



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

February 4, 2009

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

ATTN: Mr. Steve Lund  
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 33** for the proposed replacement of Bridge No. 99 over Long Creek on SR 1968 in Stanly County, Federal Aid Project No. BRZ-1968(1); Division 12; WBS Element 33344.1.1; TIP No. B-3909.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 99 over Long Creek on SR 1968. There will be no permanent stream or wetland impacts and 0.05 acre of temporary stream impacts.

Please see enclosed copies of the Pre-Construction Notification (PCN), permit drawings and design plans for the above-referenced project. The Categorical Exclusion (CE) was completed in March 2003 and the CE Addendum was completed in July 2006. Documents were distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of September 15, 2009 and a review date of July 28, 2009.

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

Sincerely,



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

**W/attachment:**

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

**W/o attachment (see website for attachments):**

Dr. David Chang, P.E., Hydraulics  
Mr. Greg Perfetti, P.E., Structure Design  
Mr. Victor Barbour, P.E., Project Services Unit  
Mr. Mark Staley, Roadside Environmental  
Mr. M.L. Holder, P.E., Division Engineer  
Ms. Trish Simon, DEO  
Mr. Jay Bennett, P.E., Roadway Design  
Mr. Majed Alghandour, P. E., Programming and TIP  
Mr. Art McMillan, P.E., Highway Design  
Mr. Scott McLendon, USACE, Wilmington  
Mr. Ahmad Al-Sharawneh, PDEA Project Planning Engineer

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:

|  |  |
|--|--|
| <input checked="" type="checkbox"/> Section 404 Permit   | <input type="checkbox"/> Riparian or Watershed Buffer Rules      |
| <input type="checkbox"/> Section 10 Permit               | <input type="checkbox"/> Isolated Wetland Permit from DWQ        |
| <input type="checkbox"/> 401 Water Quality Certification | <input type="checkbox"/> 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. 99 over Long Creek on SR 1968
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3909
3. Property Identification Number (Tax PIN): N/A
4. Location  
County: Stanly Nearest Town: Albemarle  
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): 35°16'00" °N -80°15'25" °W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Long Creek flows into the Rocky River approximately 4.6 stream miles from the project area. Long Creek has a DWQ classification of "C" and the Hydrological Cataloguing Unit is 03040105.
8. River Basin: Yadkin-Pee Dee 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: 60% wooded, 40% agriculture (pasture)/residential

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 obsolete and structurally deficient structure (sufficiency rating 48.5 out of 100). The replacement of this inadequate structure will result in safer and more efficient traffic operations.

#### **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.

A JD was issued for this project on April 23, 2002 under Action ID # 200230733.

#### **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: No permanent impacts. Temporary: 0.05 acre (49 linear feet) of temporary stream impacts due to the placement of two temporary causeways in Long Creek.

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 within construction limits.      |                |  |   |  |                        |
|  |                |  |   |  |                        |

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) |
|---|-------------|----------------|----------------------------|------------------------------------|-----------------------------|------------------------|
| 1   | Long Creek  | Temporary      | Perennial                  | 75 ft                              | 49                          | 0.05                   |
| 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):                     | Permanent: 0<br>Temporary: 0.05 |
| Wetland Impact (acres):                    | 0                               |
| Open Water Impact (acres):                 | 0                               |
| Total Impact to Waters of the U.S. (acres) | Permanent: 0<br>Temporary: 0.05 |
| Total Stream Impact (linear feet):         | Permanent: 0<br>Temporary: 49   |

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. No deck drains will be used and NCDOT's Best Management Practices will be followed. The bridge will be replaced in-place with an off-site detour. Temporary causeways will not be installed at the same time to maintain adequate flow in the creek. The temporary causeways will be removed after construction has been completed. In addition, the new bridge will be 264 feet long, which is significantly longer than the existing 82.5-foot bridge.

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 0.05 acre of impacts to Long Creek 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. The bridge will be replaced in place. There will be no deck drains installed.

**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 in the same location as 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).

As of January 31, 2008, the US Fish and Wildlife Service (USFWS) lists one species for Stanly County, Schweinitz's sunflower. A survey for this species was last conducted on September 27th, 2007. Suitable habitat for this species exists within the project area, however no individuals were found. The biological conclusion for this species remains "No Effect". The bald eagle has been delisted from the Endangered Species Act as of August 8, 2007. It is still protected under the Bald and Golden Eagle Protection Act. There are no large bodies of water within 1 mile and 660 feet of the project study, there fore no survey is needed and this project will not affect the bald eagle.

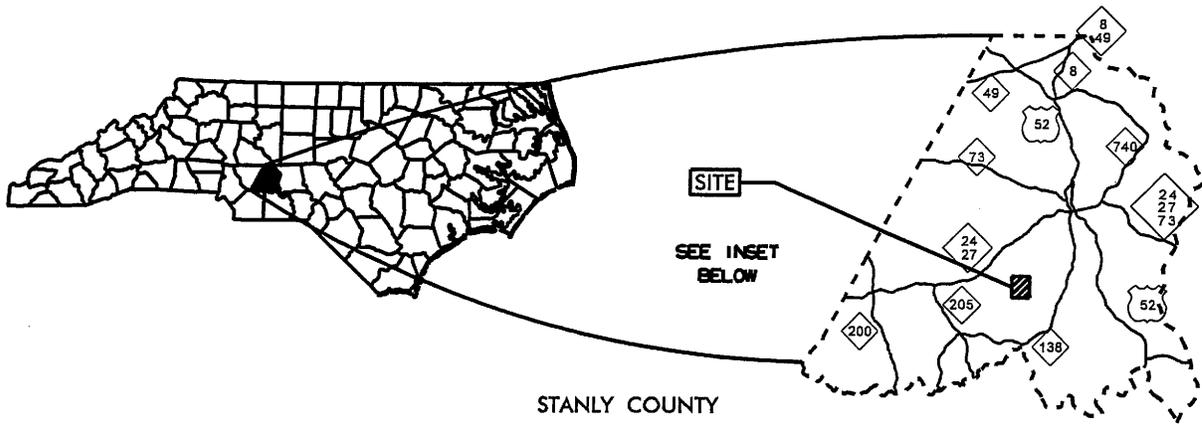


Applicant/Agent's Signature

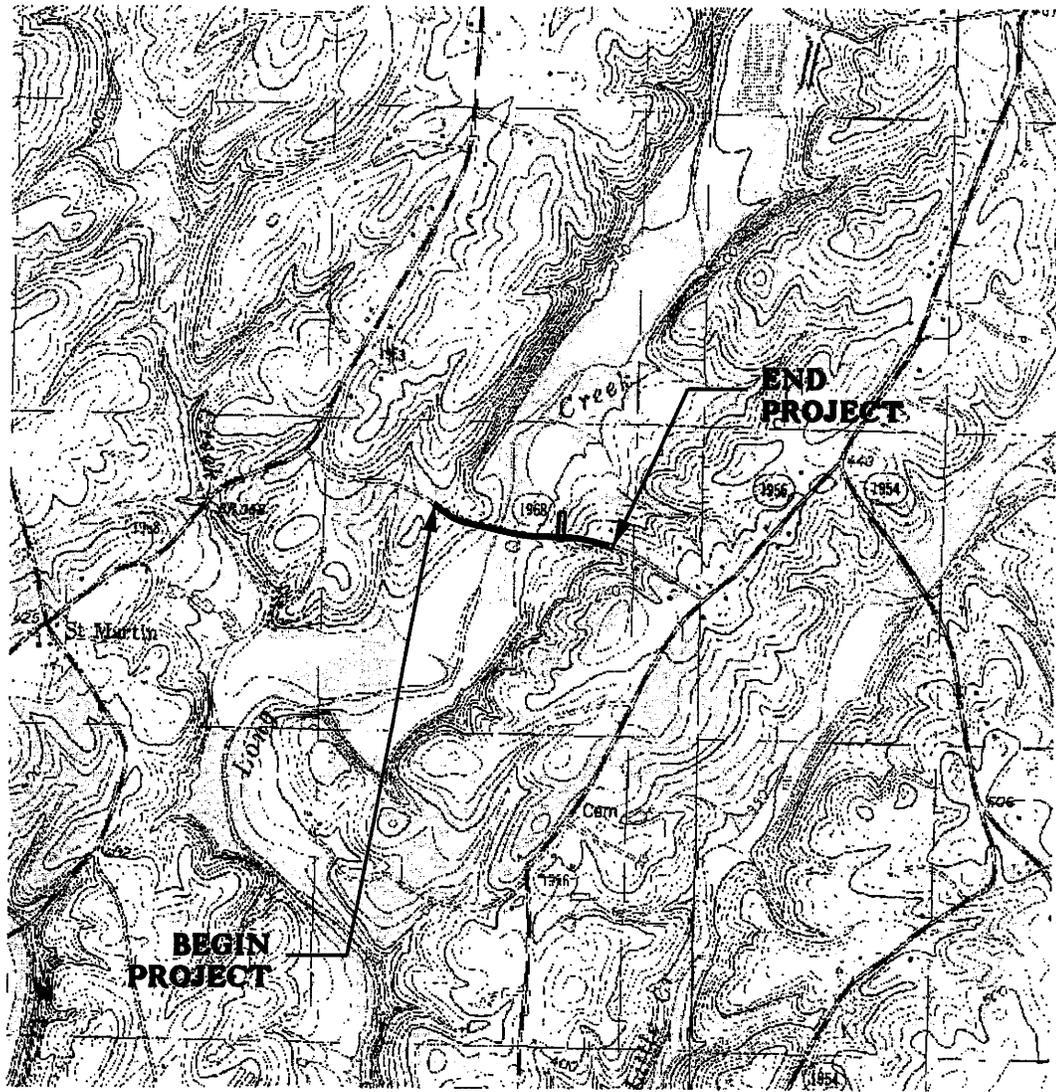
2.2.09

Date

(Agent's signature is valid only if an authorization letter from the applicant is provided.)



STANLY COUNTY



WETLAND/STREAM IMPACTS  
VICINITY MAP

N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 33344.1.1 (B-3909)  
BRIDGE NO. 99 OVER  
LONG CREEK ON SR 1968  
(HARTSELL RD)

Permit Drawing  
Sheet 1 of 10

SHEET      OF     

10 / 02 / 08



# PROPERTY OWNERS

## NAMES AND ADDRESSES

| PARCEL NO. | NAMES                              | ADDRESSES                                 |
|------------|------------------------------------|---|
| 1          | JANET S. AND RICKY D. EUDY         | 245 JAMES RD<br>OAKBORO, NC 28129         |
| 4          | THOMAS D. AND<br>CARISSA F. JORDAN | 290443 HARTSELL RD<br>ALBEMARLE, NC 28001 |

Permit Drawing  
Sheet 3 of 12

### **NCDOT**

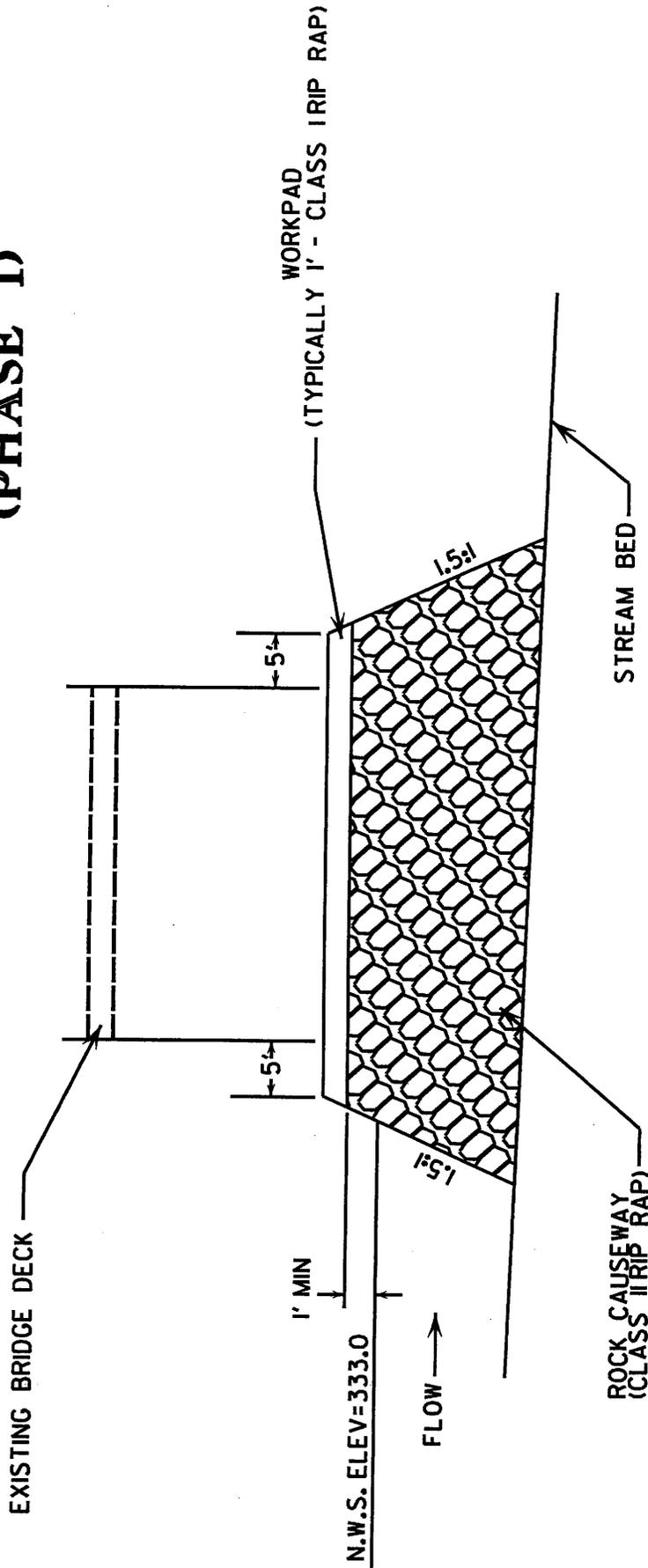
#### **DIVISION OF HIGHWAYS**

STANLY COUNTY

PROJECT: 33344.1.1 (B-3909)  
BRIDGE NO. 99 OVER  
LONG CREEK ON SR 1968  
(HARTSELL RD)

SHEET OF 10/04/08

# TEMP CAUSEWAY DETAIL (NOT TO SCALE) (PHASE I)



N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
STANLY COUNTY

PROJECT: 33344.1.1 (B-3909)  
BRIDGE NO. 99 OVER  
LONG CREEK ON SR 1968  
(HARTSELL RD)

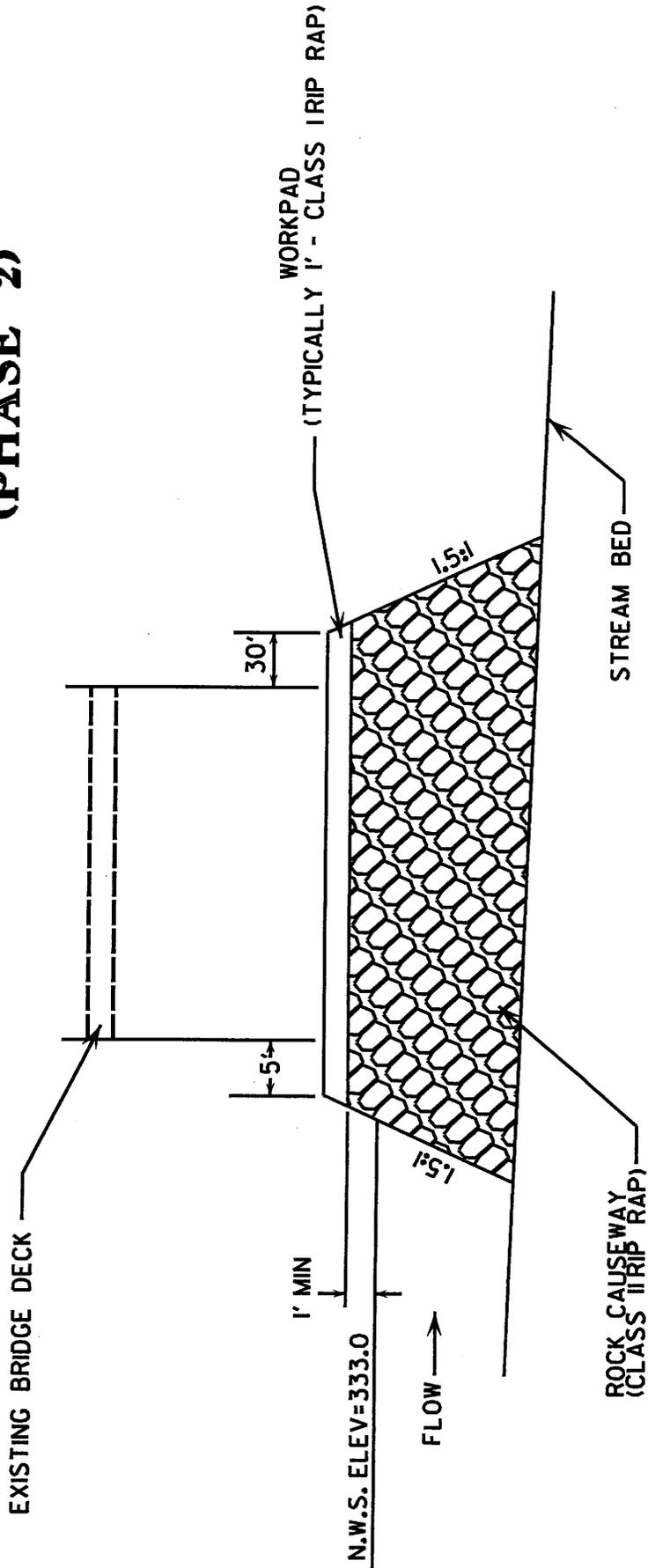
SHEET \_\_\_\_\_ OF \_\_\_\_\_ 10/02/08

## QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP = 37 yds<sup>3</sup>  
AREA OF CLASS II RIP RAP = 0.01 ac  
Estimate 53 Tons Class 'II' Rip Rap

Permit Drawing  
Sheet 4 of 10

# TEMP CAUSEWAY DETAIL (NOT TO SCALE) (PHASE 2)



N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 33344.1.1 (B-3909)  
BRIDGE NO. 99 OVER  
LONG CREEK ON SR 1968  
(HARTSELL RD)

SHEET \_\_\_ OF \_\_\_ 10/02/08

## QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP = 130 yds<sup>3</sup>  
AREA OF CLASS II RIP RAP = 0.04 ac  
Estimate 185 Tons Class 'II' Rip Rap

Permit Drawing  
Sheet 5 of 10

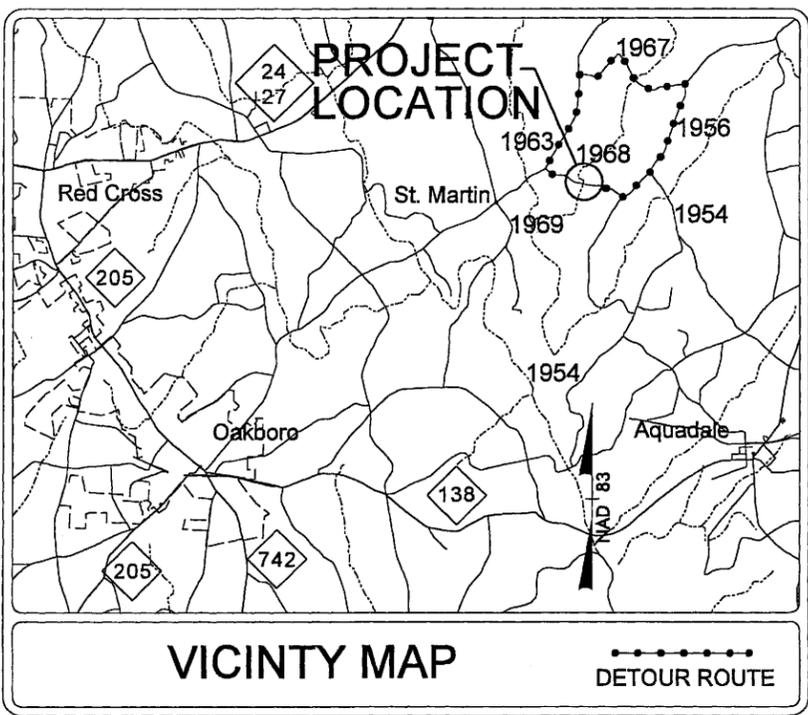
|                 |                             |             |              |
|-----------------|-----------------------------|-------------|--------------|
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
| N.C.            | B-3909                      | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 33344.1.1       | BRZ-1968(1)                 | P.E.        |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

