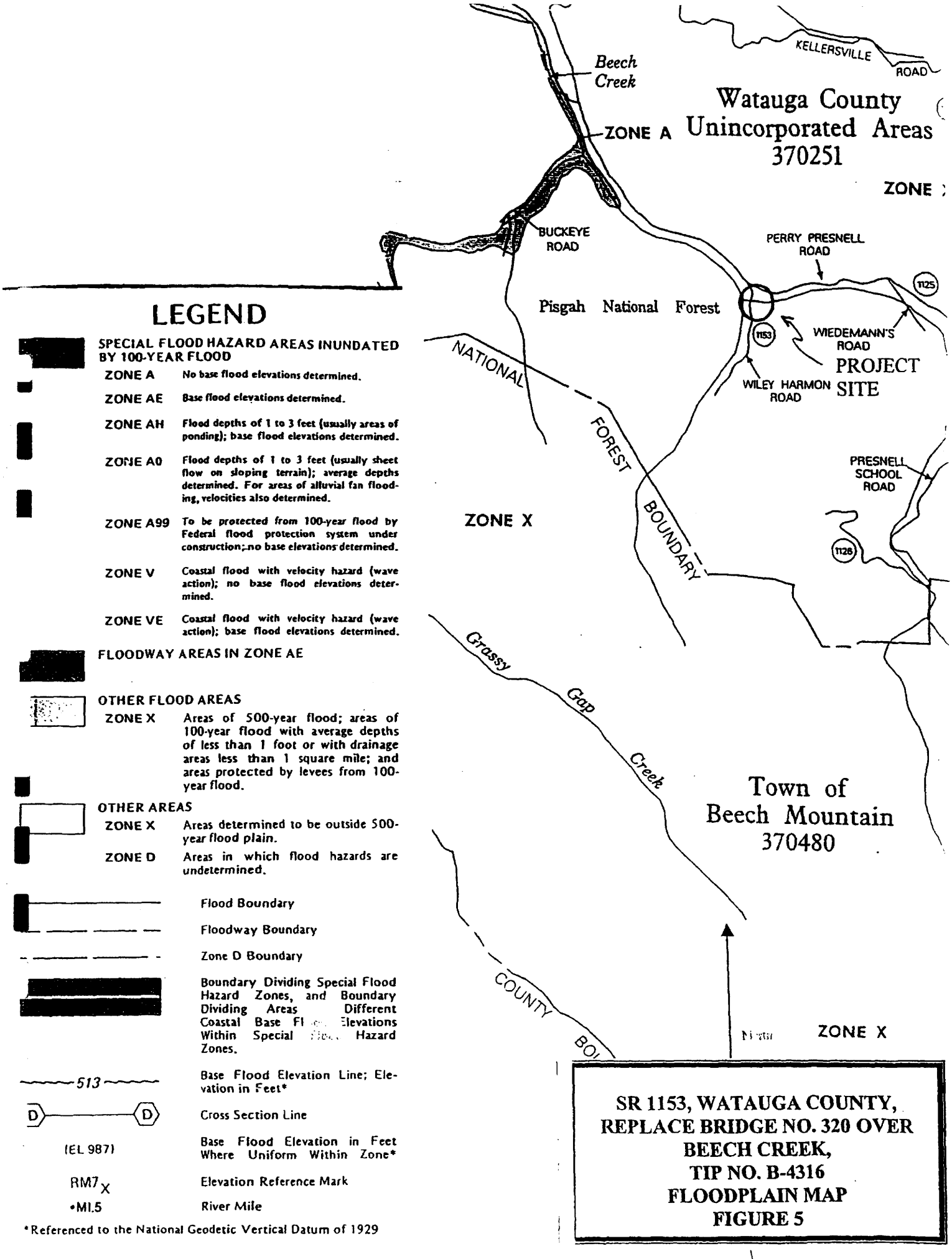
REPLACEMENT OF
BRIDGE NO. 320 OVER
BEECH CREEK
ON SR 1153
(WILEY HARMON ROAD)

B-4316

Watauga County, North Carolina

TYPICAL SECTIONS FOR
ALTERNATIVES 1, 2 & 3

FIGURE 4



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A	No base flood elevations determined.
ZONE AE	Base flood elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE A99	To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
ZONE V	Coastal flood with velocity hazard (wave action); no base flood elevations determined.
ZONE VE	Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X	Areas determined to be outside 500-year flood plain.
ZONE D	Areas in which flood hazards are undetermined.