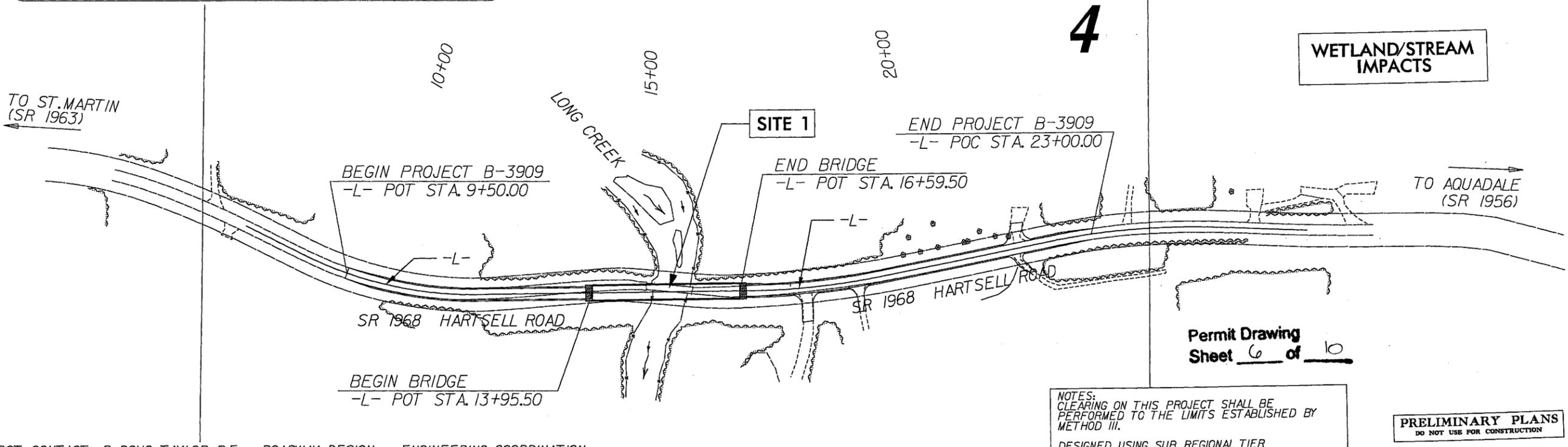
**STANLY COUNTY**

LOCATION: BRIDGE NO. 99 OVER LONG CREEK  
ON SR 1968 (HARTSELL RD)

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



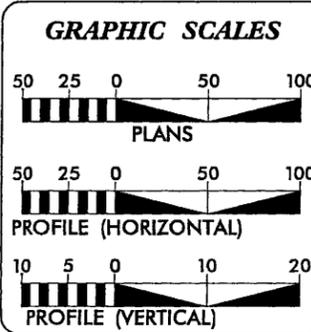
TIP PROJECT: B-3909



NCDOT CONTACT: B. DOUG TAYLOR, P.E. - ROADWAY DESIGN - ENGINEERING COORDINATION

NOTES:  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.  
DESIGNED USING SUB REGIONAL TIER DESIGN GUIDELINES

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



**DESIGN DATA**

|                           |
|---------------------------|
| ADT 2009 = 740            |
| ADT 2030 = 1,080          |
| DHV = 11 %                |
| D = 60 %                  |
| T = 3 % *                 |
| V = 50 MPH                |
| FUNC. CLASS = RURAL LOCAL |
| *TST 1% DUAL 2%           |

**PROJECT LENGTH**

|  |
|--|
| LENGTH OF ROADWAY TIP PROJECT B-3909 = 0.206 MILES   |
| LENGTH OF STRUCTURE TIP PROJECT B-3909 = 0.050 MILES |
| TOTAL LENGTH OF TIP PROJECT B-3909 = 0.256 MILES     |

Prepared in the Office of:  
**WILBUR SMITH ASSOCIATES**  
421 FAYETTEVILLE STREET, RALEIGH NC, 27601

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 29, 2008

LETTING DATE: AUGUST 18, 2009

DAVID L. WILVER, P.E.  
PROJECT ENGINEER

BENJAMIN R. CRAWFORD, P.E.  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

CONTRACT: 09/08/09

|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>B-3909                          | SHEET NO.<br>4      |
| R/W SHEET NO.  |                     |
| ROADWAY DESIGN ENGINEER                                  | HYDRAULICS ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION  |                     |
| 421 Fayetteville Street, Suite 1000, Raleigh, N.C. 27601 |                     |



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

TEMP CAUSEWAYS SHALL NOT BE INSTALLED AT THE SAME TIME



BL-10  
-L- Sta. 23+80.24 (16.22' LT)

6  
JOHN KISSINGER

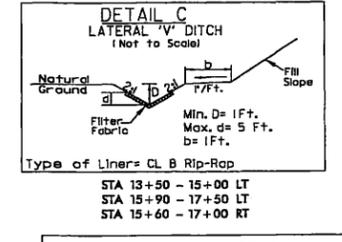
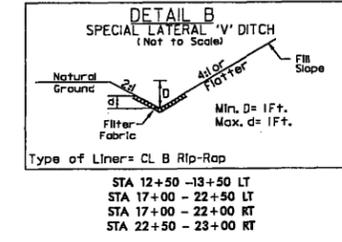
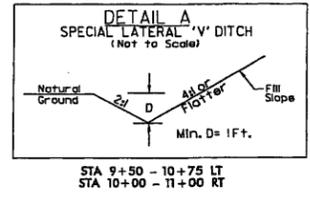
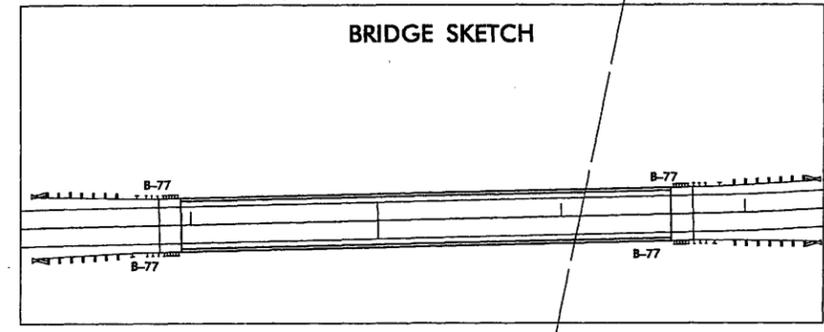
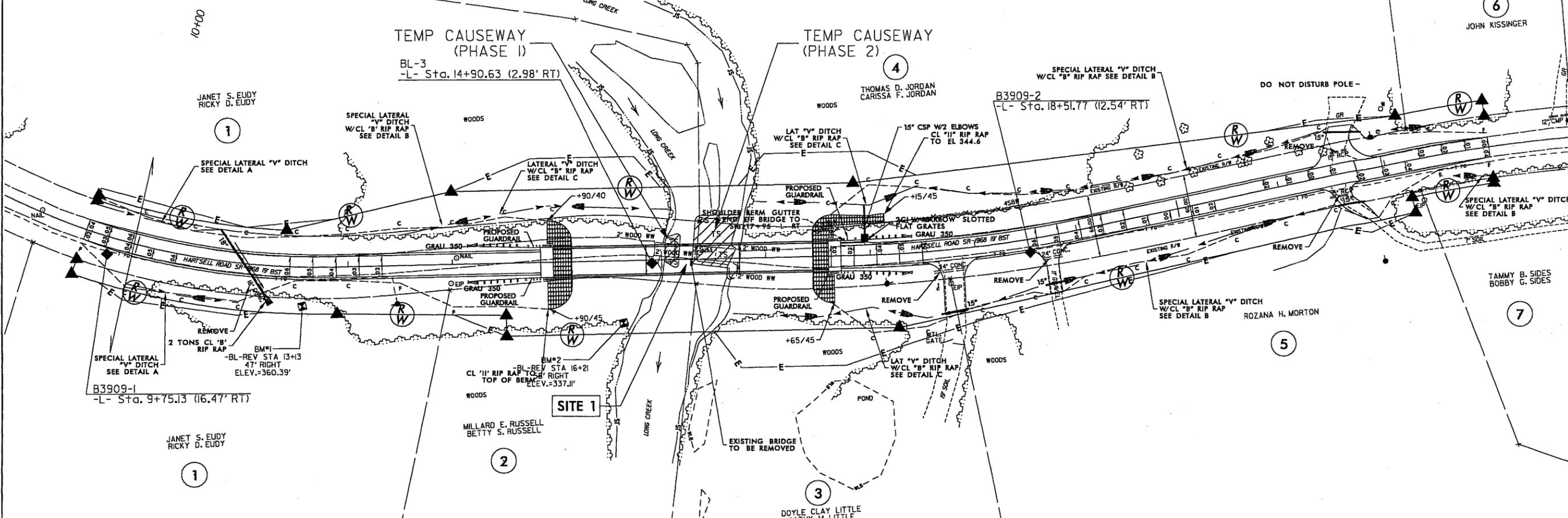
7  
TAMMY B. SIDES  
BOBBY G. SIDES

DO NOT DISTURB POLE -

SPECIAL LATERAL "V" DITCH  
W/CL "B" RIP RAP SEE DETAIL B  
B3909-2  
-L- Sta. 18+51.77 (12.54' RT)

TEMP CAUSEWAY (PHASE 2)  
4  
THOMAS D. JORDAN  
CARISSA F. JORDAN

TEMP CAUSEWAY (PHASE 1)  
BL-3  
-L- Sta. 14+90.63 (2.98' RT)



Permit Drawing  
Sheet 7 of 10

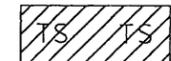
SEE SHEET 5 FOR -L- PROFILE  
SEE SHEETS X-2 THRU X-7 FOR X-SECTIONS

REVISIONS

FILE: 8/15/10  
DATE: 8/15/10  
STATUS: STAGES

|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>B-3909  | SHEET NO.<br>4      |
| RW SHEET NO.   |                     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION  |                     |
|  421 Foy Street, Raleigh, N.C. 27601<br>Date: 12/1/01 |                     |



 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



**TEMP CAUSEWAYS SHALL NOT BE INSTALLED AT THE SAME TIME**

BL-10  
-L- Sta. 23+80.24 (16.22' LT)

6  
JOHN KISSINGER

TAMMY B. SIDES  
BOBBY G. SIDES

7

ROZANA H. MORTON

5

THOMAS D. JORDAN  
CARISSA F. JORDAN

4

TEMP CAUSEWAY (PHASE 1)  
BL-3  
-L- Sta. 14+90.63 (2.98' RT)

TEMP CAUSEWAY (PHASE 2)

B3909-2  
-L- Sta. 18+51.77 (12.54' RT)

B3909-1  
-L- Sta. 9+75.13 (16.47' RT)

JANET S. EUDY  
RICKY D. EUDY

1

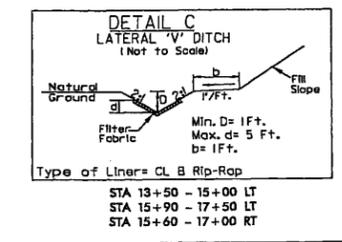
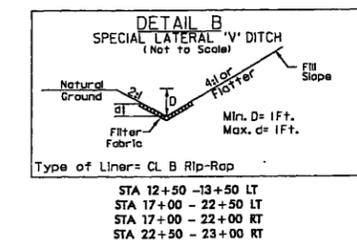
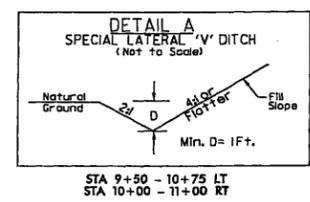
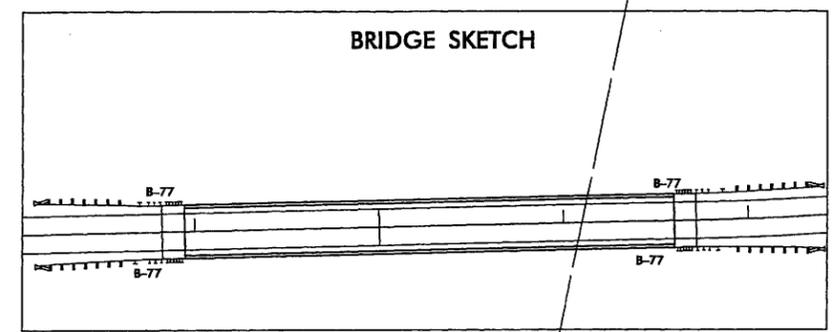
MILLARD E. RUSSELL  
BETTY S. RUSSELL

2

DOYLE CLAY LITTLE  
KATHY M. LITTLE

3

**BRIDGE SKETCH**



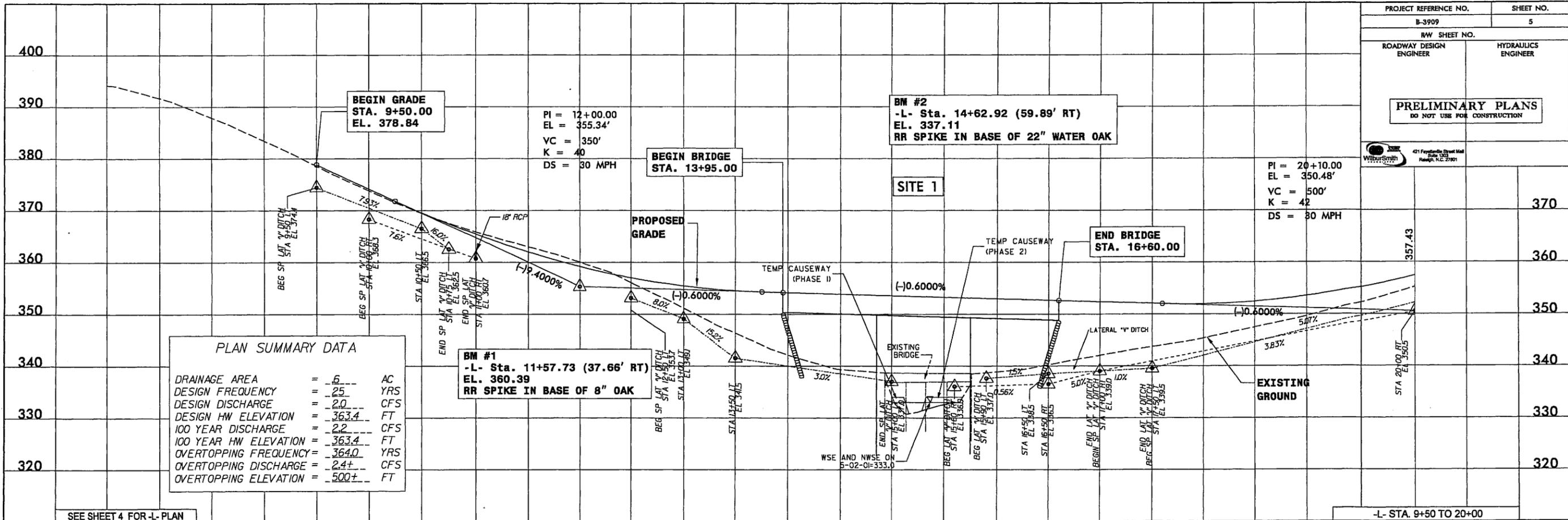
Permit Drawing  
Sheet 8 of 10

SEE SHEET 5 FOR -L- PROFILE  
SEE SHEETS X-2 THRU X-7 FOR X-SECTIONS

REVISIONS

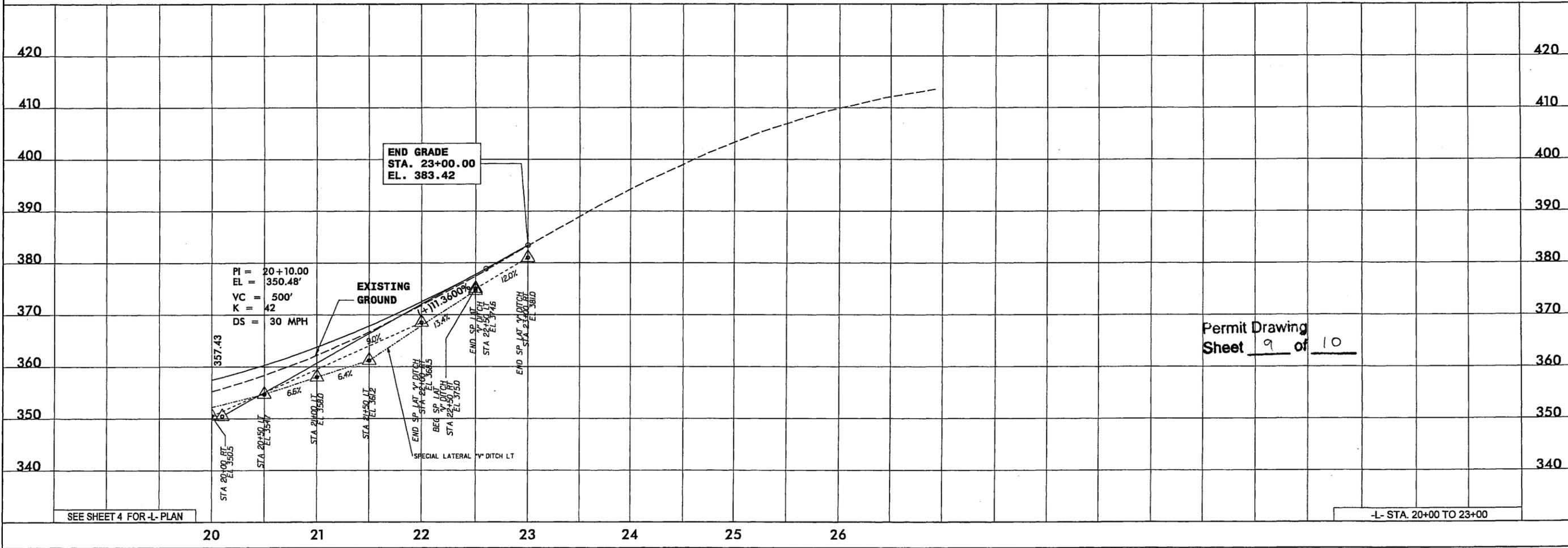
FILE: SFILES  
DATE: 01/05/02

421 Fayetteville Street, Suite 300  
Raleigh, N.C. 27601



SEE SHEET 4 FOR -L- PLAN

-L- STA. 9+50 TO 20+00

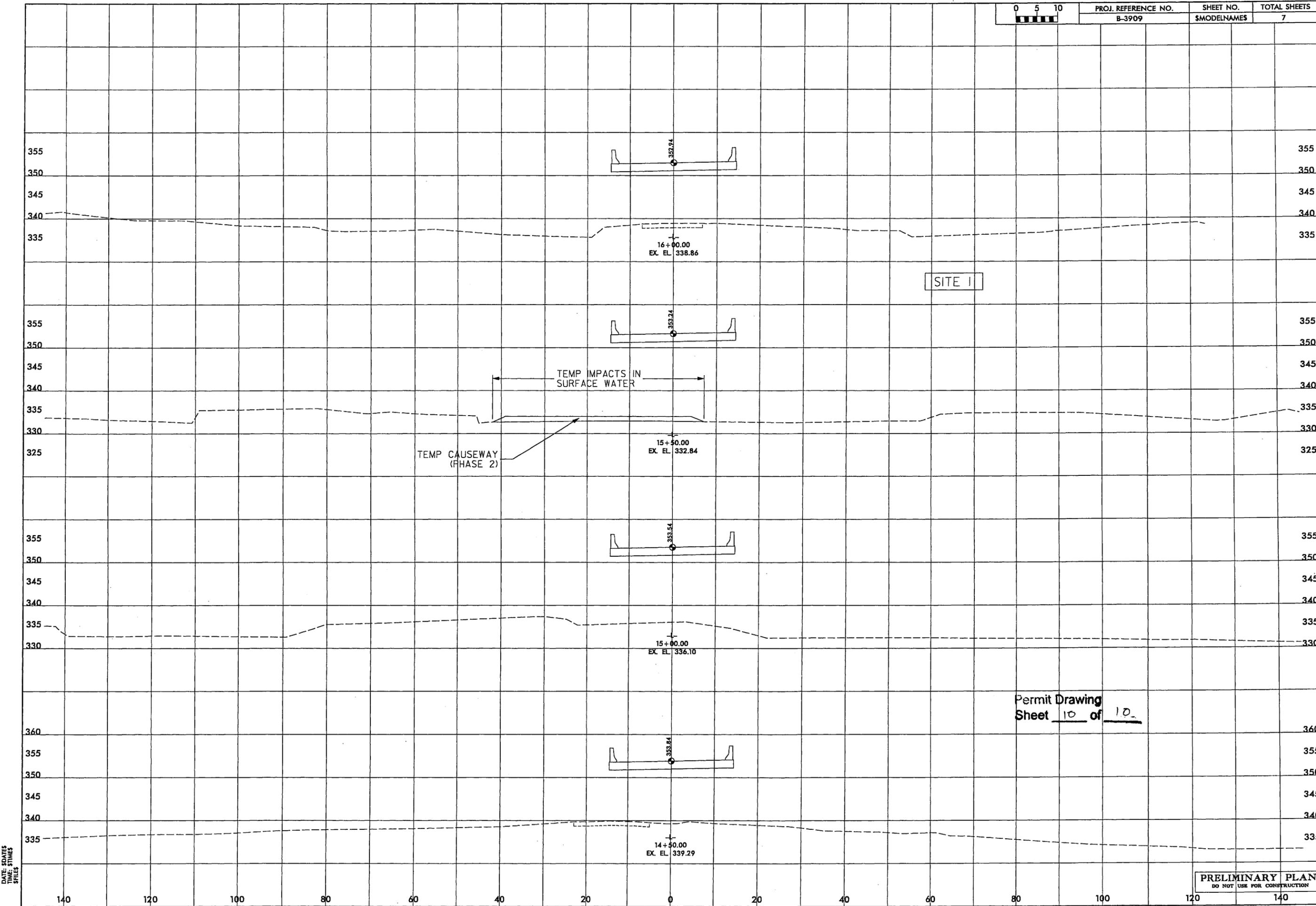


SEE SHEET 4 FOR -L- PLAN

-L- STA. 20+00 TO 23+00

Permit Drawing  
Sheet 9 of 10

FILE: BR/ER DATE: 08/15/05



DATE: 04/25/18  
TIME: 11:05 AM  
FILES:

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Symbology

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

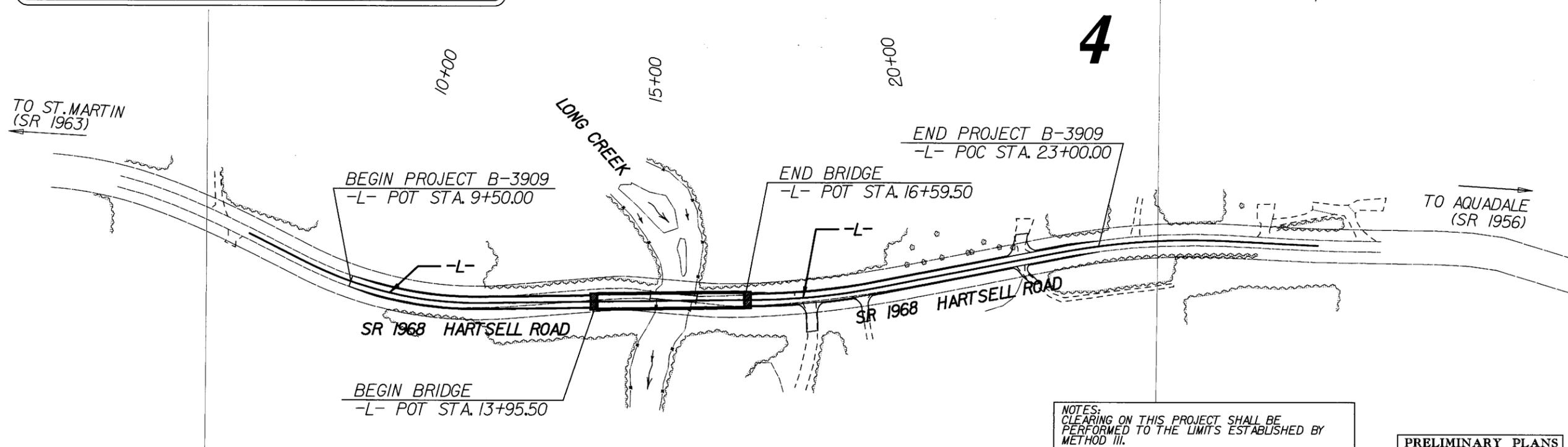
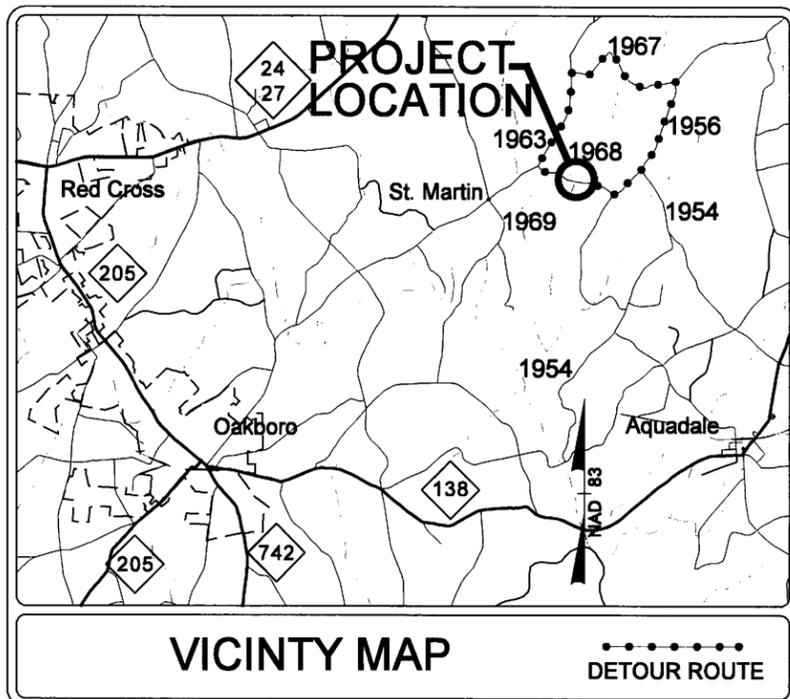
|                 |                             |                |              |
|-----------------|-----------------------------|----------------|--------------|
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.      | TOTAL SHEETS |
| N.C.            | B-3909                      | 1              |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION    |              |
| 33344.1.1       | BRZ-1968(1)                 | P.E.           |              |
| 33344.2.1       | BRZ-1968(1)                 | ROW /UTILITIES |              |

# STANLY COUNTY

**LOCATION: BRIDGE NO. 99 OVER LONG CREEK  
ON SR 1968 (HARTSELL RD)**

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

**TIP PROJECT: B-3909**

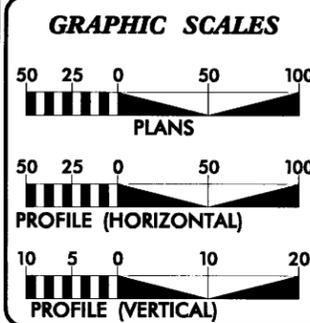


NOTES:  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.  
DESIGNED USING SUB REGIONAL TIER DESIGN GUIDELINES

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

NCDOT CONTACT: B. DOUG TAYLOR, P.E. - ROADWAY DESIGN - ENGINEERING COORDINATION

**CONTRACT:**



**DESIGN DATA**

|                           |
|---------------------------|
| ADT 2009 = 740            |
| ADT 2030 = 1,080          |
| DHV = 11 %                |
| D = 60 %                  |
| T = 3 % *                 |
| V = 50 MPH                |
| FUNC. CLASS = RURAL LOCAL |
| *TTST 1% DUAL 2%          |

**PROJECT LENGTH**

|  |
|--|
| LENGTH OF ROADWAY TIP PROJECT B-3909 = 0.206 MILES   |
| LENGTH OF STRUCTURE TIP PROJECT B-3909 = 0.050 MILES |
| TOTAL LENGTH OF TIP PROJECT B-3909 = 0.256 MILES     |

Prepared In the Office of:  
**WILBUR SMITH ASSOCIATES**  
421 FAYETTEVILLE STREET, RALEIGH NC, 27601

2006 STANDARD SPECIFICATIONS

|  |   |
|--|---|
| <b>RIGHT OF WAY DATE:</b><br>AUGUST 29, 2008 | DAVID L. WILVER, P.E.<br>PROJECT ENGINEER             |
| <b>LETTING DATE:</b><br>AUGUST 18, 2009      | BENJAMIN R. CRAWFORD, P.E.<br>PROJECT DESIGN ENGINEER |

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

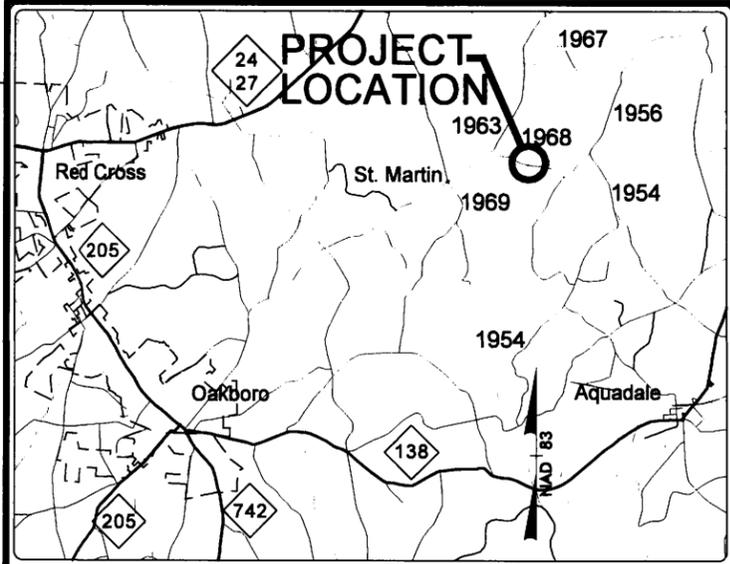
STATE HIGHWAY DESIGN ENGINEER

FILE: c:\pwork\100909\mch\100909\BRZ\_1968\_TIP.dwg  
DATE: 08/20/08 10:53:08 AM



**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

# SURVEY CONTROL SHEET B-3909

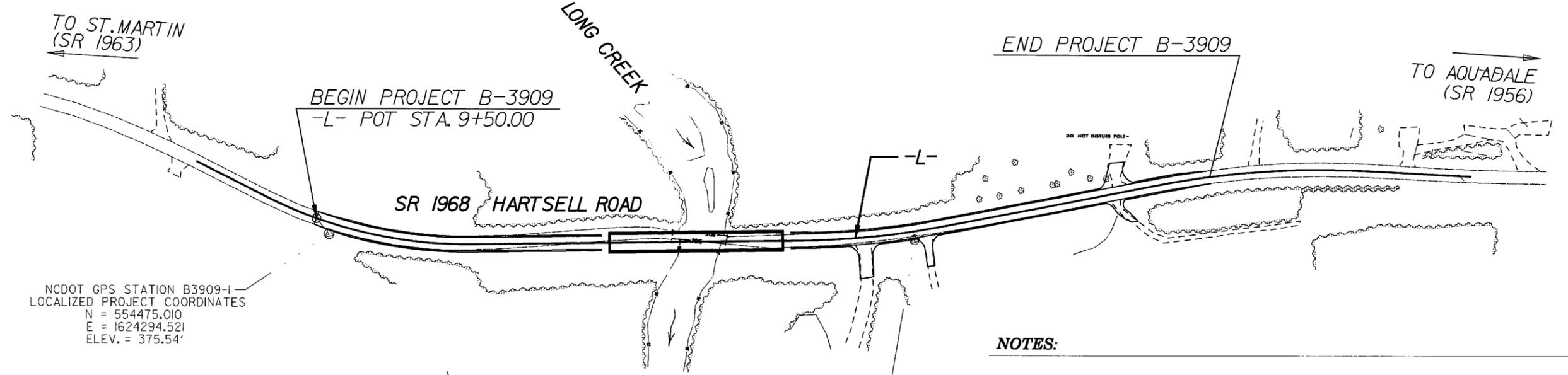


**VICINITY MAP**

| STATION  | OFFSET    | ELEVATION |
|----------|-----------|-----------|
| 14+11.11 | 185.73 LT | 375.54    |
| 14+25.34 | 100.59 LT | 375.54    |
| 14+70.00 | 0.98 RT   | 375.54    |
| 14+27.48 | 100.30 FT | 375.54    |
| 14+11.28 | 194.51 FT | 375.54    |

| STATION  | OFFSET    | ELEVATION |
|----------|-----------|-----------|
| 14+11.11 | 185.73 LT | 375.54    |
| 14+25.34 | 100.59 LT | 375.54    |
| 14+70.00 | 0.98 RT   | 375.54    |
| 14+27.48 | 100.30 FT | 375.54    |
| 14+11.28 | 194.51 FT | 375.54    |



NCDOT GPS STATION B3909-1  
LOCALIZED PROJECT COORDINATES  
N = 554475.010  
E = 1624294.521  
ELEV. = 375.54'

NCDOT GPS STATION B3909-2  
LOCALIZED PROJECT COORDINATES  
N = 554270.461  
E = 1625150.016  
ELEV. = 347.05'

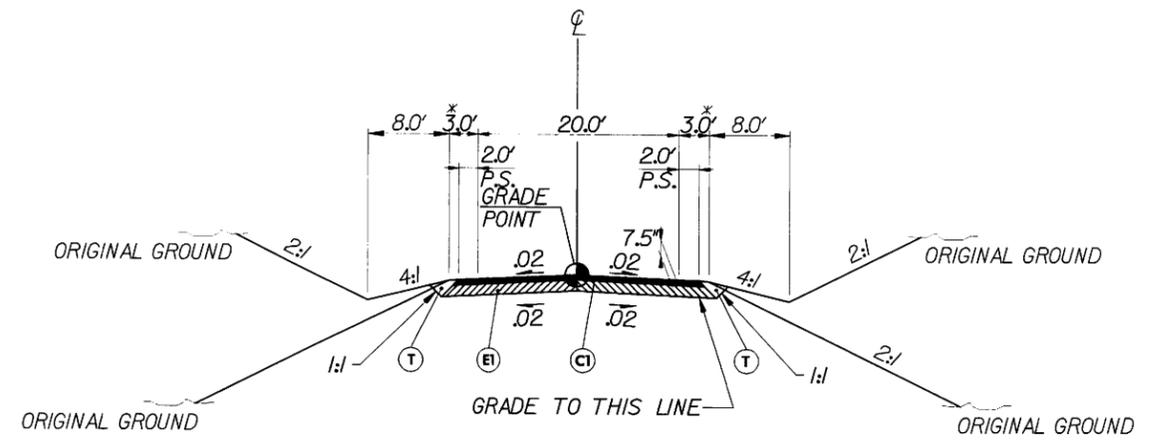
**DATUM DESCRIPTION**  
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3909-1"  
WITH NAD 83 STATE PLANE GRID COORDINATES OF  
NORTHING: 554475.010(±) EASTING: 1624294.521(±)  
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998600  
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3909-1" TO -L- STATION 9+50 IS  
N 25°38'08.4" W 30.301'  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

- NOTES:**
1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)  
THE FILES TO BE FOUND ARE AS FOLLOWS:  
**B3909\_LS\_CONTROL\_080825.TXT**  
SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
  2. INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

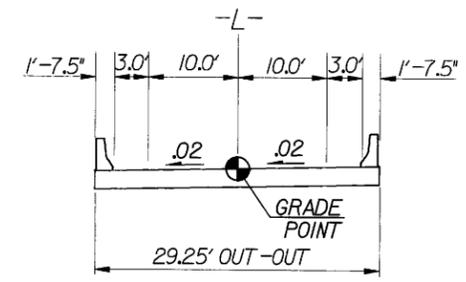
NOTE: DRAWING NOT TO SCALE

REVISIONS

FILE: I:\projects\131909\mch\mch\131909\_001.dwg  
DATE: 08/20/08 10:25:12 AM



**TYPICAL SECTION NO. 1**  
 USE ON: -L- Sta. 9+50.00 to Sta. 13+95.50 (BEGIN BRIDGE)  
 -L- Sta. 16+59.50 (END BRIDGE) to Sta. 23+00.00



**TYPICAL SECTION ON STRUCTURE**  
 USE ON: -L- Sta. 13+95.50 (BEGIN BRIDGE) to  
 Sta. 16+59.50 (END BRIDGE)

### PAVEMENT SCHEDULE

| ITEM | DESCRIPTION   | ITEM | DESCRIPTION | ITEM | DESCRIPTION |
|------|---|------|-------------|------|-------------|
| C1   | PROP. APPROX. 2.5 IN. ASPHALT SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS/SY IN EACH OF TWO LAYERS                                     |      |             |      |             |
| C2   | PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS/SY/IN. IN LAYERS NOT LESS THAN 1 IN. NOR GREATER THAN 1.5 IN. |      |             |      |             |
| E1   | PROP. APPROX. 5 IN. ASPHALT BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS/SY  |      |             |      |             |
| E2   | PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS/SY/IN. IN LAYERS NOT LESS THAN 4 IN. NOR GREATER THAN 5.5 IN.    |      |             |      |             |
| T    | EARTH MATERIAL  |      |             |      |             |

**NOTE:**  
 ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.  
 SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP)  
 SHOULDER SLOPES ARE 0.08 (TYP)

\* 6' WHERE GUARDRAIL IS USED  
 \*\* EXISTING PAVEMENT IS APPROXIMATELY 20' WIDE

REVISIONS

FILE: c:\paved\18909\mshw\lans\18909\_PAV\_PRL\_2.dwg  
DATE: 10/26/08

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**SUMMARY OF EARTHWORK**

IN CUBIC YARDS

| LOCATION                                 | UNCLASSIFIED EXCAVATION | UNDERCUT | EMBANKMENT +% | BORROW       | WASTE |
|--|-------------------------|----------|---------------|--------------|-------|
| <b>SUMMARY #1</b>                        |                         |          |               |              |       |
| -L- 9+50 13+95                           | 426                     | 0        | 2,220         | 1,794        | 0     |
| <b>SUBTOTAL: SUMMARY #1</b>              | 426                     | 0        | 2,220         | 1,794        | 0     |
| <b>SUMMARY #2</b>                        |                         |          |               |              |       |
| -L- 16+60 23+00                          | 350                     | 0        | 6,830         | 6,480        | 0     |
| <b>SUBTOTAL: SUMMARY #2</b>              | 350                     | 0        | 6,830         | 6,480        | 0     |
| <b>SUBTOTAL (SUMMARIES 1-2)</b>          | 776                     | 0        | 9,050         | 8,274        | 0     |
| ADDITIONAL UNDERCUT                      | 0                       | 0        | 0             | 0            | 0     |
| SHOULDER MATERIAL                        | 0                       | 0        | 0             | 0            | 0     |
| WASTE IN LIEU OF BORROW                  | 0                       | 0        | 0             | 0            | 0     |
| LOSS DUE TO CLEARING & GRUBBING          | 0                       | 0        | 0             | 0            | 0     |
| <b>PROJECT TOTAL</b>                     | 776                     | 0        | 9,050         | 8,274        | 0     |
| EST 5% TO REPLACE TOP SOIL ON BORROW PIT | 0                       | 0        | 0             | 414          | 0     |
| <b>GRAND TOTAL</b>                       | 776                     | 0        | 9,050         | 8,688        | 0     |
| <b>SAY</b>                               | <b>800</b>              |          |               | <b>8,700</b> |       |
| UNDERCUT CONTINGENCY = 100 CY            |                         |          |               |              |       |

|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>B-3909  | SHEET NO.<br>3-A    |
| RW SHEET NO.   |                     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION  |                     |
|  411 Fayetteville Street, Suite 1500<br>Raleigh, N.C. 27601 |                     |

REVISIONS

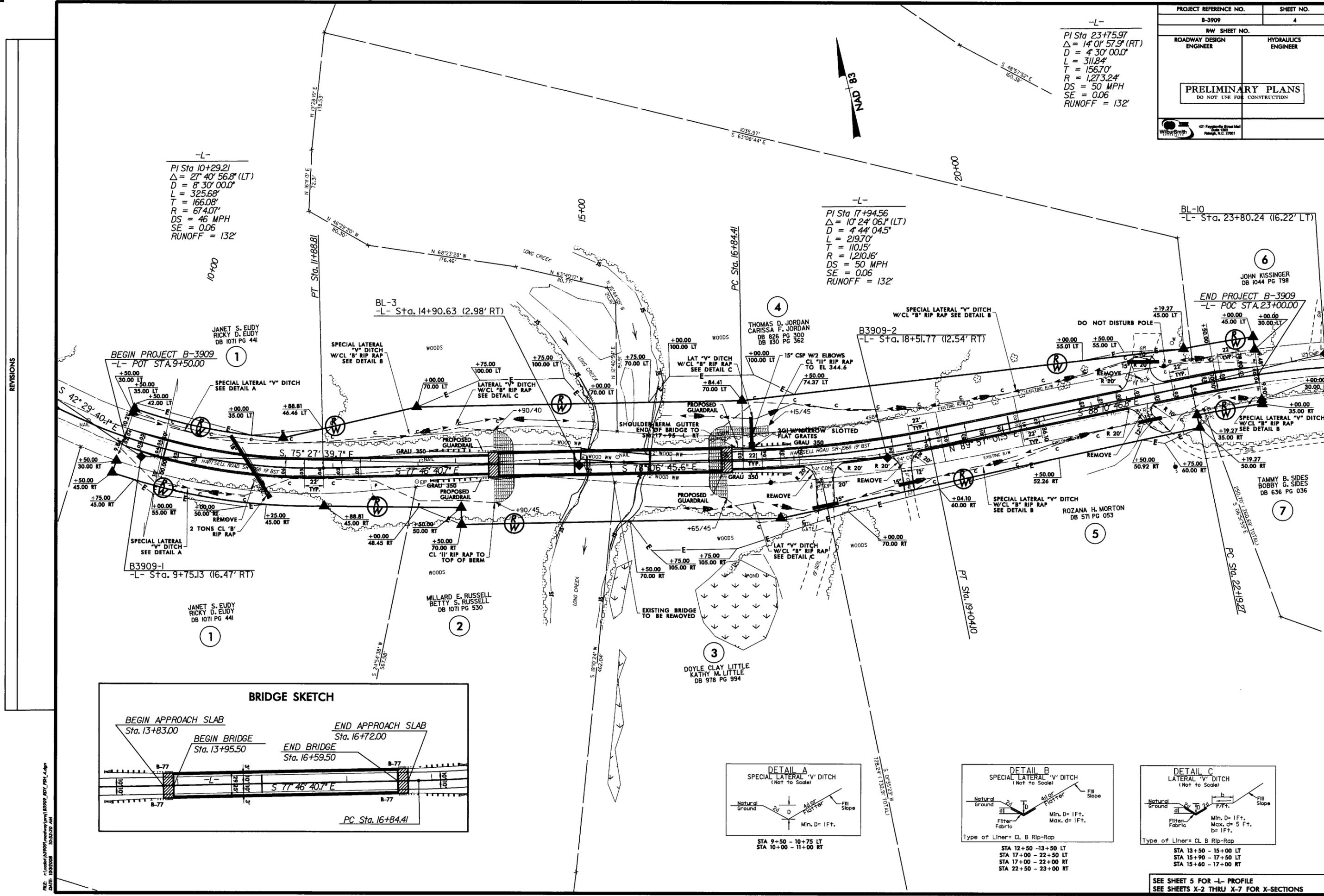
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| PROJECT REFERENCE NO.       |  | SHEET NO.           |  |
| B-3909                      |  | 4                   |  |
| ROADWAY DESIGN ENGINEER     |  | HYDRAULICS ENGINEER |  |
| DO NOT USE FOR CONSTRUCTION |  |                     |  |

-L-  
 PI Sta 23+75.97  
 $\Delta = 14^{\circ} 01' 57.9" (RT)$   
 $D = 4^{\circ} 30' 00.0"$   
 $L = 311.84'$   
 $T = 156.70'$   
 $R = 1,273.24'$   
 $DS = 50 \text{ MPH}$   
 $SE = 0.06$   
 $RUNOFF = 132'$

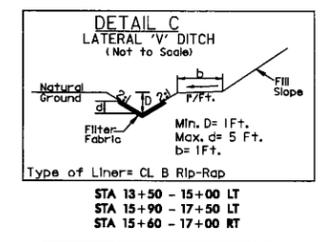
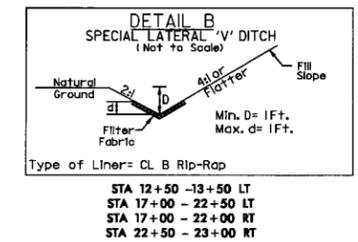
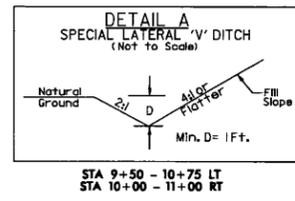
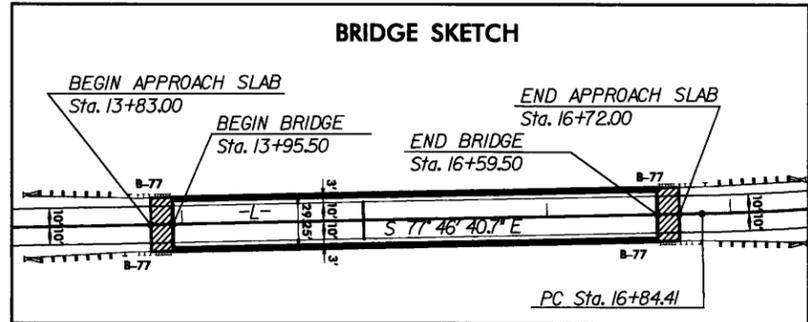
-L-  
 PI Sta 10+29.21  
 $\Delta = 27^{\circ} 40' 56.8" (LT)$   
 $D = 8^{\circ} 30' 00.0"$   
 $L = 325.68'$   
 $T = 166.08'$   
 $R = 674.07'$   
 $DS = 46 \text{ MPH}$   
 $SE = 0.06$   
 $RUNOFF = 132'$

-L-  
 PI Sta 17+94.56  
 $\Delta = 10^{\circ} 24' 06.1" (LT)$   
 $D = 4^{\circ} 44' 04.5"$   
 $L = 219.70'$   
 $T = 110.15'$   
 $R = 1,210.16'$   
 $DS = 50 \text{ MPH}$   
 $SE = 0.06$   
 $RUNOFF = 132'$

BL-10  
 -L- Sta. 23+80.24 (16.22' LT)



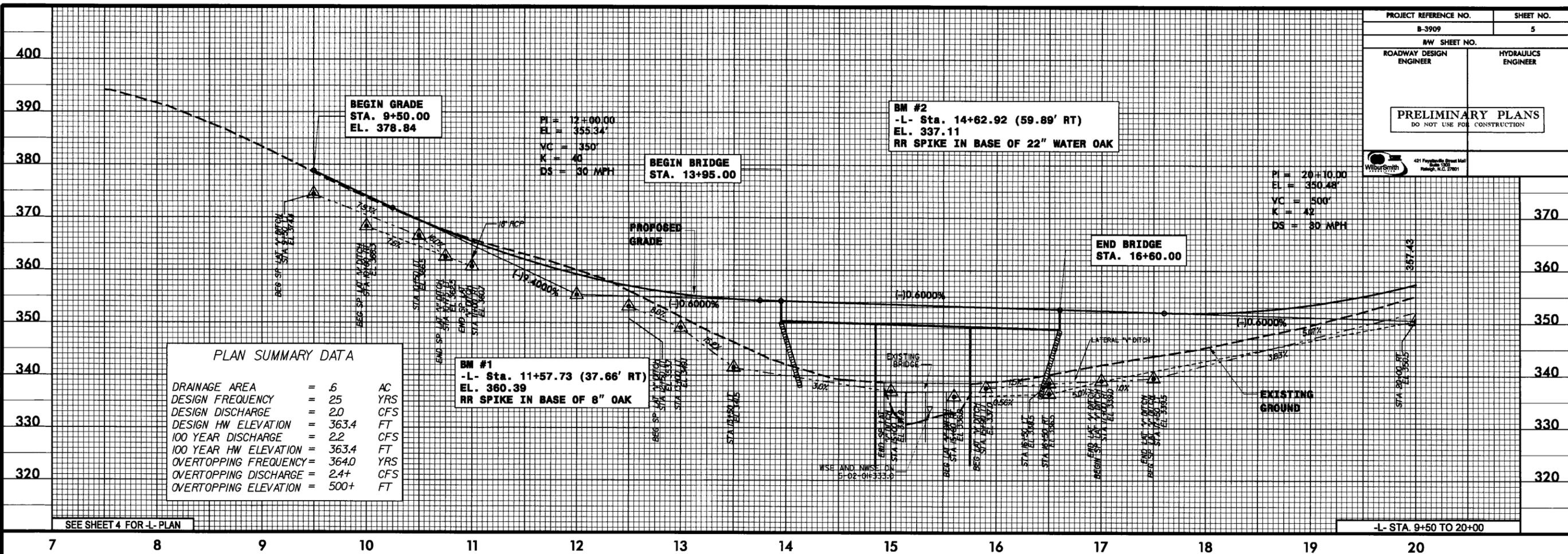
REVISIONS



SEE SHEET 5 FOR -L- PROFILE  
 SEE SHEETS X-2 THRU X-7 FOR X-SECTIONS

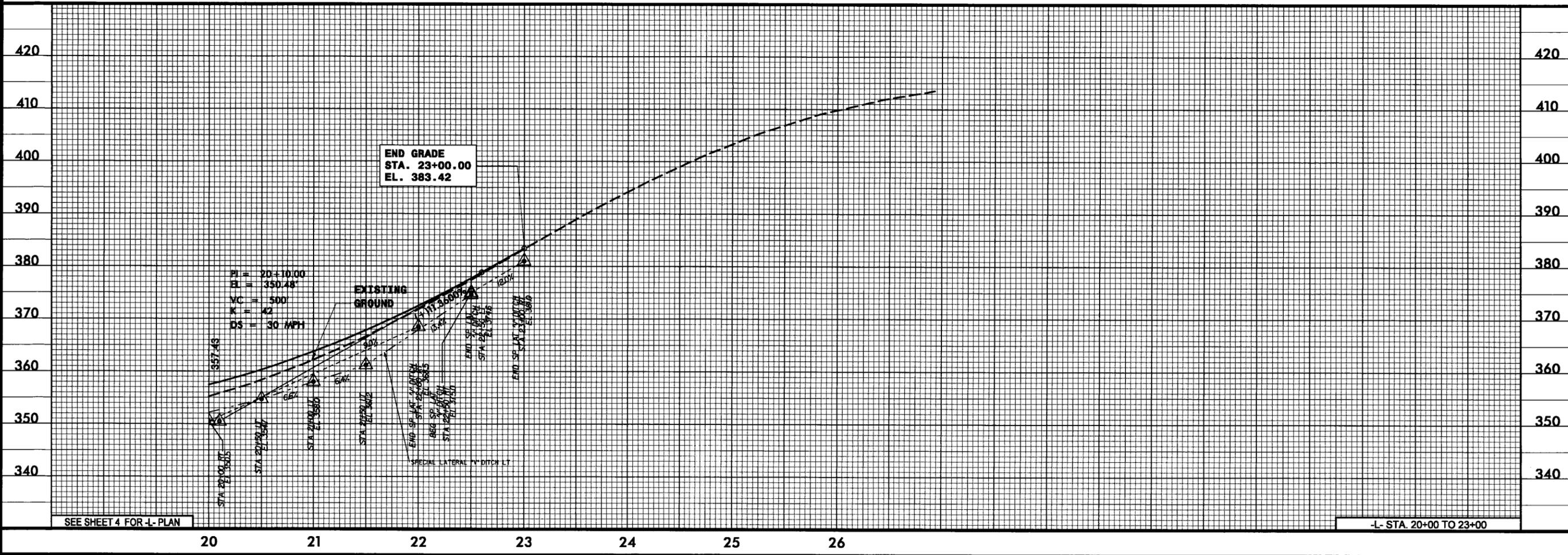
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 DATE: 10/27/08 10:53:20 AM

|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.  | SHEET NO.           |
| B-3909   | 5                   |
| RW SHEET NO.   |                     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION   |                     |
|  421 Fayetteville Street, Suite 1200<br>Raleigh, N.C. 27601 |                     |