- Flood Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- 513 — Base Flood Elevation Line; Elevation in Feet*
- D — D — Cross Section Line
- (EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*
- RM7 X — Elevation Reference Mark
- •M1.5 — River Mile

*Referenced to the National Geodetic Vertical Datum of 1929

SR 1153, WATAUGA COUNTY, REPLACE BRIDGE NO. 320 OVER BEECH CREEK, TIP NO. B-4316 FLOODPLAIN MAP FIGURE 5

APPENDIX A

Federal Aid # BRZ-1153(6) *TIP* # B-4316 *County*: Watauga

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replace Bridge No. 320 on SR 1153 over Beech Creek

On 11/05/2002, representatives of the

- [x] North Carolina Department of Transportation (NCDOT)
- [x] Federal Highway Administration (FHWA)
- [x] North Carolina State Historic Preservation Office (HPO)
- [ ] Other

Reviewed the subject project at

- [ ] Scoping meeting
- [x] Historic architectural resources photograph review session/consultation
- [ ] Other

All parties present agreed

- [ ] There are no properties over fifty years old within the project's area of potential effects.
- [x] There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- [x] There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as 1-3 is considered not eligible for the National Register and no further evaluation of it is necessary.
- [x] There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- [x] All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- [x] There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

Mary Pope Furr — 11.05.02
Representative, NCDOT — Date

Michael C. Dawson — 11/5/02
FHWA, for the Division Administrator, or other Federal Agency — Date

Cliff Swallow — 11-5-02
Representative, HPO — Date

David Brook BJS — 11-8-02
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

M..hael F. Easley, Governor
.isbeth C. Evans, Secretary
e ey J. Crow, Deputy Secretary

Division of Historical Resources
David J. Olson, Director

December 20, 2002

M EMORANDUM

TO: Greg Thorpe, Manager
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook RSE for David Brook

SUBJECT: Wiley Harmon Road, SR 1153, Replace Bridge No. 320 over Beech Creek, Federal-Aid Project No. BRZ-1153(6), State Project No. 8.2752301, T.I.P. No. B-4316, Watauga County, ER02-8540

Thank you for your letter of October 14, 2002, concerning the above project.

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

T : 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.

T nk 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. In all future communication concerning th project, please cite the above-referenced tracking number.

DB:doc

The Eastern Band of Cherokee Indians
Tribal Historic Preservation Office
P.O. Box 455, Cherokee, NC 28719
(828) 497-1594 / Fax (828) 497-1590

October 28, 2003

Greg Thorpe, PhD, Manager
Project Development and Environmental Analysis Branch
NC Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

RE: Wilkes County, Bridge No. 71 on SR 1167 Over Fork Creek, Federal-Aid Project BRZ-1167(1), State Project 8.2761301, TIP No. B-4322

Caldwell County, Bridge No. 7 on NC 268 Over Yadkin River, Federal Aid Project BRSTP-0268 (9), State Project 8.1731801, TIP No. B-4052

Ashe County, Bridge No. 338 on SR 1320 Over Roaring Fork Creek, Federal Aid Project BRZ-1320 (4), State Project 8.2712301, TIP No. B-4013

Ashe County, Bridge No. 273 on SR 1347 Over Big Horse Creek, Federal Aid Project BRZ-1347 (1), State Project 8.2712501, TIP No. B-4016

Ashe County, Bridge No. 165 on SR 1362 Over Big Horse Creek, Federal Aid Project BRZ-1362 (1), State Project 8.2712401, TIP No. B-4015

Bridge No. 117 on SR 1118 North Folk New River, Federal-Aid Project BRZ-1118(3), State Project 8.2712201, TIP No. B-4012

Watauga County, Bridge No. 320 on SR 1153 Over Beech Creek, Federal Aid Project BRZ-1153 (6), State Project 8.2752301, TIP No. B-4316

Dear Dr. Thorpe,

The Eastern Band of Cherokee Indians appreciates the invitation to participate as a consulting party in compliance with 36CFR800. According to the information you provided, the EBCI THPO is unaware of any known cultural resources or archaeological sites in the project area significant to our Tribe, or any known cultural resources or archaeological sites eligible for the National Register of Historic Places. However, should any cultural resources or human remains be encountered during the proposed project's activities, work should cease and this office should be contacted immediately.
As a consulting party we request that you send all information pertaining to cultural resources within the above-referenced project(s) area of potential effect (APE) for our review and comment. If you have any questions, please direct them to me at (828) 497-1589. Thank you.