SEE SHEET 4 FOR L-PLAN

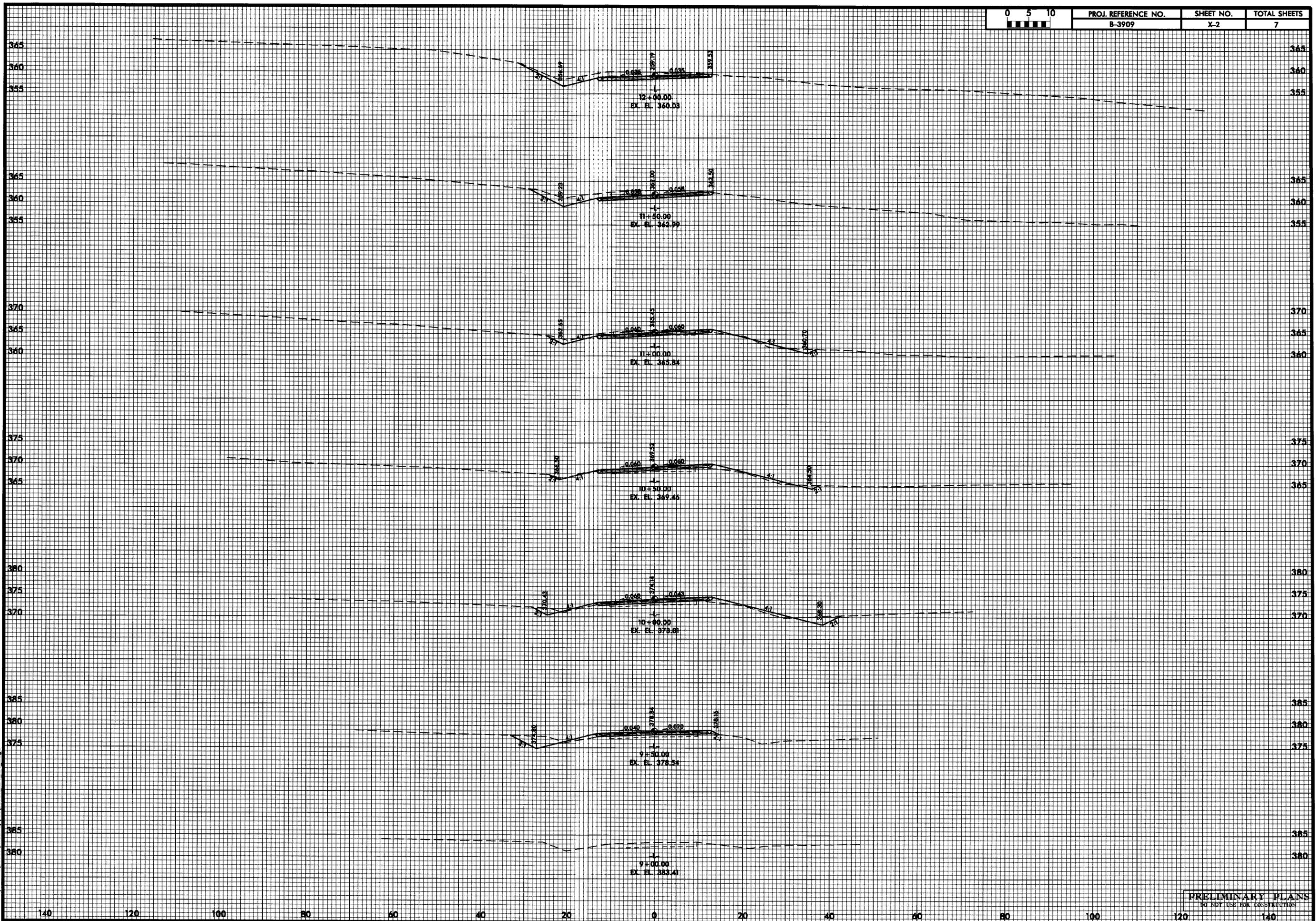
-L- STA. 9+50 TO 20+00



SEE SHEET 4 FOR L-PLAN

-L- STA. 20+00 TO 23+00

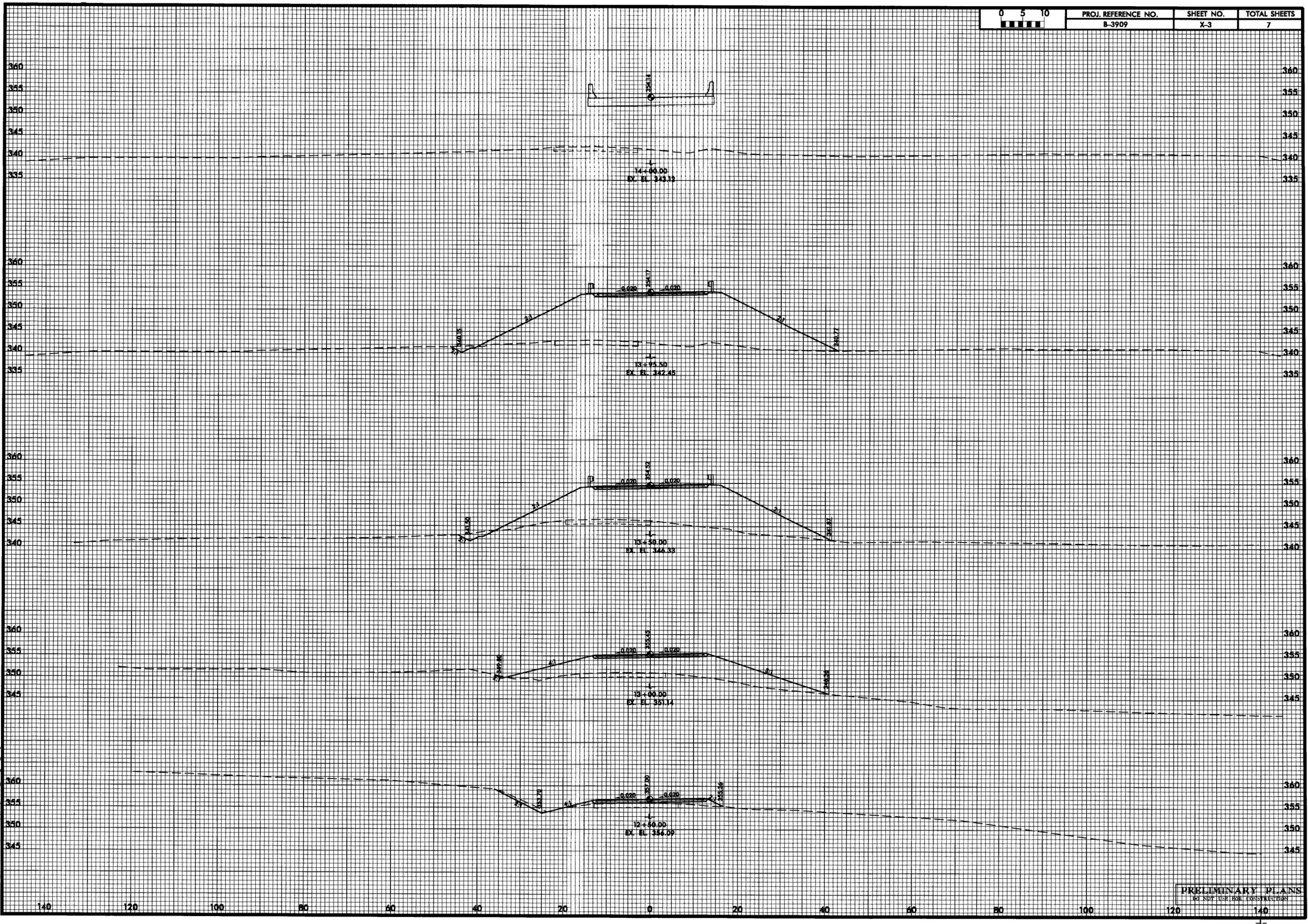
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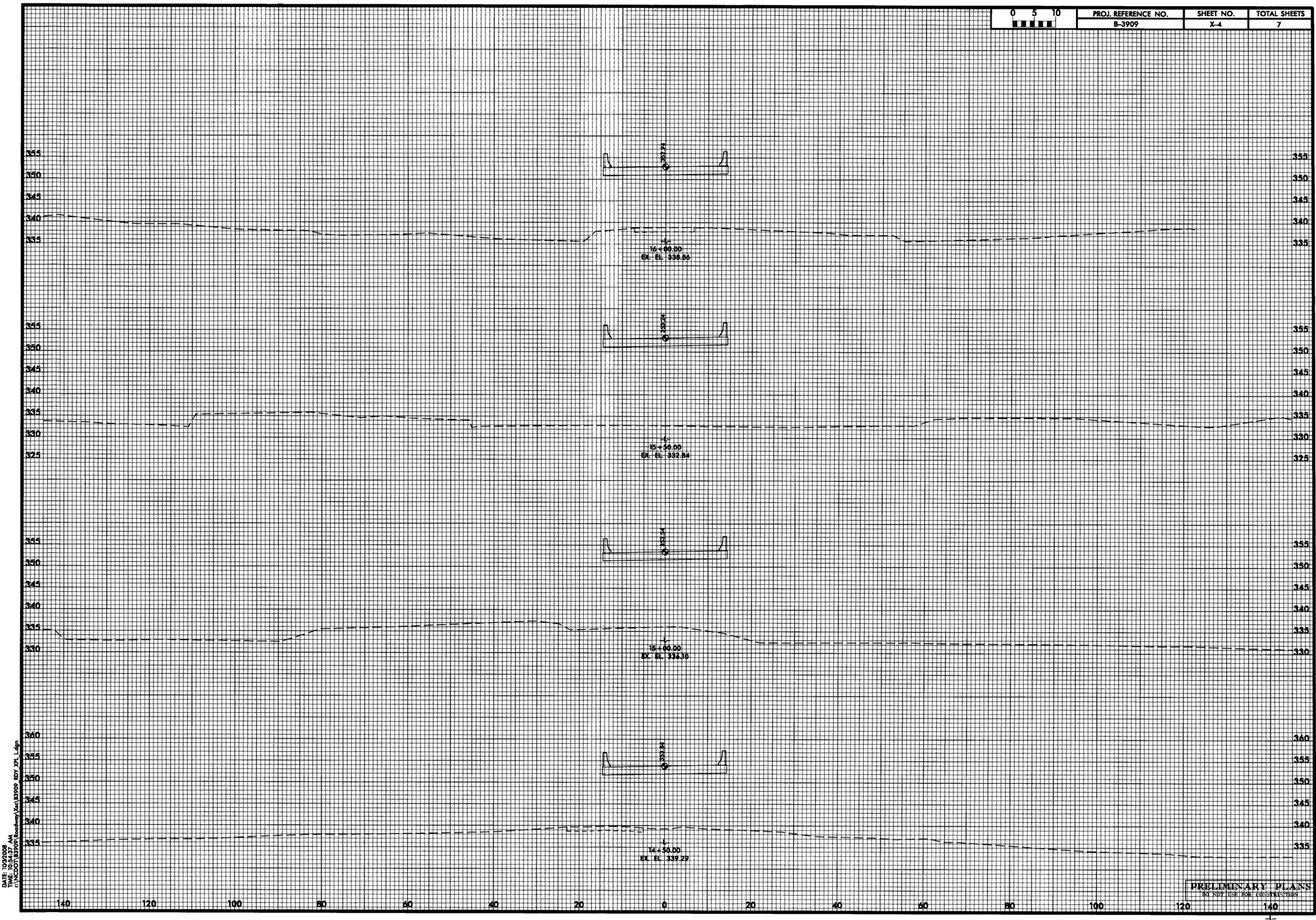
DATE: 10/2/08  
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**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

DATE: 10/2/08 AM  
 TIME: 05:43:33  
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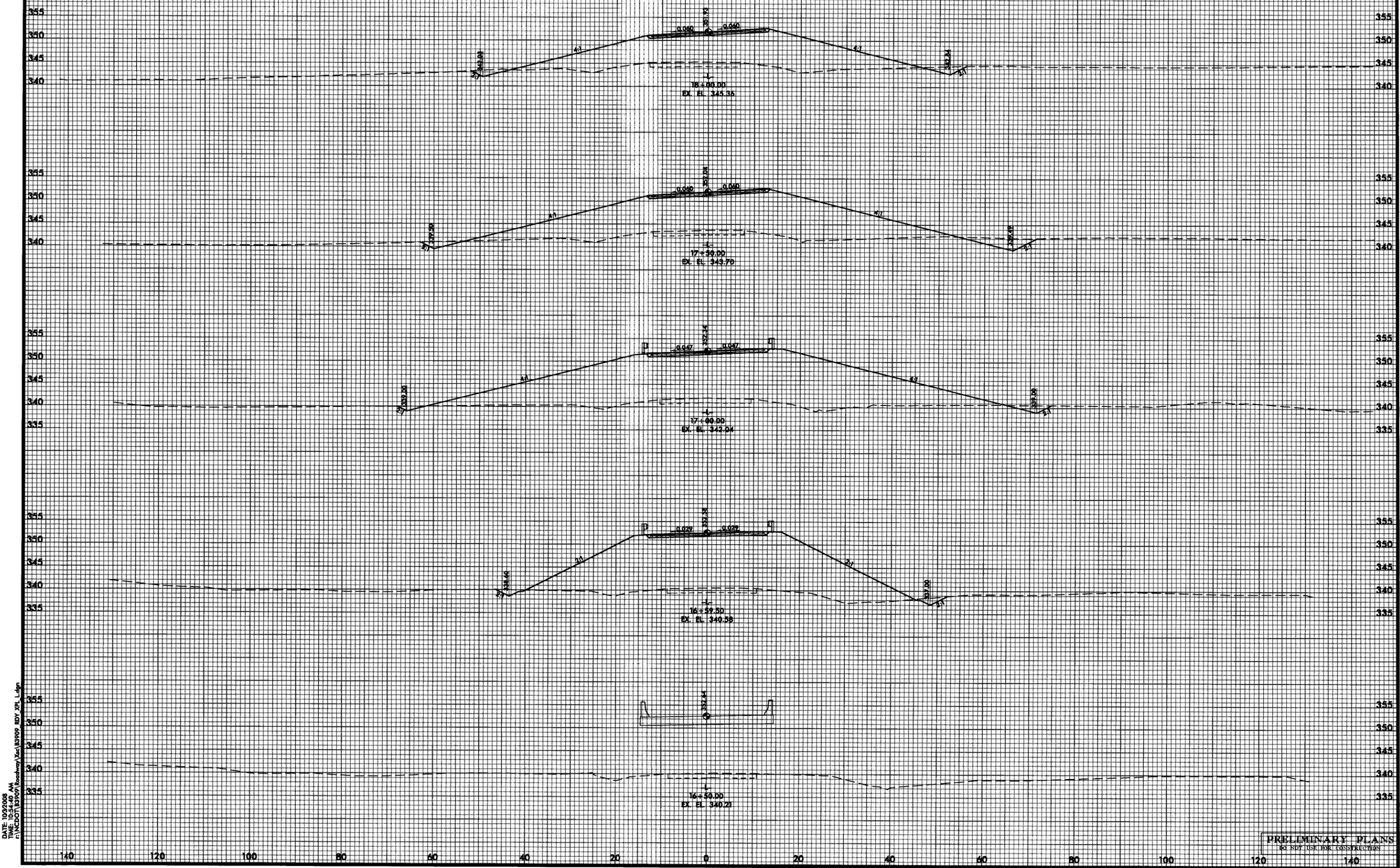


PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



DATE: 10/20/08  
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PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

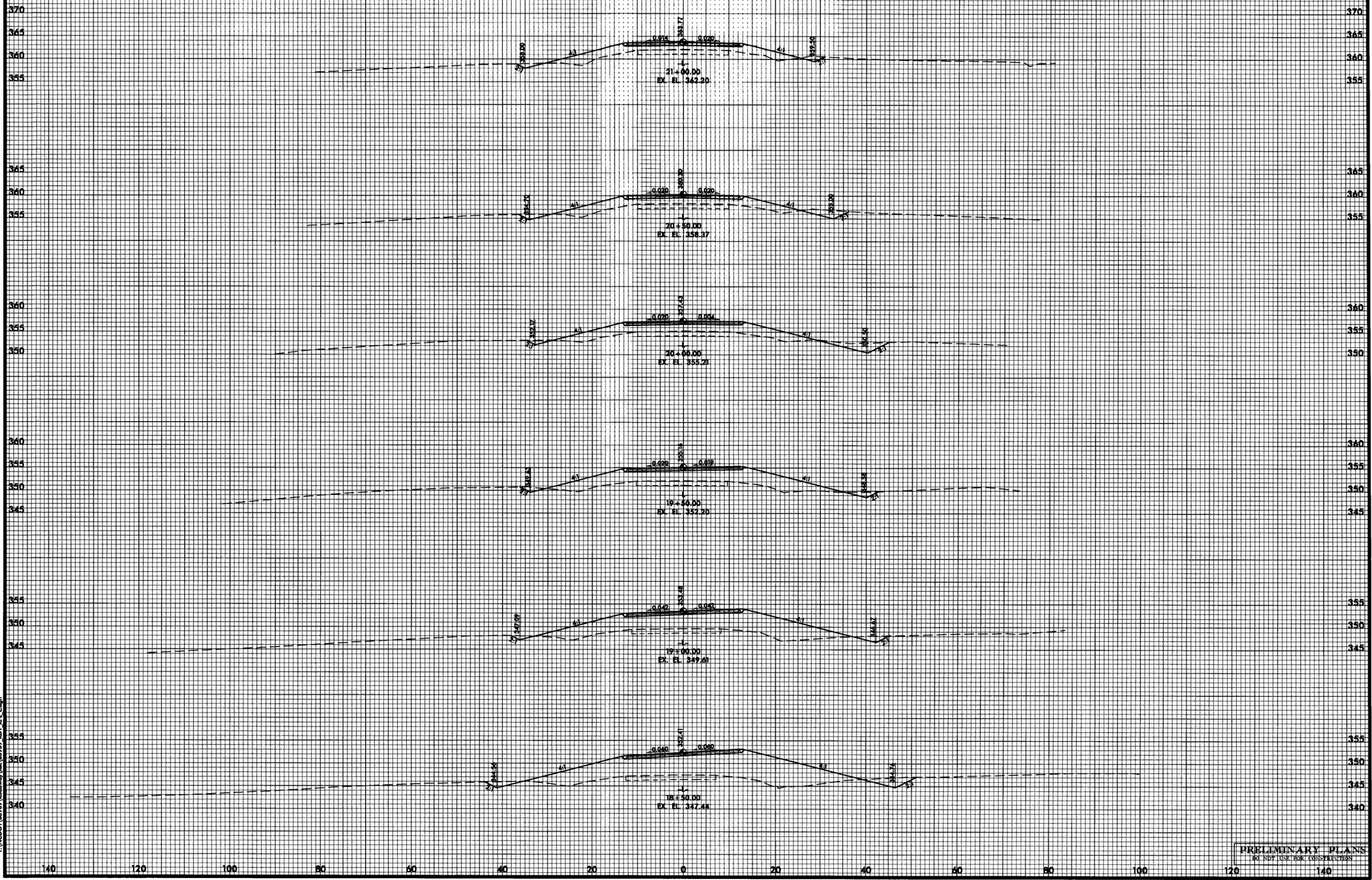


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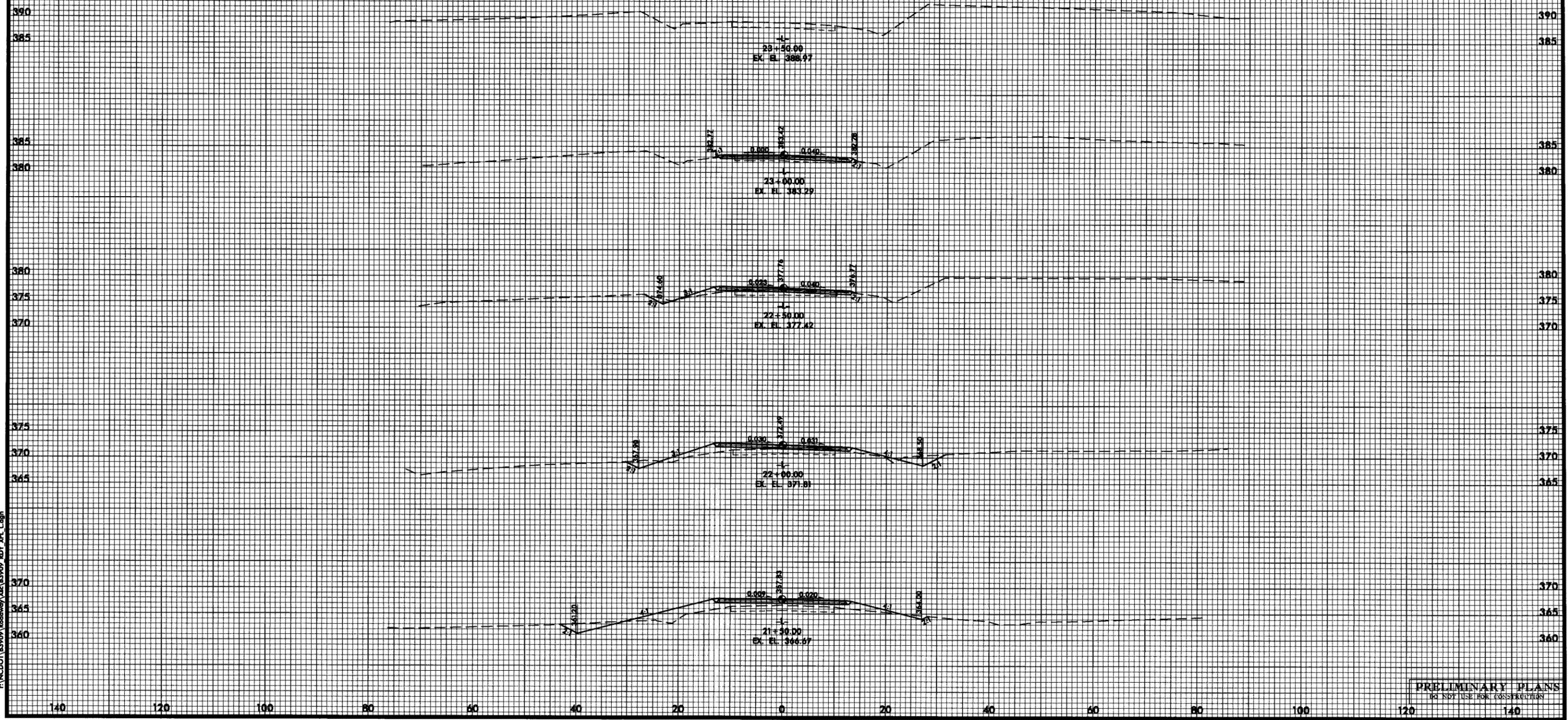
| PROJ. REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---------------------|-----------|--------------|
| B-3909              | X-6       | 7            |

DATE: 10/2/2008  
 TIME: 10:54:44 AM  
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PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

DATE: 10/22/08  
 TIME: 10:54:48 AM  
 C:\NC\DOT\B3909\Roadway\X-7\B3909\_RDY\_XPL.dgn



PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

**Stanly County  
SR 1968  
Bridge No. 99 Over Long Creek  
Federal-Aid Project No. BRZ-1968(1)  
State Project No. 8.2681701  
T.I.P. No. B-3909**

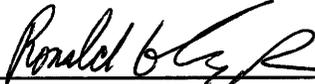
**Addendum to  
Categorical Exclusion  
US Department of Transportation  
Federal Highway Administration  
and  
NC Department of Transportation  
Division of Highways**

Approved

7/18/06  
Date

  
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EAR Gregory J. Thorpe, PhD, Branch Manager  
Project Development & Environmental Analysis Branch  
North Carolina Department of Transportation

7/27/06  
Date

  
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John F. Sullivan, III, P.E.  
Division Administrator,  
Federal Highway Administration

**Stanly County  
SR 1968  
Bridge No. 99 Over Long Creek  
Stanly County  
Federal-Aid Project No. BRZ-1968(1)  
State Project No. 8.2681701  
T.I.P. No. B-3909**

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Categorical Exclusion  
US Department of Transportation  
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**July, 2006**

**Document Prepared by**

**Wilbur Smith Associates, Inc.**

  
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David L. Wilver, P.E.  
Project Manager



For the  
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**

  
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Jennifer A. Evans, P.E.  
Project Planning Engineer

# PROJECT COMMITMENTS

Stanly County  
SR 1968  
Bridge No. 99 Over Long Creek;  
Federal Aid Project No.: BRZ-1968(1)  
State Project No.: 8.2681701  
TIP No.: B-3909

In addition to the standard Nationwide Permit #33 and #23 Conditions, the General Nationwide Permit Conditions, Section 404 Individual Permit (IP) Special Conditions, Section 401 Water Quality Certification (WQC) Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for Protection of Surface Waters, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

## Commitments Developed Through Project Development and Design

All commitments developed during the project development and design phase have been incorporated into the design and were standard commitments. Current status, changes, or additions to the project commitments as shown in the environmental document for the project are printed in *italic* font.

### **Design Services/Roadside Environmental/Division 10 Construction**

Ensure that sediment and erosion control measures are not placed in wetlands.

*This standard will be implemented during construction to the best ability of the Department in coordination with existing standards and laws.*

### **Design Services/ Division 10 Construction**

Borrow/waste areas should avoid wetlands to the maximum extent practicable. Prior to the approval of any borrow/waste site in a wetland, the contractor must obtain all necessary permits.

*This standard will be used during design and will be implemented during construction of the project.*

### **Division 10 Construction**

Disturbance of the stream channels must be limited to only what is necessary to perform the bridge demolition/removal and construction of the replacement structure and what is permitted. Heavy equipment must be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.

*This environmental commitment will be implemented during construction of the project.*

### **Division 10 Construction**

All work shall be performed during low flow conditions

*This environmental commitment will be implemented during construction of the project.*

**Addendum to**  
**Categorical Exclusion**  
**Stanly County**  
**SR 1968**  
**Bridge No. 99 Over Long Creek**  
**Stanly County**  
**Federal-Aid Project No. BRZ-1968(1)**  
**State Project No. 8.2681701**  
**T.I.P. No. B-3909**

**III. ALTERNATIVES**

**A. Project Description**

A Categorical Exclusion (CE) for replacement of Bridge No. 9 over Long Creek in Stanly County was completed in March 2003. The preferred alternative selected was Alternative 3 which included replacement of the existing single lane, low water bridge with a new two-lane structure at the existing location. Following further evaluation by the Division 10 Office of the North Carolina Department of Transportation, it was determined to provide a replacement bridge for this low water crossing that will adequately handle a 50 year storm event. This addendum documents the changes to the CE in order to provide this replacement.

The recommended bridge length is based on a preliminary hydraulic analysis in conjunction with a field reconnaissance of the site in order to accommodate a 50 year storm event without overtopping. The proposed replacement structure is a bridge approximately 250 feet long. Since overtopping of the road occurs during the 100-year storm, raising the roadway grade over the existing elevation will likely increase the elevation of the existing 100-year storm. NCDOT will incorporate a longer bridge, if required, to limit the increase in elevation of the 100-year storm to no more than one foot. Minimum grade on the deck of the bridge will be 0.3 percent. The length of the proposed bridge and the recommended roadway elevation may be adjusted (increased or decreased) to accommodate peak flow as determined in the final hydrologic study and hydraulic design.

Stanly County is a participant in the Federal Flood Insurance Program. The bridge is within an Approximate Study Area.

There is no current posted speed along the existing roadway approaches. The proposed design speed is 50 miles per hour.

## B. Preferred Alternate (Figure 2C)

Since the proposed design change to accommodate a 50-year storm event affects all three alternatives the basis for alternative selection was not changed from the document. Therefore, Alternative 3, the alternative for replacing Bridge No. 99, is described below.

**Alternative 3** includes replacement of the existing 82.5 foot single lane, low water bridge with a new two-lane structure at the existing location (See Figure 2C). The proposed structure will consist of two 11 foot travel lanes and two 3 foot shoulders for a total clear roadway width of 28 feet. The new structure will be approximately 250 feet in length and 31 feet wide and will accommodate a 50 year storm event. The approach work will extend from approximately 350 feet west to approximately 500 feet east of the existing structure. Approach work includes widening traffic lanes, minor realignment, and grade alterations. The total project length is approximately 1100 feet. Traffic will be maintained with an off-site detour on existing roads. The recommended detour is approximately five miles long (See Figure 5). The detoured traffic will be routed from SR 1968 to SR 1963 to SR 1967 to SR 1956 and back to 1968 or conversely. NCDOT Division 10 staff and the Stanly County Emergency Services Director have reviewed and concurred with the recommended off-site detour.

## IV. ESTIMATED COST

Table 1: Estimated Cost

|                                | Alternative 3 (Preferred) |
|--------------------------------|---------------------------|
| Structure Removal (Existing)   | \$15,225                  |
| Structure (Proposed)           | \$585,000                 |
| Detour and Approaches          | \$0                       |
| Roadway Approaches             | \$389,590                 |
| Miscellaneous and Mobilization | \$265,185                 |
| Engineering and Contingencies  | \$195,000                 |
| ROW/Const. Easement/Utilities  | \$31,800                  |
| Total                          | \$1,481,800               |

## V. NATURAL RESOURCES

### D. BIOTIC RESOURCES

#### 2. Potential Impacts to Vegetation Communities

Terrestrial distribution and composition of vegetation communities throughout the project study area reflect landscape-level variations in topography, soils, hydrology, and past and present land use practices. When appropriate, the vegetation community names have been adopted and modified from the NCNHP classification system (Schafale and Weakley 1990) and the descriptions written to reflect local variations within the project study area. Two natural communities were identified within the project study area: Piedmont/Low Mountain Alluvial Forest and Mesic Mixed Hardwood Forest. In addition to these natural communities, there are also areas of pasture and maintained/disturbed lands.

Potential impacts to vegetation communities are estimated based on the area of each vegetation community present within the proposed construction limits (Figure 2C). Potential temporary impacts include those areas located within the proposed clearing limits but outside of the construction limits, which may be utilized as staging areas, equipment access, or other construction related activities. Proposed clearing limits are not available for this project, at this time. A summary of potential vegetation community impacts is presented in Table 3.

Table 3. Potential Impacts to Vegetation Communities.

| VEGETATION COMMUNITY                  | Potential Impact Acres |   |
|---------------------------------------|------------------------|---|
|                                       | Impacts                | Temporary Construction Impacts <sup>a</sup> |
| Piedmont/Low Mountain Alluvial Forest | 0.03                   | 0.03  |
| Pasture Land                          | 0.14                   | 0.14  |
| Maintained/Disturbed Land             | 1.10                   | 0.05  |
| Total:                                | 1.32                   | 1.10  |
| Total For Alternative <sup>b</sup>    | 1.32                   |   |

<sup>a</sup> Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure; these limits are not available for this project at this time.

<sup>b</sup> Totals for vegetation communities do not include the open water area attributed to Long Creek or any impervious road surfaces.

Potential impacts associated with a bridge replacement are generally limited to narrow strips adjacent to the existing bridge structure and roadway approach segments. The alternative minimizes potential impacts to forested communities by concentrating impacts in maintained/disturbed land. Alternative 3 does not have a temporary on-site detour.

**E. SPECIAL TOPICS**

**2. Potential Impacts to Waters of the United States**

Potential impacts to wetlands and open water areas are estimated based on the amount of each jurisdictional area within the proposed construction limits shown in Figure 2C. During bridge removal procedures, NCDOT’s BMP’s will be utilized, including erosion control measures; therefore it is anticipated that removing the existing end bents will result in no impact to surrounding surface waters. A summary of potential jurisdictional impacts is presented in Table 4.

Table 4. Potential Impacts to Jurisdictional Wetlands and Surface Waters.

| JURISDICTIONAL AREAS  | Potential Impacts (Acres)       |   |
|-----------------------|---------------------------------|---|
|                       | Alternative 3                   |   |
|                       | Impacts                         | Temporary Construction Impacts <sup>a</sup> |
| PF01B                 | 0.0                             | 0.0   |
| R2RB1<br>(Long Creek) | 0.0                             | 0.0   |
| Total:                | 0                               |   |
| Total For Alternative | 0                               |   |
|                       | Potential Impacts (Linear feet) |   |
| Long Creek            | 0.0                             | 0.0   |
| Total For Alternative | 0                               |   |

<sup>a</sup> Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure; these limits are not available for this project at this time.

Alternative 3 avoids impacts to jurisdictional wetlands in the project study area and include use of a channel spanning structure that would avoid impacts to the stream channel. Alternative 3 will utilize a detour using existing roads.

## F. PROTECTED SPECIES

### I. Federally Protected Species

Species with the federal classification of Endangered (E), Threatened (T), or officially proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Federally protected species listed with ranges that extend into Stanly County are presented in Table 5 (FWS list dated March 8, 2006).

Table 5. Federally Protected Species.

| Common Name            | Scientific Name                 | Status         | Biological Conclusion |
|------------------------|---------------------------------|----------------|-----------------------|
| Bald eagle             | <i>Haliaeetus leucocephalus</i> | T <sup>a</sup> | No Effect             |
| Schweinitz's sunflower | <i>Helianthus schweinitzii</i>  | E              | No Effect             |

<sup>a</sup> Officially proposed for delisting

**Bald Eagle** - The bald eagle is a large raptor with a wingspan greater than 6 feet. Adult bald eagles are dark brown with a white head and tail. Immature eagles are brown with whitish mottling on their tail, belly, and wing linings. Bald eagles typically feed on fish, but may also feed on smaller birds, carion, and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980).

Bald eagles typically nest in tall, living trees in a conspicuous location near water and forage over large bodies of water with adjacent trees available for perching (Hamel 1992). Preventing disturbance activities within a primary zone extending 750 to 1500 feet outward from a nest tree is considered critical for maintaining acceptable conditions for eagles (FWS 1987). FWS recommends avoiding any disturbance activities, including construction and tree-cutting, within this primary zone. Within a secondary zone extending from the primary zone boundary out to a distance of 1.0 mile from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding significant land-clearing activities within 1500 feet of roosting sites.

#### **Biological Conclusion: No Effect**

No large lakes or other large bodies of water, providing easy access to food, or snags for nesting are found within the project study area. Since no suitable nesting or foraging habitat for the bald eagle exists in the project study area, this project is not expected to affect the bald eagle. A

review of NCNHP records revealed no documentation of this species occurring within 3.0 miles of the project study area.

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

**Biological Conclusion: No Effect**

Potentially suitable habitat for Schweinitz's sunflower was identified within the project study area, along roadside shoulders, and other open areas. A systematic survey of all potentially suitable habitat was conducted by ESI biologists in July 2001. Since this survey was conducted prior to the flowering season for Schweinitz's sunflower, search efforts focused on the identification all members of the genus *Helianthus* (if present) using vegetative characteristics in the field. No members of the genus *Helianthus* were observed during the 2001 survey.

Surveys for federally protected plants are valid for a period of 3 years after which a resurvey needs to be conducted of any suitable habitat to confirm that the species is not present. Potentially suitable habitat in the project study area was resurveyed for this species on August 30, 2005 and no individuals of *Helianthus* were observed. Therefore, construction of the proposed project should not affect Schweinitz's sunflower. A review of NCNHP records revealed no documentation of this species within 3.0 miles of the project study area.

**2. Federal species of concern**

The March 8, 2006 FWS list also includes a category of species designated as "Federal species of concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. However, these are listed since they may attain federal protected status in the future. The presence of potential

suitable habitat (Amoroso 1999, LeGrand *et al.* 2001) within the project study area has been evaluated for the FSC species listed for Stanly County (Table 6).

Table 6. Federal Species of Concern (FSC).

| Common Name                    | Scientific Name                 | Potential Habitat | State Status <sup>a</sup> |
|--------------------------------|---------------------------------|-------------------|---------------------------|
| Carolina darter                | <i>Etheostoma collis collis</i> | Y                 | SC                        |
| Brook floater                  | <i>Alasmidonta varicosa</i>     | Y                 | T (PE)                    |
| Carolina creekshell            | <i>Villosa vaughaniana</i>      | Y                 | SC (PE)                   |
| Georgia aster                  | <i>Aster georgianus</i>         | Y                 | T (PE)                    |
| Butternut                      | <i>Juglans cinerea</i>          | Y                 | W5                        |
| Heller's trefoil               | <i>Lotus helleri</i>            | Y                 | C                         |
| Savanna cowbane                | <i>Oxypolis ternata</i>         | N                 | W1                        |
| Yadkin River goldenrod         | <i>Solidago plumosa</i>         | Y                 | E                         |
| Riverbank vervain <sup>b</sup> | <i>Verbena riparia</i>          | N                 | C                         |

<sup>a</sup> E-Endangered, T-Threatened, SC- Special Concern, C -Candidate, W - Watch List, P – Proposed, SR – Significantly Rare.

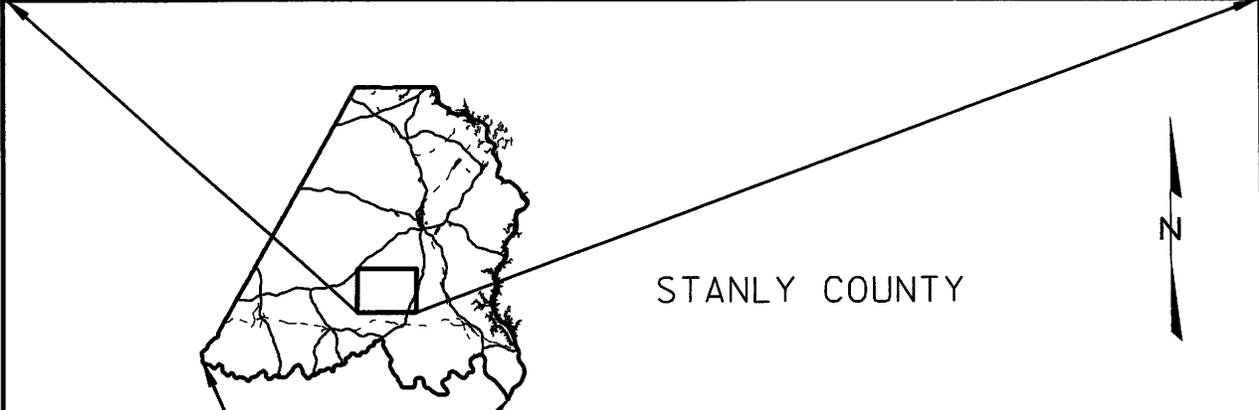
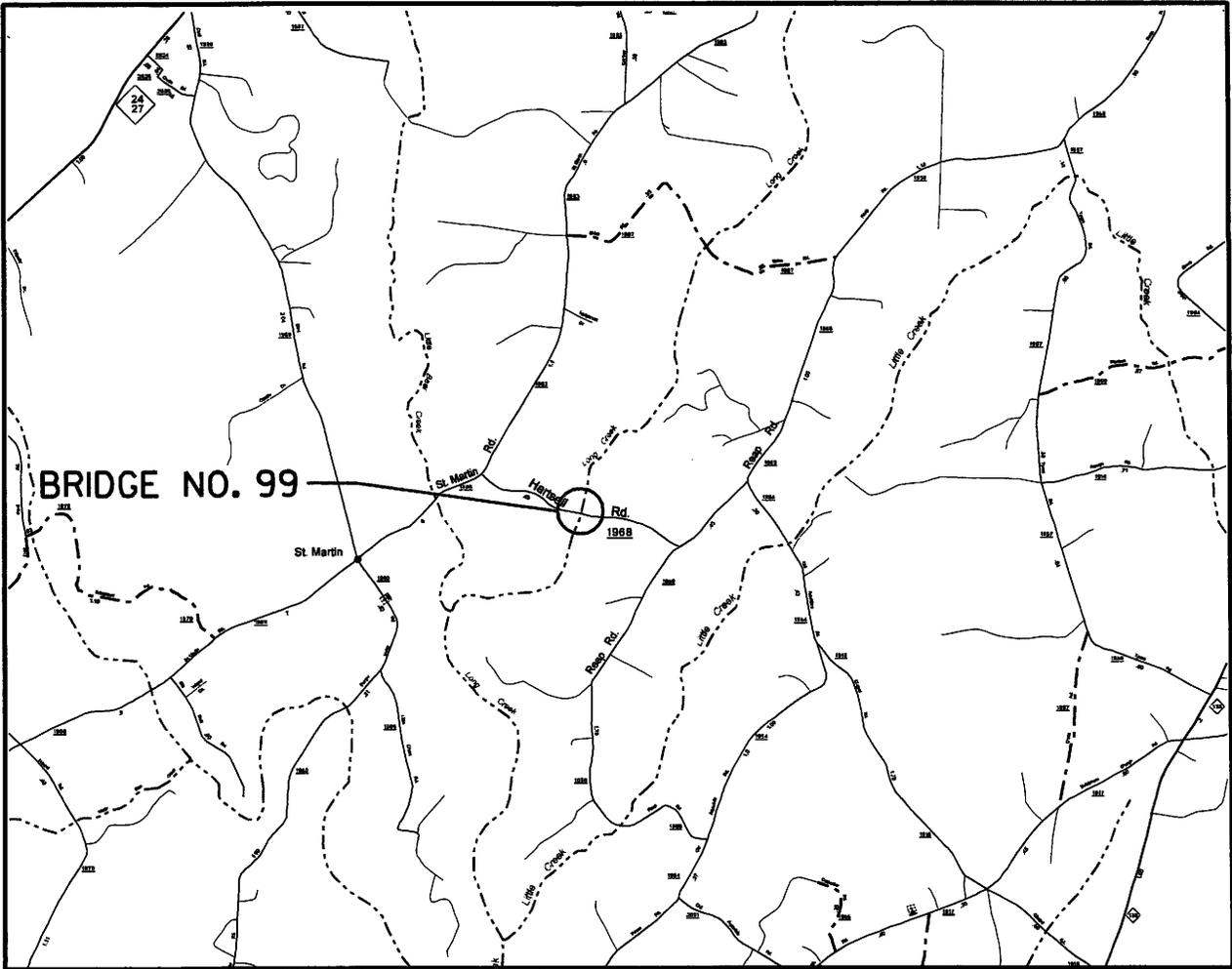
<sup>b</sup> Historic Record – The species was last observed in the county more than 50 years ago.

NCNHP records do not indicate any documented occurrences of FSC species within 3.0 miles of the project study area.

### 3. State Protected Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), or Special Concern (SC), receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*).

NCNHP records do not indicate any documented occurrences of state protected species within 3.0 miles of the project study area.



STANLY COUNTY



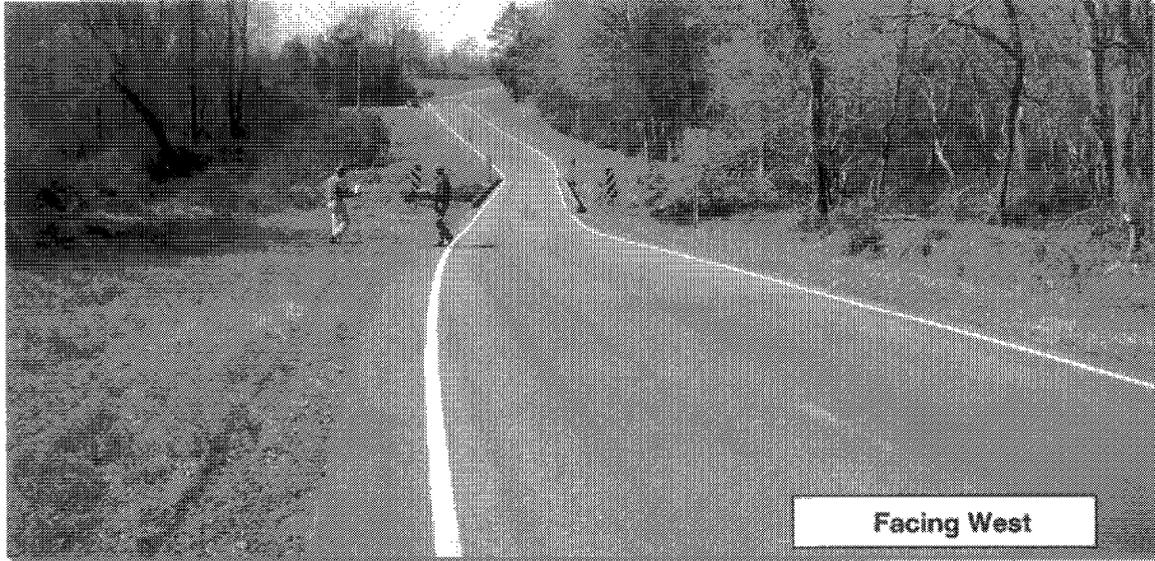
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|  | <p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION<br/>         DIVISION OF HIGHWAYS<br/>         PROJECT DEVELOPMENT AND<br/>         ENVIRONMENTAL ANALYSIS BRANCH</p> |
|   | <p><b>BRIDGE NO. 99</b><br/> <b>SR 1968 OVER LONG CREEK</b><br/> <b>STANLY COUNTY</b><br/>         B-3909</p>  |
| <p><b>VICINITY MAP</b></p>  |  |
| <p>FIGURE 1</p>   |  |