Sincerely,

Mi h

Michelle Hamilton
Tribal Historic Preservation Specialist
Eastern Band of Cherokee Indians

US Fish and Wildlife Service

160 Zillicoa Street
Asheville, NC 28801
Phone 828-258-3939 Ext 237, Fax 828-258-5330

MEMO FOR: William T. Goodwin, P.E. **DATE:** June 27, 2002

FROM: Marella Buncick

SUBJECT: Review of NCDOT 2005 Bridge Program

I have completed initial review of the approximately 70 proposed bridge replacements for NCDOT Divisions 9-14 for the year 2005. I would like to commend NCDOT for obtaining the natural resource information up front and allowing the agencies to review the proposals and provide comments so early in the process. It was a large volume of work for everyone involved but I feel that the input will be much more meaningful at this early planning stage.

Attached is a spreadsheet with specific comments for each project reviewed. All of the projects have been assigned a Green, Yellow, or Red ranking depending on the resources affected and the need for future consultation. As you will note, the majority of the projects received a Yellow ranking. This is due in large part to the fact that there are unresolved issues related to listed species. Many of these projects likely will become Green projects after further field review. 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) actions are 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.

I also have general comments regarding the process and reports. My general comments follow.

Report Content and Organization

1. The reports would be more easily handled if they were not spiral or otherwise bound.
2. Maps need to be much better. Without a significant landmark-- highway, larger town, other feature – it sometimes took a long time to figure out the location of the project within a county.
3. The reports were organized somewhat similarly, but more consistency would aid in the review process. Perhaps a table that has the significant features ---stream width, depth, DWQ class, etc.--also would help.

4. For listed species, it often was difficult to tell whether field surveys had been conducted or whether the information was limited to a database search.
5. In the future, I would appreciate having the Rosgen stream classification included as part of the information.

Listed Species Surveys

Projects currently ranked as Yellow will need to be reviewed in the future after the stated issues are resolved. For those reports with unresolved issues related to listed species, I would recommend that NCDOT wait until closer to implementation time to conduct final surveys. In general, after three to five years we need updated information regarding the project and listed species. Additionally, when aquatic species are involved (particularly mussels) several surveys may be required to adequately determine presence or absence.

The three projects receiving a Red ranking will need to be followed very closely to determine future consultation requirements. These include B-4287 (actually 2 bridge replacements), B-4286, and B-4282. These projects were ranked as Red because of the significance of the number of listed resources potentially affected and the river (either main stem or tributary) involved.

I would encourage NCDOT to require consultants to at least assess habitat for the bog turtle. While the bog turtle technically does not require Section 7 consultation, it is a species of concern and NCDOT is actively managing mitigation sites or parts of sites for this species. Additionally, the Wildlife Resources Commission considers this animal rare in NC and participates actively in surveys and conservation efforts on its behalf.

Bridge Design and Construction Practices

I am assuming that FWS comments/recommendations in the past regarding bridge design, demolition, and construction practices will be folded into each of these projects. Since NCDOT is also working on a BMP manual that covers these practices, I think it would be redundant to state them again. However, if any questions arise, please let me know. I would like to emphasize that we prefer off-site detours wherever possible, to minimize effects to resources.

Each of these projects has been assigned a log number. Please refer to these numbers in future requests regarding the subject projects. Thank you again for the opportunity to provide these comments. If you have questions, please let me know.