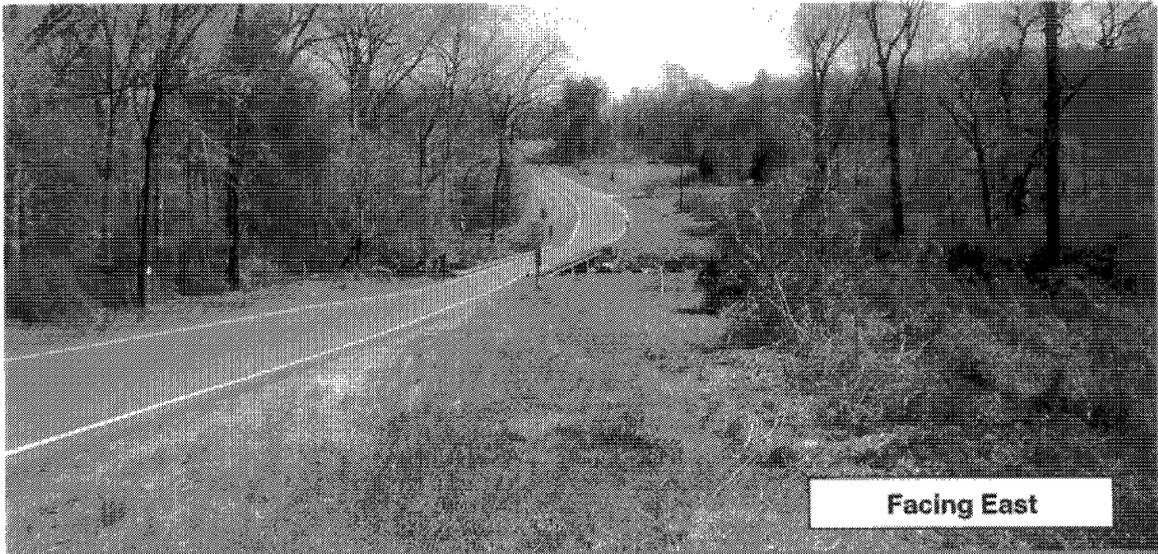
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
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B-3909  
STANLY COUNTY  
BRIDGE #99 OVER LONG CREEK

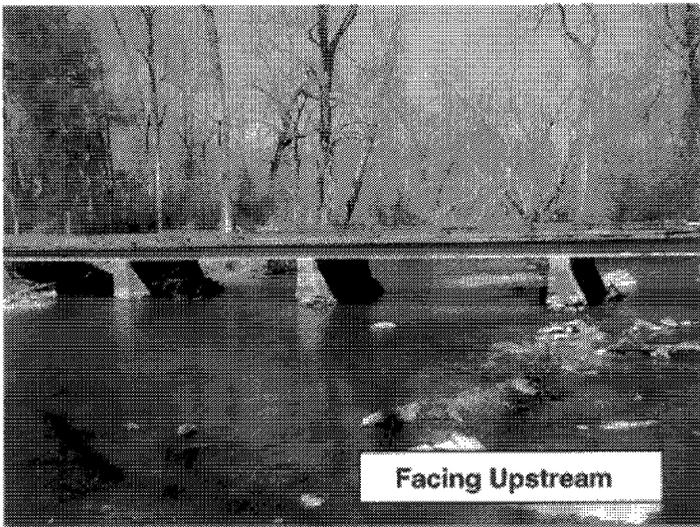
|            |              |           |
|------------|--------------|-----------|
| MARCH 2006 | NOT TO SCALE | FIGURE 2C |
|------------|--------------|-----------|



Facing West

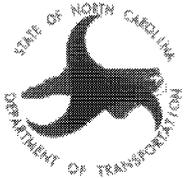


Facing East

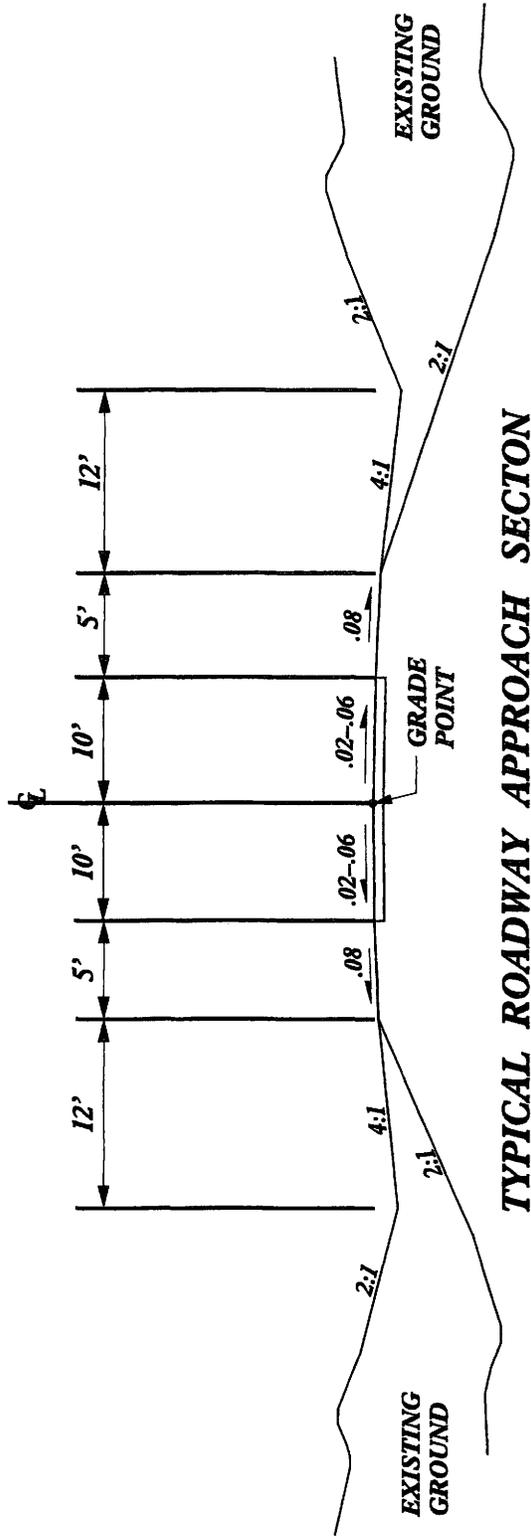


Facing Upstream

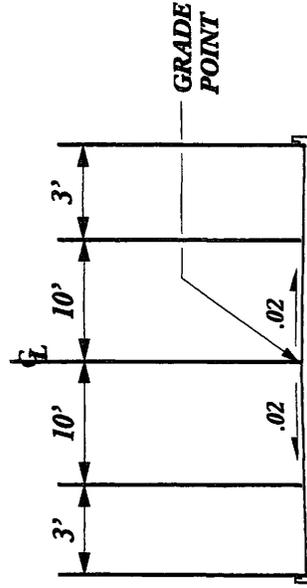
**B-3909**  
**Replacement of Bridge**  
**Bridge No. 99**  
**SR 1968 over**  
**Long Creek**  
**Stanly County**



**FIGURE 3**



**TYPICAL ROADWAY APPROACH SECTION**



**TYPICAL BRIDGE SECTION**

**TRAFFIC DATA**

ADT 2001 600

ADT 2025 1000

DUAL 2%

TTST 1%

**FUNCTIONAL CLASSIFICATION: LOCAL (RURAL)**



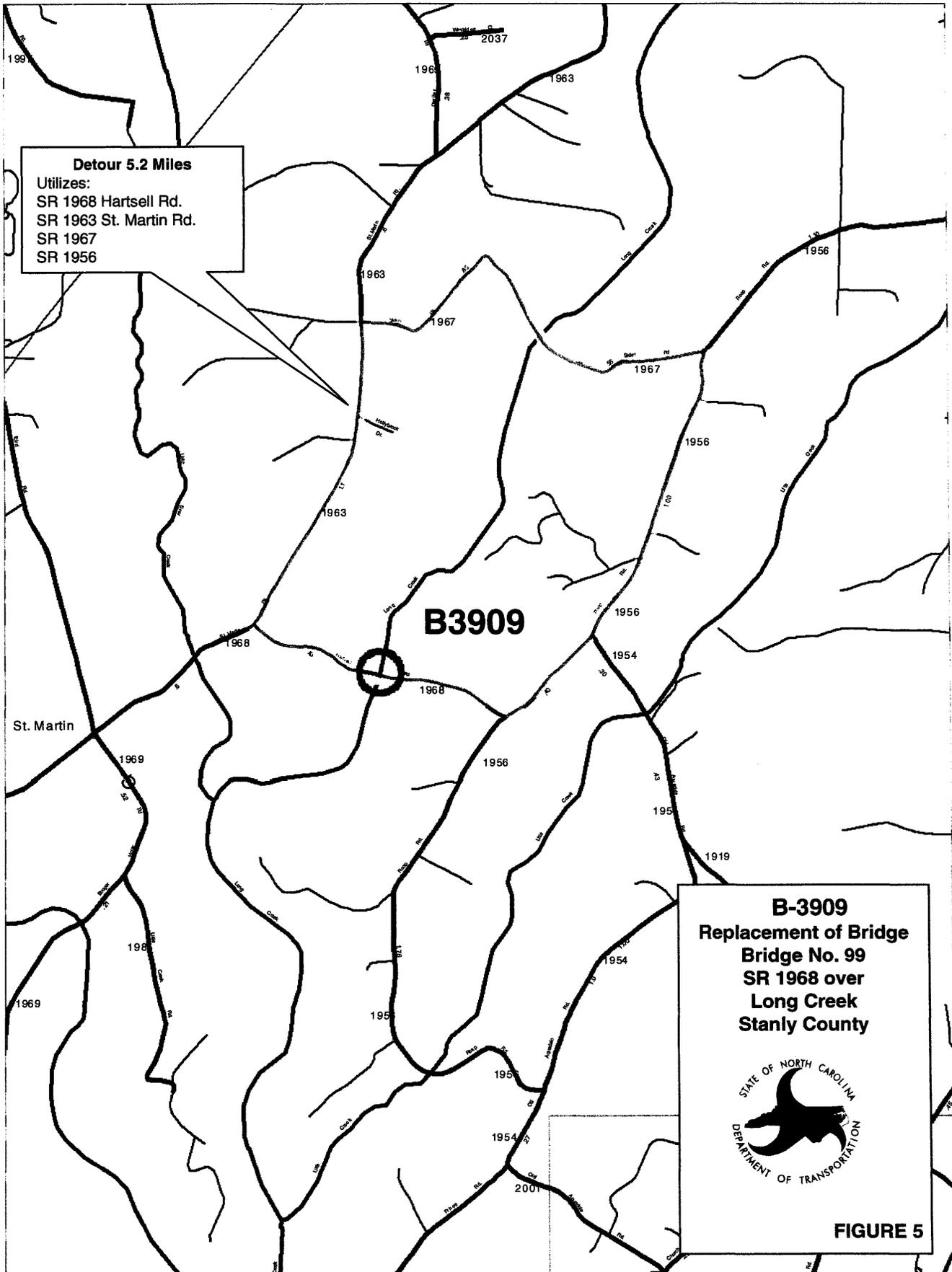
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
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PROJECT DEVELOPMENT AND  
ENVIRONMENTAL ANALYSIS BRANCH

STANLY COUNTY

BRIDGE NO. 99 ON SR 1968  
OVER LONG CREEK

B-3909

FIGURE 4



**Detour 5.2 Miles**  
 Utilizes:  
 SR 1968 Hartsell Rd.  
 SR 1963 St. Martin Rd.  
 SR 1967  
 SR 1956

**B3909**

**B-3909**  
 Replacement of Bridge  
 Bridge No. 99  
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**FIGURE 5**

Stanly County  
SR 1968  
Bridge No. 99 Over Long Creek  
Federal-Aid Project No. BRZ-1968(1)  
State Project No. 8.2681701  
T.I.P. No. B-3909

Categorical Exclusion  
US Department of Transportation  
Federal Highway Administration  
and  
NC Department of Transportation  
Division of Highways

Approved

3/28/03  
Date

Gregory J. Thorpe  
Gregory J. Thorpe, PhD, Environmental Management Director *gjt*  
Project Development & Environmental Analysis Branch  
North Carolina Department of Transportation

3/31/03  
Date

Clarence W. Coleman, Jr.  
*for* Donald J. Voelker  
Acting Division Administrator,  
Federal highway Administration

Stanly County  
SR 1968  
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Categorical Exclusion  
US Department of Transportation  
Federal Highway Administration  
and  
NC Department of Transportation  
Division of Highways

March 2003

Document Prepared by

Wilbur Smith Associates, Inc.



Iona Hauser  
Senior Environmental Planner



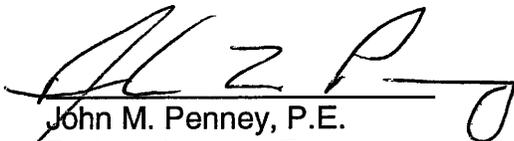
David L. Wilver, P.E.  
Project Manager



For the  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



Teresa Hart, P.E., CPM  
Consultant Unit Head



John M. Penney, P.E.  
Project Planning Engineer

# PROJECT COMMITMENTS

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### **Design Services/Roadside Environmental/Division 10 Construction**

Ensure that sediment and erosion control measures are not placed in wetlands.

*This standard will be implemented during construction to the best ability of the Department in coordination with existing standards and laws.*

### **Design Services/ Division 10 Construction**

Borrow/waste areas should avoid wetlands to the maximum extent practicable. Prior to the approval of any borrow/waste site in a wetland, the contractor must obtain all necessary permits.

*This standard will be used during design and will be implemented during construction of the project.*

### **Division 10 Construction**

Disturbance of the stream channels must be limited to only what is necessary to perform the bridge demolition/removal and construction of the replacement structure and what is permitted. Heavy equipment must be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.

*This environmental commitment will be implemented during construction of the project.*

### **Division 10 Construction**

All work shall be performed during low flow conditions

*This environmental commitment will be implemented during construction of the project.*

**Stanly County**  
**SR 1968**  
**Bridge No. 99 Over Long Creek**  
**Stanly County**  
**Federal-Aid Project No. BRZ-1968(1)**  
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**T.I.P. No. B-3909**

Bridge No. 99 is included in the Draft 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program. The location of this Bridge is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion."

**I. PURPOSE AND NEED**

NCDOT Bridge Maintenance Unit records indicated that Bridge No. 99 has a sufficiency rating of 48.5 out of a possible 100 for a new structure. The Bridge is considered functionally obsolete and structurally deficient. Replacement of this inadequate structure will result in safer and more efficient traffic operations.

**II. EXISTING CONDITIONS**

This project involves the replacement of Bridge No. 99 on SR 1968 over Long Creek in Stanly County (See Figure 1). Long Creek is in the Yadkin - Pee Dee River Basin. The area of the drainage basin for the creek at the subject location is 73.3 square miles (18984.6 hectares).

Existing Bridge No.99 consists of four spans of approximately 20.6 feet each with a total length of 82.5 feet (25.1 meters [m] ). The bed to crown height is 7.7 feet (2.3 meters [m] ) and the normal depth of flow is 2.1 feet (0.6 meters [m]). Materials consist of timber deck on steel I-Beams, concrete piers and concrete abutments. There is one 10 foot lane and a total of an 11.3 feet (3.4 meters [m]) clear roadway width. The existing bridge is in a horizontal tangent and is skewed 90 degrees to the roadway. Vertical grade on the bridge slopes slightly from west to east. The grade of the west approach falls toward the bridge with a sag vertical located on the eastern approach approximately 20 feet (6.1 m) from the end of the bridge. Both approaches are in a horizontal curve with fair sight distances.

There are no utilities attached to the bridge. An overhead power line runs parallel to the downstream side of the bridge. There were no structures or utilities observed in the floodplain except those mentioned above. According to the NCDOT Bridge Maintenance supervisor the bridge is classified as a low water bridge. The bridge and approaches frequently flood. Due to the remote location of the bridge, the frequency of overtopping could not be verified. There was minor debris on bent #1. There was no scour observed at any of the bents. Bridge scour information for the existing bridge is not available, as it has not been assessed due to insufficient substructure data. The channel banks appear to be stable with trees and small bushes.

The 2001 average daily traffic volume is 600 vehicles per day (vpd). The projected traffic volume is expected to increase to 1000 vpd by the design year 2025. No school buses currently use this bridge.

No accidents were reported in the vicinity of the bridge during the period from January 1, 1997 to December 31, 1999.

### **III. ALTERNATIVES**

#### **A. Project Description**

The recommended bridge length is based on a preliminary hydraulic analysis in conjunction with a field reconnaissance of the site. The proposed replacement structure is a bridge approximately 110 feet (33.5 m) long. Since overtopping of the road occurs during the 100-year storm, raising the roadway grade over the existing elevation will likely increase the elevation of the existing 100-year storm. In order to eliminate this increase in backwater, a longer bridge may be required. Minimum grade on the deck of the bridge will be three tenths (0.3) of a percent. The length of the proposed bridge and the recommended roadway elevation may be adjusted (increased or decreased) to accommodate peak flow as determined in the final hydrologic study and hydraulic design.

Stanly County is a participant in the Federal Flood Insurance Program. The bridge is within an Approximate Study Area. The new structure will be designed such that the elevation upstream of the roadway is not encroached upon the existing 100-year storm. The proposed replacement for Bridge No. 99 will be a structure similar in waterway opening size, therefore, it is not anticipated that it will have any significant adverse impact on the existing floodplain and floodway.

#### **B. Build Alternatives (Figure 2)**

The alternative for replacing Bridge No. 99 is described below.

**Alternative 3 (Preferred)** includes replacement of the existing 82.5 ft (25.1 m) single lane, low water bridge with a new two-lane structure at the existing location (See Figure 2). The proposed structure will consist of two 10 foot travel lanes and two 3 foot shoulders for a total clear roadway width of 26 feet (7.9 m). The new structure will be approximately 110 ft (33.5 m) in length and 29 ft (8.8 m) wide. The approach work will extend from approximately 310 ft (95 m) west to approximately 80 ft (24 m) east of the existing structure. Approach work includes widening traffic lanes, minor realignment, and grade alterations. The total project length is approximately 500 ft (152 m). Traffic will be maintained with an off-site detour on existing roads. The recommended detour is approximately five (5) miles (8.1 kilometers (km)) long (See Figure 5). The detoured traffic will be routed from SR 1968 to SR 1963 to SR 1967 to SR 1956 and back to 1968 or conversely. NCDOT Division 10 staff and the Stanly County Emergency Services Director have reviewed and concurred with the recommended off-site detour.

### **C. Alternatives Eliminated From Further Study**

**Alternative 1** includes replacement of the existing 82.5 foot (ft) [25.1 meter (m)] single lane, low water bridge with a new two-lane structure at the existing location. The new structure will be approximately 110 ft (34 m) in length. The approach work will extend from approximately 310 ft (95 m) west to approximately 90 ft (27 m) east of the existing structure. Traffic will be maintained with a temporary on-site detour located approximately 30 ft (9 m) downstream (south) of the existing structure. Approach work for the temporary detour will extend from approximately 380 ft (116 m) west to 335 ft (102 m) east of the approximately 90 ft (27 m) temporary structure. Approach work includes widening traffic lanes, minor realignment, and grade alterations. The total project length including the temporary detour is approximately 805 ft (245 m).

**Alternative 2** includes replacement of the existing 82.5 ft (25.1 m) single lane, low water bridge with a new two-lane structure located approximately 25 ft (8 m) downstream (south) of the existing structure. The new structure will be approximately 115 ft (35 m) in length. The approach work will extend from approximately 390 ft (119 m) west to approximately 340 ft (104 m) east of the existing structure. Approach work includes widening traffic lanes, minor realignment, and grade alterations. Traffic will be maintained on the existing structure during construction. The total project length is approximately 845 ft (258 m).

**No Action Alternate** The “do-nothing” alternative would eventually necessitate removal of the bridge effectively removing SR 1968 from traffic service. Investigation of the existing structure by the Bridge Maintenance Unit indicates the rehabilitation of the old bridge is not feasible due to its age and deteriorated condition.

#### D. Preferred Alternative

Alternate 3 is the preferred alternative. It proposes to replace the existing structure in place with a new bridge. Alternate 3 was selected because of fewer impacts to streams, a lower cost detour and lower construction costs. NCDOT Division 10 concurs with the preferred Alternative

#### IV. ESTIMATED COST

Table 1: Estimated Cost

|                                | Alternate 1 | Alternate 2 | Alternate 3<br>(Preferred) |
|--------------------------------|-------------|-------------|----------------------------|
| Structure Removal (Existing)   | \$20,488    | \$20,488    | \$20,488                   |
| Structure (Proposed)           | \$182,000   | \$187,200   | \$187,200                  |
| Detour and Approaches          | \$110,070   | \$5,700     | \$0                        |
| Roadway Approaches             | \$323,870   | \$266,280   | \$184,580                  |
| Miscellaneous and Mobilization | \$208,572   | \$153,332   | \$114,732                  |
| Engineering and Contingencies  | \$130,000   | \$117,000   | \$93,000                   |
| ROW/Const. Easement/Utilities  | \$51,100    | \$37,200    | \$31,800                   |
| Total                          | \$1,026,100 | \$787,200   | \$631,800                  |

#### V. NATURAL RESOURCES

##### A. Methodology

The purpose of this study is to provide an evaluation of natural resources in the project study area. Specifically, the tasks performed for this study include: 1) a delineation of jurisdictional wetlands and/or surface waters and preparation of a map depicting the jurisdictional areas based on Global Positioning System (GPS) data, 2) an assessment of natural resource features within the project study area including descriptions of vegetation, wildlife, protected species, streams, wetlands, and water quality; 3) evaluation of probable impacts resulting from construction and alternatives; and 4) a preliminary determination of permit needs.