PDE	TIP	County	Rank	Reason for Rank	FWS Log Numb
SH	B-2988	Haywood	Y	unresolved for listed species, FWS requests review of bridge design	4-2-0
MD	B-4011	Ashe	Y	FWS requests resurvey for spiraea, assessment for bog turtle and green floater, review bridge plans	4-2-0
MD	B-4012	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle	4-2-0
MD	B-4013	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-0
MD	B-4015	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-0
MD	B-4016	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-0
SH	B-4032	Buncombe	G	FWS requests review of bridge design	4-2-0
SH	B-4036	Buncombe	Y	unresolved for mussels, FWS requests review of bridge design	4-2-0
SH	B-4037	Buncombe	Y	unresolved for mussels, FWS requests review of bridge design	4-2-0
DW	B-4038	Burke	Y	unresolved for listed species, be careful of downstream effects	4-2-0
DW	B-4039	Burke	Y	unresolved for heartleaf	4-2-0
RY	B-4040	Burke	Y	FWS requests resurvey for heartleaf	4-2-0
DW	B-4041	Burke	Y	FWS requests resurvey for heartleaf	4-2-0
RY	B-4043	Burke	Y	FWS requests mussel survey, requests bridge to bridge and review of bridge design	4-2-0
RY	B-4044	Burke	Y	FWS requests resurvey for heartleaf and pogonia, bridge to bridge	4-2-0
RY	B-4045	Burke	Y	FWS requests resurvey for heartleaf, new occurrence w/in 1 mile	4-2-0
RY	B-4046	Burke	Y	unresolved for pogonia, FWS requests resurvey for heartleaf, request bridge for high quality stream	4-2-0
RY	B-4047	Burke	Y	unresolved for heartleaf	4-2-0
MD	B-4052	Caldwell	Y	unresolved for heartleaf, be careful of the USGS gaging station at this location	4-2-0
JJ	B-4059	Cawtaba	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-0
DW	B-4060	Cawtaba	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-0
RY	B-4067	Cherokee	Y	unresolved for listed species, close coordination w/USFS, high quality stream	4-2-0
DW	B-4070	Cherokee	Y	all listed species unresolved, FWS requests special consideration here for sicklefin redhorse	4-2-0
JJ	B-4076	Cleveland	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-0
SH	B-4103	Davidson	Y	FWS requests mussel survey, requests bridge to bridge because of stream quality	4-2-0
JJ	B-4116	Gaston	Y	Need resurvey for heartleaf	4-2-0
DW	B-4123	Graham	Y	unresolved for listed species, Indiana Bat, close coordination w/USFS, high quality stream	4-2-0
SH	B-4144	Haywood	Y	unresolved for listed species, FWS requests review of bridge design	4-2-0
DP	B-4155	Iredell	G	FWS requests survey for bog turtle	4-2-0
DP	B-4158	Iredell	G	FWS requests survey for bog turtle, contractor suggested survey for heartleaf, FWS requests bridge	4-2-0
DW	B-4161	Jackson	Y	unresolved for listed species, FWS requests review of bridge design	4-2-0
JJ	B-4177	Lincoln	Y	Need resurvey for heartleaf	4-2-0
DW	B-4178	Lincoln	Y	Need resurvey for heartleaf	4-2-0
DW	B-4179	Macon	Y	unresolved for listed species, FWS requests review of bridge design	4-2-0
RY	B-4180	Macon	Y	unresolved for listed species, FWS requests bridge to bridge, consideration for green salamander	4-2-0
RY	B-4183	Madison	These 2 bridge replacements are part of R-2518 and 2519 merger process, review by merger team		

PDE	TIP	County	Rank	Reason for Rank	FWS Log Numb
DW	B-4192	McDowell	Y	Need to assess pogonia	4-2-0
JJ	B-4194	McDowell	Y	Need to assess pogonia	4-2-0
JJ	B-4195	McDowell	Y	Need to assess pogonia	4-2-0
JJ	B-4196	McDowell	Y	Need to assess pogonia	4-2-0
DW	B-4197	McDowell	Y	Need to assess pogonia, FWS requests mussel surveys, bridge to bridge for high quality stream	4-2-0
JJ	B-4198	McDowell	Y	Need to assess pogonia	4-2-0
DW	B-4199	McDowell	Y	Need to assess pogonia	4-2-0
DW	B-4202	Mitchell	Y	Unresolved for Elktoe, FWS requests bridge to bridge, NO SURVEY NEEDED FOR INDIANA BAT	4-2-0
DW	B-4239	Polk	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02
DW	B-4240	Polk	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02
SH	B-4255	Rowan	G	may need resurvey for Schweinitz's sunflower	4-2-02
SH	B-4258	Rutherford	Y	unresolved for small-whorled pogonia	4-2-02
RY	B-4259	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another heartleaf survey	4-2-02
RY	B-4260	Rutherford	Y	unresolved for small-whorled pogonia	4-2-02
SH	B-4261	Rutherford	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02
RY	B-4264	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf	4-2-02
RY	B-4265	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf and irisette	4-2-02
RY	B-4266	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf	4-2-02
	note for Rutherford Co projects--No survey is required for Indiana bat because the record is a winter record.				
SH	B-4282	Stokes	R	unresolved for cardamine and James spiny mussel, FWS concerned about bridge design	4-2-02
DP	B-4284	Surry	Y	unresolved for pogonia, FWS requests assessment for bog turtle and brook floater, bridge to bridge	4-2-02
DP	B-4285	Surry	Y	unresolved for pogonia, FWS requests assessment for bog turtle and brook floater	4-2-02
RY	B-4286	Swain	R	unresolved for listed species, esp. Indiana bat, FWS concerned with bridge design	4-2-02
DW	B-4287	Swain	R	unresolved for listed species, esp. Indiana bat, FWS concerned with bridge design	4-2-02
RY	B-4288	Transylvania	Y	unresolved for listed species, FWS requests survey for bunched arrowhead	4-2-02
SH	B-4290	Transylvania	Y	unresolved for listed species	4-2-02
SH	B-4291	Transylvania	Y	need mussel surveys	4-2-02
MD	B-4316	Watauga	Y	FWS requests bridge to bridge for high quality stream, FWS requests survey for green floater	4-2-02
JJ	B-4317	Watauga	G	FWS requests bridge to bridge for high quality stream	4-2-02
MD	B-4318	Watauga	G	FWS requests bridge to bridge for high quality stream, FWS requests survey for green floater	4-2-02
MD	B-4322	Wilkes	G	FWS requests bridge to bridge for high quality stream, assessment for bog turtle	4-2-02
DW	B-4330	Yancey	Y	unresolved for elktoe, FWS requests resurvey for Spiraea, be careful of downstream effects	4-2-02

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: Gregory J. Thorpe, Environmental Management Director
Project Development and Environmental Analysis, NCDOT

FROM: Marla Chambers, Highway Projects Coordinator Marla Chambers
Habitat Conservation Program, NCWRC

DATE: August 27, 2003

SUBJECT: Scoping review of NCDOT's proposed replacement of Bridge No. 320 over Beech Creek on SR 1153, Watauga County. TIP No. B-4316.

North Carolina Department of Transportation (NCDOT) has requested comments from the North Carolina Wildlife Resources Commission (NCWRC) regarding impacts to fish and wildlife resources resulting from the subject project. Staff biologists have reviewed the information provided and visited the site on April 17, 2003. The following preliminary comments are provided in accordance with the 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).

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

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

2. Bridge deck drains should not discharge directly into the stream.

3. Live concrete should not be allowed to contact the water in or entering into the stream.

4. If possible, bridge supports (bents) should not be placed in the stream.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 733-3633 ext. 281 • Fax: (919) 715-7643

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 steam underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, Mr. Hal Bain with the NCDOT - ONE should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

17. If culvert installation is being considered, conduct subsurface investigations prior to structure design to determine design options and constraints and to ensure that wildlife passage issues are addressed.

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

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream end to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, the base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.

3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed

down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. Tall fescue should not be used in riparian areas. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-4316, Watauga Co., Bridge No. 320 over Beech Creek on SR 1153. Beech Creek is classified as C Tr, is Hatchery Supported Designated Public Mountain Trout Waters and has an excellent wild trout fishery. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of rainbow, brook and brown trout. Sediment and erosion control measures should adhere to the design standards for sensitive watersheds. The bridge should be replaced with another spanning structure.

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

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (704) 485-2384. Thank you for the opportunity to review and comment on these projects.

cc: Cynthia Van Der Wiele, DWQ
Marella Buncick, USFWS
Sarah McRae, NHP

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

November 12, 2002

MEMORANDUM

TO: Missy Dickens, P.E., Project Development Engineer
NCDOT, Project Development & Environmental Analysis

FROM: Cynthia F. Van Der Wiele, NCDOT Coordinator cvdw

SUBJECT: Scoping Comments for Watauga County, SR 1153, Bridge No. 320 over Beech Creek, F.A. Project No. BRZ-1153(6), State Project No. 8.2752301,TIP Project B-4316.

This letter is in response to your request for comments on the above-referenced project. Beech Creek (index 8-20); HU 040201) is classified as C trout.

According to the *Watauga River Basinwide Water Quality Plan* (NCDWQ 2002), several rare or unusual benthic macroinvertebrate were collected in the Watauga River basin during the 1999 basinwide surveys. In particular, Beech Creek is the only stream in North Carolina where the intolerant caddisfly *(Ceratopsyche (=Symphitopsyche) walkeri)* is found. The primary water quality problem is nonpoint source runoff, including inputs of sediment. Habitat problems that were noted along the upper Watauga River include sedimentation, loss of pool habitat, narrow riparian zones and frequent breaks in the riparian zone. Several areas of bank erosion, channel migration and channel filling were also seen along the mainstem of the upper Watauga River. Abundant algae growths were also observed at this site, suggesting some enrichment from nutrients.

The NC Division of Water Quality staff has the following recommendations:

- The three proposed alternatives were not discussed sufficiently in the scoping letter to be able to provide comments as to the potential environmental impacts of these options. A comparison of the relative amount of impacts and the duration of the temporary impacts of each alternative will need to be included to be able to provide helpful comments.
- The bridge should be designed as a single span with *no piers* in the stream.
- Storm water shall be designed to be carried across the bridge (no deck drains over the stream) and diverted through grass-lined ditches, vegetated buffers or directed to a storm water collection device prior to entering Beech Creek.
- Use *Sedimentation and Erosion Control Guidelines for Sensitive Watersheds* [15A NCAC 4B .0124(a)-(d)] prior to any ground-disturbing activities to minimize impacts to downstream aquatic resources.
- Temporary or permanent herbaceous vegetation shall be planted on all bare soil *within 10 days* of ground-disturbing activities to provide long term erosion control.
- Use a turbidity curtain or other methods (BMPs) proven to prevent violation of the turbidity standard for trout waters.
- Use BMPs for bridge demolition and removal, Case 1 (9-20-99 NCDOT policy; see http://www.ncdot.org/planning/pe/bmp.pdf).

North Carolina Division of Water Quality, 401 Wetlands Certification Unit,
1650 Mail Service Center, Raleigh, NC 27699-1650 (Mailing Address)
2321 Crabtree Blvd., Raleigh, NC 27604-2260 (Location)
919-733-1786 (phone), 919-733-6893 (fax), http://h2o.enr.state.nc.us/ncwetlands/

Watauga County Board of Education

OFFICE OF THE SUPERINTENDENT
MARGARET E. GRAGG EDUCATION CENTER
P.O. BOX 1790 BOONE N.C. 28607

TEL: (828) 264-7190
FAX: (828) 264-7196

July 2, 2001

Davis Moore
NC Department of Transportation
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Moore:

SUBJECT: BRIDGE REPLACEMENT PROJECTS

This letter is in response to your correspondence concerning bridge replacements in Watauga County.

Re: Bridge No. 320 on Highway SR 1153. We do not travel this road with buses and will not be affected. B-4316

Re: Bridge No. 16 on Highway SR 1541. This bridge is crossed by two buses, 4 times per day. Several students will be impacted if this bridge is closed during the school year. It would involve re-routing buses, and the back-tracking would increase the associated fuel and labor costs. It would also significantly increase ride times for a number of students. B-4317

Re: Bridge No. 321 on Highway SR 1598. We travel this road, but would be ask the parents of students living on this road to meet the bus at the intersection of Grandfather Road and NC Hwy 105 South. B-4318

Sincerely,

Toni Parlier

Toni Parlier
Transportation Director
Watauga County Schools

APPENDIX B

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WATAUGA COUNTY, SR 1153 (WILEY HARMON ROAD)
BRIDGE NO. 320
OVER BEECH CREEK
Federal-Aid Project BRZ-1153 (6)
State Project 8.2712301

TIP PROJECT B-4316
MARCH 31, 2003

Citizens Informational Workshop

BETHEL ELEMENTARY SCHOOL CAFETERIA
Bethel School Road
Sugar Grove

Citizens Informational Workshop

WATAUGA COUNTY
SR 1153 (WILEY HARMON ROAD)
BRIDGE NO. 320
OVER BEECH CREEK
Federal-Aid Project BRZ-1153 (6)
State Project 8.2712301
TIP PROJECT B-4316
MARCH 31, 2003

PURPOSE

This Citizens Informational Workshop is being held in order to involve the public in the project planning process. We welcome all suggestions and comments. **Attached to the handout is a comment sheet for you to write down your opinions or concerns for our consideration.**

Even if you have no comments, you may provide us with your name and address so that we can include you on the project mailing list.

If you wish to comment further on this project, please contact:

Nate Benson, PE, Wetherill Engineering, Inc., 559 Jones Franklin Road, Suite 164, Raleigh, North Carolina, 27606, 919-851-8077, nbenson@wetherilleng.com

OR

Missy Dickens, PE, North Carolina Department of Transportation, Project Development and Environmental Analysis Branch, 1548 Mail Service Center, Raleigh, North Carolina, 27699-1548, Phone (919) 733-7844 ext.218, mdickens@dot.state.nc.us

DESCRIPTION OF ALTERNATIVES

- Three alternates for replacing the bridge are shown on Figures 2a, 2b and 3c. (It is anticipated that one of these alternates will be selected as the preferred alternate for replacement.)
- The proposed alternates will begin approximately 400 feet south of the bridge and ends approximately 250 feet north of the bridge.
- Additional right of way will be required to contain the improvements.
- A major change in the elevation of the roadway is not anticipated.
- The proposed roadway and bridge cross sections are shown in Figure 3.
- Traffic will be maintained on-site (that is, the road will remain open during construction).
- The construction period is anticipated to be one year.
- Traffic on the bridge is estimated to be 100 vehicles per day in the year 2002 and is projected to increase to 200 vehicles per day in the year 2025. Approximately 3 percent of this traffic is trucks.

SUMMARY OF BENEFITS

- The proposed improvements will replace the one-lane and structurally deficient bridge with a wider bridge.
- The load restriction will be removed for truck traffic.

WHAT HAPPENS NEXT

An environmental document–a federal categorical exclusion–is being developed. Preparation of this document includes an analysis of impacts to the human and natural environment. Information gathered during this analysis, as well as cost estimates and public comment, will be used to select the preferred alternate. This document will be made available to the public later this year. Right of way acquisition is scheduled to begin in 2004 and construction in 2005.

Citizens Informational Workshop

COMMENT SHEET

WATAUGA COUNTY
SR 1153 (WILEY HARMON ROAD)
BRIDGE NO. 320
OVER BEECH CREEK
Federal-Aid Project BRZ-1153 (6)
State Project 8.2712301

TIP PROJECT B-4316
MARCH 31, 2003

NAME

ADDRESS:

COMMENTS, CONCERNS AND/OR QUESTIONS REGARDING PROJECT B-4316:

PLEASE FORWARD YOUR COMMENTS TO:

Nate Benson, PE, Wetherill Engineering, Inc., 559 Jones Franklin Road, Suite 164, Raleigh, North Carolina, 27606

OR

Missy Dickens, PE, North Carolina Department of Transportation, Project Development and Environmental Analysis Branch, 1548 Mail Service Center, Raleigh, North Carolina, 27699-1548

B-4316 &
B-4318

The Mountain Times

Updated Every Thursday

POSTED MARCH 27, 2003

DOT Schedules Watauga Bridges For Replacement

Citizens Workshops Set

By Miles Tager

Two bridges in Watauga County, one each in the Bethel and Foscoe communities, are scheduled to be replaced by the North Carolina Department of Transportation.

The first span, leading to a dead end on Grandfather Road in the Grandfather Community in Foscoe, crosses the river approximately a mile below its headwaters on Grandfather Mountain on the Avery County line, a stretch designated by the North Carolina Division of Water Quality as High Quality Waters and class B trout-breeding waters.

The bridge is narrow, provides only a single traffic lane and does not meet current design standards," according to the DOT news release.

That also describes the bridge over Beech Creek on Wiley Harmon Road in Bethel; each span was built in the late 1960's.

Agency Project Manager Missy Dickens said the bridges have not been listed because of safety or traffic issues but a response to an internal survey list that ranks all the spans in the state on a scale of 0-100.

"We survey all bridges every two years," Dickens said; "once they fall below a certain threshold they are schedule for replacement and become eligible for federal funding."

Federal monies pay for 80% of the design and construction costs.

We look at the geometry, the land width, the shoulder, the horizontal and vertical alignment, the actual structure and the maintenance records," Dickens said.

Grandfather Road dead-ends approximately one-half mile from the bridge, and serves a small community of eleven homes, some vacant.

In their latest five-year management plan for the Watauga River, the state DWQ cited sedimentation as the prime threat to the river's water quality, currently the cleanest in the state.

'The construction of roads, driveways, commercial and recreational areas and homes must be undertaken with proper care to prevent sediments from reaching surface waters," the plan said.

Both bridges have been included in the agency's 2002-2008 Transportation Improvement Plan (TIP), meaning rights of way acquisitions will begin in 2004 and construction in 2005.

The existing structures will stay open during construction, which is estimated to take about a year.

The DOT will conduct 'drop-in' Citizen's Informational Workshops on the projects, where citizens can view maps of the project, talk to DOT engineers, and register their comments to the agency.

he Grandfather Bridge meeting is scheduled for this coming Tuesday, April 1 from 4:00-
.m. at Foscoe Christian Church on Highway 105 in Foscoe.

or the Beech Creek project, citizens can attend the meeting at Bethel Elementary School
afeteria on Monday, March 31 also between 4:00-7:00 p.m.

"Citizens comments will be considered in developing the best overall plans for replacing the
ridge and documented in the environmental document, which will be available to the public,"
the DOT said.

130 North Depot St / PO Box 112 • Boone, North Carolina 28607
Telephone 828.264.6397 • Fax 828.264.8536
See our Contact page for individual emails

WILEY HARMON ROAD (SR 1153) BRIDGE OVER BEECH CREEK - NEWSLETTER

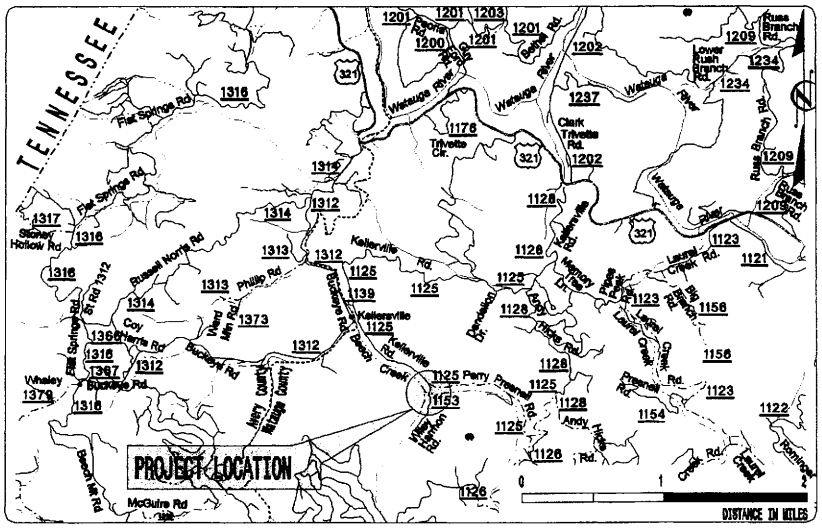
TRANSPORTATION IMPROVEMENT PROGRAM PROJECT B-4316

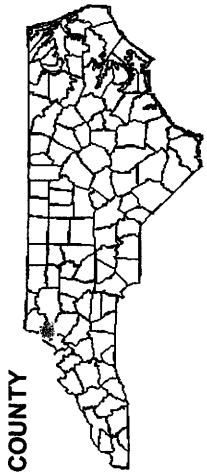
March 2003

North Carolina Department of Transportation

NCDOT has begun the project planning studies to replace Bridge #320 on Wiley Harmon Road (SR 1153) over Beech Creek, Watauga County (Transportation Improvement Program Project B-4316)

You are invited to a WORKSHOP to be held at the Bethel Elementary School Cafeteria on March 31, 2003. Drop-in anytime between 4-7 pm.





WATAUGA COUNTY

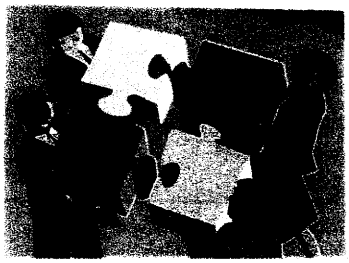
BRIDGE TO BE REPLACED

Bridge No. 320 on Wiley Harmon Road (SR 1153) over Beech Creek was built in 1967. The bridge is a narrow one-lane bridge. The bridge does not meet current design standards and needs to be replaced. NCDOT is studying three alternatives to replace the existing bridge with a new, wider bridge at the same location. Traffic on Wiley Harmon Road will be maintained at the site during construction. Construction of the new bridge should take about one year. Additional right of way will be needed near the bridge.

CITIZENS INFORMATIONAL WORKSHOP

A Citizens Informational Workshop will be held on March 31, 2003 in the cafeteria of Bethel Elementary School located at 138 Bethel School Road, in the community of Sugar Grove.

This meeting will have an open house format; drop by anytime between 4 pm and 7pm to see the alternatives being studied and to offer comments.



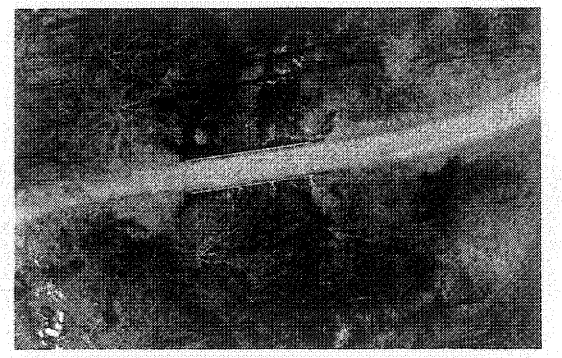
NCDOT appreciates and encourages input and comments from local citizens. If you have comments or concerns or know of any issues that may help us in our planning, please attend the Informational Workshop or contact us (see back page).

PROJECT PLANNING AND THE ENVIRONMENT

The NCDOT project planning studies include the development of an environmental document - a federal categorical exclusion (CE). The CE will document the project proposal and the environmental effects of the proposed bridge replacement.

Citizen comments will be considered in developing the best over-all plans for replacing the bridge and documented in the environmental document. The document will be available to the public.

B-4316 - Looking South



B-4316 - Aerial Photo

The replacement of Bridge #320 is included on the 2002-2008 Transportation Improvement Program (TIP). Designated in the TIP as Project No. B-4316, the bridge project is scheduled for right-of-way acquisition to begin in 2004 and construction to begin in 2005.

CONTACT US:

Please send your comments, concerns, information, or questions to:

Nate Benson, PE, Project Manager - - Wetherill Engineering, Inc. • 559 Jones Franklin Road, Suite 164 • Raleigh • North Carolina 27606 • 919- 851-8077 • nbenson@wetherilleng.com;

or

Missy Dickens, PE, Project Manager - - North Carolina Department of Transportation• Project Development and Environmental Analysis Branch • 1548 Mail Service Center • Raleigh • North Carolina 27699-1548 • 919-733-7844 ext. 218 • mdickens@dot.state.nc.us

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