The project study area is located on SR 1968 over Long Creek in Stanly County, North Carolina. The bridge is located approximately four tenths (0.4) of a mile (0.6 km) east of the intersection SR 1963 and SR 1968. The project study area comprises an area approximately 2000 ft (610 m) in length and approximately 400 ft (122 m) in width. The project study area is rural in nature and the surrounding landscape is dominated by a mixture of forested natural communities and agricultural

land. A US Fish and Wildlife Service (FWS) conservation easement is located adjacent to the project study area.

Materials and research data in support of this investigation have been derived from a number of sources including applicable United States Geological Survey (USGS) 7.5-minute quadrangle topographic mapping Frog Pond, NC (USGS 1981), FWS National Wetlands Inventory mapping, the *Soil Survey of Stanly County, North Carolina* United States Department of Agriculture (USDA 1989) as prepared by the Natural Resources Conservation Service (NRCS), and recent aerial photography (scale 1:1200) furnished by Wilbur Smith Associates.

Jurisdictional wetlands were identified using the three parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Jurisdictional surface waters (*i.e.*, streams) were delineated pursuant to current COE and North Carolina Division of Water Quality (DWQ) protocol. All jurisdictional areas were mapped using Trimble™ GPS units and the collected data was differentially corrected and plotted in order to produce working maps and site plans (Figure 2).

Water quality information for area streams and tributaries was obtained from the *Yadkin-Pee Dee Basinwide North Carolina Department of Environment and Natural Resources (DENR) Water Quality Management Plan* (1998), and the North Carolina Division of Water Quality (DWQ). Quantitative sampling was not undertaken to support existing data. Benthic macroinvertebrates were collected using current DWQ protocol. Fish populations are typically sampled using a Smith-Root Inc., back-mounted electro-shocker. Fisheries sampling is conducted by ESI under North Carolina Wildlife Resources Commission (NCWRC) Permit # 0616.

Additional resources utilized for this natural systems investigation include the most recent list (March 7, 2002) of threatened and endangered species by county published by FWS. Records kept by the North Carolina Natural Heritage Program (NHP) were also reviewed on June 4, 2001 and periodically updated to determine if there are any documented cases of listed species occurring within the project study area or within a three (3) mile (mi) [4.8 kilometer (km)] radius of the project study area (most recent update February 25, 2002). When appropriate, natural community descriptions were based on a classification system utilized by NHP and developed by Schafale and Weakley (1990). Community classifications were modified to better reflect field observations when community characteristics did not fit a Schafale and Weakley community type. Vascular plant names generally follow nomenclature found in Radford *et al.* (1968). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through

field observations, evaluation of available habitat, and supportive documentation (Martof *et al.* 1980, Webster *et al.* 1985, Menhinick 1991, Hamel 1992, Rohde *et al.* 1994, Palmer and Braswell 1995).

## **B. Physiography and Soils**

The project study area is located in the Piedmont physiographic province. The topography in the project study area is generally characterized as nearly level to gently sloping. Elevations in the project study area range from 340 ft to 450 ft (104 m to 137 m) above mean sea level (USGS 1981).

The project study area crosses four soil mapping units. Two nonhydric soil mapping units are present and include the Badin channery silt loam (*Typic Hapludults*) and Goldston very channery silt loam (*Typic Dystrochrepts*). Also included in the project study area are two nonhydric soil mapping units that may contain inclusions of hydric soils, the Chewacla silt loam (*Fluvaquentic Dystrochrepts*) and Oakboro silt loam (*Fluvaquentic Dystrochrepts*). No hydric soils are mapped as occurring in the project study area.

## **C. WATER RESOURCES**

### **1. Waters Impacted**

The project study area is located within sub-basin 03-07-13 of the Yadkin-Pee Dee River Basin (DENR 1998) and is part of USGS hydrologic unit 03040105 (USGS 1974). One stream channel is located in the project study area, Long Creek. Long Creek originates in extreme southern Rowan County approximately two tenths (0.2) of a mile (0.3 km) west of US 52 at the Rowan–Cabarrus County boundary and flows through the project study area to its confluence with Rocky River. Long Creek, from its source to Rocky River, has been assigned Stream Index Number (SIN) 13-17-31 by the DWQ (DENR 2002a).

### **2. Water Resource Characteristics**

A Best Usage Classification is assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. Long Creek has been assigned a Best Usage Classification of **C** (DEM 1993, DENR 2002a). The **C** designation indicates freshwaters that support aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation is any activity involving human body contact with water on an infrequent or incidental basis.

No Outstanding Resource Waters (**ORW**), High Quality Waters (**HQW**), **WS-I**, or **WS-II** Waters occur within three (3) miles (4.8 km) upstream or downstream of

the project study area (DEM 1993, DENR 2002a). Long Creek is not designated as a North Carolina Natural and Scenic River, nor as a national Wild and Scenic River.

The National Pollutant Discharge Elimination System (NPDES) regulates permits for projects involving the construction, alteration, and/or operation of any sewer system, treatment works or disposal system and certain stormwater runoff, which would result in a discharge into surface waters (DPA 1991). There are two permitted point source dischargers located on Long Creek (DENR 2002b). Permitted dischargers are listed in Table 2 below.

Table 2. NPDES Permitted Discharges

| Permit    | Facility   | Receiving Stream | Discharge (MGD)* | Distance from Study Area   |
|-----------|--|------------------|------------------|----------------------------|
| NC0024244 | City of Albemarle, Long Creek Wastewater Treatment Plant | Long Creek       | 16               | 6.1 mi (9.8 km) upstream   |
| NC0043532 | Town of Oakboro, Wastewater Treatment Plant              | Long Creek       | 0.5              | 2.5 mi (4.0 km) downstream |

\*Million Gallons Per Day

The Benthic Macroinvertebrate Ambient Network (BMAN) addresses long-term trends in water quality at monitoring sites by sampling for selected benthic macroinvertebrates (DEM 1989). This program has been replaced by the benthic macroinvertebrate monitoring program associated with the *Yadkin-Pee Dee River Basinwide Water Quality Management Plan* (DENR 1998). DWQ assigns bioclassifications to streams and portions of streams based on species richness and overall biomass, which are considered reflections of water quality. There are three benthic monitoring stations within three (3) miles of the project study area located on Long Creek. The closest station is located approximately one (1) mile (1.6 km) upstream of the project study area at the intersection of SR 1967 and Long Creek. This monitoring station was last sampled in 1989 and received a bioclassification of Good-Fair (DENR 1998, DENR 2002c). The second monitoring station is located approximately two (2) miles (3.2 km) upstream of the project study area where SR 1954 crosses Long Creek. This monitoring station was last sampled in 1989 and received a bioclassification of Fair (DENR 1998, DENR 2002c). The third station is located approximately three (3) mile (4.8 km) downstream of the project study area at the confluence of Long Creek and Little Creek. This monitoring station was sampled repeatedly from 1983 to 1996. The bioclassification remained Fair from 1983 through 1989 and was upgraded to Good-Fair in 1996 when this station was last sampled (DENR 1998, DENR 2002c).

Another measure of water quality being used by the DWQ is the North Carolina Index of Biotic Integrity (NCIBI), which assesses biological integrity using the

structure and health of the fish community. Long Creek has not been sampled to determine a NCIBI score as of the most recent Water Quality Management Plan (DENR 1998).

### **3. Potential Impacts to Water Resources**

Long Creek is not designated as a Trout Water or an Anadromous Fish Spawning Area. There are no federally Threatened and Endangered species documented within three (3) miles (4.8 km) upstream or downstream of the project study area. It is ESI's opinion that this project can be classified as a Case 3 by the BMPs for Bridge Demolition and Removal (NCDOT 1999). Case 3 bridge replacements have no special restrictions beyond those outlined in the BMPs for Protection of Surface Waters and BMPs for Bridge Demolition and Removal (NCDOT 1999). However, this project may be elevated to a Case 2 at the discretion of the NCWRC in the event that a moratorium is established to protect sunfish (*Lepomis* spp.). Case 2 allows no work at all in the water during the moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas (NCDOT 1999). If a sunfish moratorium is established in-stream work would likely be banned during the period of March 15 through June 30, inclusive.

### **4. Impacts Related to Bridge Demolition and Removal**

Section 402-2 of NCDOT's Standard Specifications for Roads and Structures is labeled **Removal of Existing Structure**. This section outlines restrictions and Best Management Practices for Bridge Demolition and Removal (BMP-BDRs), as well as guidelines for calculating maximum potential fill in the creek resulting from demolition.

The steel and timber deck components are slated for removal in a manner which will avoid dropping any debris into Long Creek. However, due to the presence of concrete in the substructure of the bridge, the potential exists for up to approximately 25 cubic yards (19 cubic meters) of temporary fill being excavated from Long Creek as a result of demolition activities.

During Bridge Removal Procedures, NCDOT's BMP's will be utilized, including Erosion Control Measures. Therefore it is anticipated that removing the existing bents will result in no impacts to surrounding waters.

Short-term impacts to water quality, such as sedimentation and turbidity, may result from construction-related activities. BMPs can minimize impacts during construction, including implementation of stringent erosion and sedimentation control measures, and avoidance of using wetlands as staging areas. Additional

measures, which can be taken to minimize water quality impacts include avoiding the placement of live concrete directly into the stream channel and preventing heavy equipment operations from being conducted in the stream channel. If in-stream work is necessary the use of a turbidity curtain is recommended to minimize impacts to water resources downstream of the project study area.

Other impacts to water quality, such as changes in water temperature as a result of increased exposure to sunlight due to the removal of stream-side vegetation or increased shade due to the construction of the bridges, and changes in stormwater flows due to changes in the amount of impervious surface adjacent to the stream channels, can be anticipated as a result of this project. However, due to the limited amount of overall change in the surrounding areas, impacts are expected to be temporary in nature.

No adverse long-term impacts to water resources are expected to result from the alternatives being considered. New location alternatives will result in limited clearing of some canopy along the stream bank, resulting in the potential for localized increase in sunlight and stream temperature. All alternatives allow for continuation of present stream flow within the existing channel, thereby protecting stream integrity.

## **D. BIOTIC RESOURCES**

### **1. Existing Vegetation Patterns**

Terrestrial distribution and composition of vegetation communities throughout the project study area reflect landscape-level variations in topography, soils, hydrology, and past and present land use practices. When appropriate, the vegetation community names have been adopted and modified from the NHP classification system (Schafale and Weakley 1990) and the descriptions written to reflect local variations within the project study area. Two natural communities were identified within the project study area: Piedmont/Low Mountain Alluvial Forest and Mesic Mixed Hardwood Forest. In addition to these natural communities, there are also areas of pasture and maintained/disturbed lands.

Piedmont/Low Mountain Alluvial Forest – This community is located in the Long Creek floodplain throughout the project study area. Areas within this community that have been recently disturbed have a much denser understory and a higher occurrence of invasive species such as Chinese privet (*Ligustrum sinense*), blackberry (*Rubus argutus*), and Japanese honeysuckle (*Lonicera japonica*). The canopy is dominated by hardwoods species such as green ash (*Fraxinus pennsylvanica*), slippery elm (*Ulmus rubra*), box elder (*Acer negundo*), and shagbark hickory (*Carya ovata*). The understory is composed primarily of

individuals of canopy species but also includes ironwood (*Carpinus caroliniana*), American basswood (*Tilia heterophylla*), hackberry (*Celtis occidentalis*), and sugar maple (*Acer saccharum*). Herbaceous species observed included ebony spleenwort (*Asplenium platyneuron*), Christmas fern (*Polystichum acrostichoides*), tear thumb (*Polygonum* spp.), and poison ivy (*Toxicodendron radicans*).

Mesic Mixed Hardwood Forest – This community is the dominant community in the project study area. Areas occupied by this community include the forested slopes adjacent to the Long Creek floodplain and other upland areas. The canopy is dominated by mesophytic trees such as American beech (*Fagus grandifolia*), northern red oak (*Quercus rubra*), and sugar maple. The understory and shrub layer consists of individuals of canopy species as well as eastern red cedar (*Juniperus virginiana*), white oak (*Quercus alba*), willow oak (*Quercus phellos*), winged elm (*Ulmus alata*), and tree-of-heaven (*Ailanthus altissima*). The herb layer in these forests is typically diverse, however, within the project study area the herb layer is sparse due to a closed canopy. Herbaceous vegetation in this community includes Christmas fern, crane-fly orchid (*Tipularia discolor*), Japanese honeysuckle, and muscadine grape (*Vitis rotundifolia*).

Pasture land – Several areas of pasture that may or may not be currently active are located on the east and west side of SR 1968. This pasture area is currently vegetated with various early successional grasses and other herbaceous plants including broomsedge (*Andropogon virginicus*), plantain (*Plantago* sp.), dog fennel (*Eupatorium capillifolium*), and golden rod (*Solidago* spp.)

Maintained/Disturbed Land – The maintained/disturbed land within the project study area include such areas as roadsides, residential areas, and dirt roads/driveways and are dominated by a mixture of ornamental and early successional species. Typical species observed in this community are fescue (*Festuca* sp.), wax myrtle (*Myrica cerifera*), broom sedge, dog fennel, and golden rod.

## **2. Potential Impacts to Vegetation Communities**

Potential impacts to vegetation communities are estimated based on the area of each vegetation community present within the proposed construction limits. A summary of potential vegetation community impacts is presented in Table 3.

Table 3. Potential Impacts to Vegetation Communities.

| VEGETATION COMMUNITY                         | Potential Impacts Acres (hectares) |   |               |   |                           |   |
|--|------------------------------------|---|---------------|---|---------------------------|---|
|  | Alternative 1                      |   | Alternative 2 |   | Alternative 3 (Preferred) |   |
|  | Impacts                            | Temporary Construction Impacts <sup>a</sup> | Impacts       | Temporary Construction Impacts <sup>a</sup> | Impacts                   | Temporary Construction Impacts <sup>a</sup> |
| <b>Piedmont/Low Mountain Alluvial Forest</b> | 0.04 (0.02)                        | 0.13 (0.05)                                 | 0.03 (0.01)   | 0.09 (0.04)                                 | 0.04 (0.02)               | 0.06 (0.02)                                 |
| <b>Mesic Mixed Hardwood Forest</b>           | 0.07 (0.03)                        | 0.24 (0.10)                                 | 0.06 (0.02)   | 0.24 (0.10)                                 | 0.12 (0.05)               | 0.11 (0.04)                                 |
| <b>Pasture Land</b>                          | 0                                  | 0.03 (0.01)                                 | 0.02 (0.01)   | 0.02 (0.01)                                 | <0.01 (<0.01)             | 0.02 (0.01)                                 |
| <b>Maintained/disturbed Land</b>             | 0.44 (0.18)                        | 0.42 (0.17)                                 | 0.66 (0.27)   | 0.20 (0.08)                                 | 0.31 (0.13)               | 0.15 (0.06)                                 |
| <b>Total:</b>                                | 0.55 (0.23)                        | 0.82 (0.33)                                 | 0.77 (0.31)   | 0.55 (0.23)                                 | 0.47 (0.20)               | 0.34 (0.13)                                 |
| <b>Total For Alternative:</b>                | 1.37 (0.56)                        |   | 1.32 (0.54)   |   | 0.81 (0.33)               |   |

<sup>a</sup> Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure.

<sup>b</sup> Totals for vegetation communities do not include the open water area attributed to Long Creek or any impervious road surfaces.

Potential impacts associated with a bridge replacement are generally limited to narrow strips adjacent to the existing bridge structure and roadway approach segments. All three alternatives minimize potential impacts to forested communities by concentrating impacts in maintained/disturbed land. Alternative 3 has the least amount of potential permanent impacts and the least amount of temporary impacts related to construction activities. This is primarily due to the fact that Alternative 3 utilizes an off-site detour. Of the alternatives that utilize an on-site detour Alternative 1 has the least amount of impacts to natural communities. In order to minimize impacts to natural communities Alternative 3 is preferred. If an off-site detour is not practical, Alternative 1 would be the preferred alternative.

### 3. Wildlife

The project study area was visually surveyed for signs of terrestrial and aquatic wildlife. Little evidence of wildlife was observed during the field effort. Forests along streams such as Long Creek provide cover and food and function as a migration corridor linking areas of more optimal habitats. Other expected wildlife species are those adapted to ecotones between the maintained roadsides and adjacent natural forest.

### **a. Terrestrial**

Several bird species were observed within or adjacent to the project study area. Bird species observed included the red-shouldered hawk (*Buteo lineatus*), mourning dove (*Zenaida macroura*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), Carolina chickadee (*Parus carolinensis*), common yellowthroat (*Geothlypis trichas*), tufted titmouse (*Parus bicolor*), northern cardinal (*Cardinalis cardinalis*), eastern towhee (*Pipilo erythrophthalmus*), field sparrow (*Spizella pusilla*), and orchard oriole (*Icterus spurius*). Other avian species expected to occur within the project study area include belted kingfisher (*Megaceryle alcyon*), downy woodpecker (*Picoides pubescens*), white-breasted nuthatch (*Sitta carolinensis*), ruby-crowned kinglet (*Regulus calendula*), eastern bluebird (*Sialia sialis*), white-throated sparrow (*Zonotrichia albicollis*), and common grackle (*Quiscalus quiscula*).

No mammals or mammalian signs were observed within the project study area. Species expected to be found in and around the project study area include raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), red fox (*Vulpes vulpes*), muskrat (*Ondatra zibethicus*), gray squirrel (*Sciurus carolinensis*), white-tailed deer (*Odocoileus virginiana*), and eastern cottontail (*Sylvilagus floridanus*).

No terrestrial reptiles were observed within the project study area. Species expected to occur within the project study area include eastern box turtle (*Terrapene carolina*), eastern garter snake (*Thamnophis sirtalis*), ring neck snake (*Diadophis punctatus*), and black rat snake (*Elaphe obsoleta*).

Terrestrial amphibians documented within the project study area included the northern cricket frog (*Acris crepitans*). Other species expected to occur within the project study area include white-spotted slimy salamander (*Plethodon cylindraceus*), Fowler's toad (*Bufo woodhousei*), marbled salamander (*Ambystoma opacum*), and spring peeper (*Pseudacris crucifer*).

### **b. Aquatic**

The aquatic habitat located within the project study area is limited to Long Creek. Limited kick-netting, seining, dip-netting, electro-shocking and visual observation of stream banks and channel within the project study area were conducted in Long Creek to document the resident aquatic wildlife populations.

Benthic invertebrate organisms collected within Long Creek were identified to at least Order, Family and species, if possible (McCafferty 1998), and include Asiatic clam (*Corbicula fluminea*), dragonflies and damselflies (Odonata: Gomphidae, Coenagrionidae), fishflies (Megaloptera: Corydalidae, Sialidae), caddisflies (Trichoptera: Hydropsychidae, Hydroptilidae), mayflies (Ephemeroptera: Heptageniidae, Caenidae, Baetidae), beetles (Coleoptera: Psephenidae, Dytiscidae, Elmidae, Haliplidae), flies (Diptera: Chironomidae, Simuliidae), water strider (Gerridae), worms (Annelida: Oligochaeta, Hirudinea), and snails (Gastropoda).

Sein-netting, dip netting, and electro-shocking were employed to sample the resident fish populations. Fish collected were identified to species and included eastern mosquito fish (*Gambusia holbrooki*), bluehead chub (*Nocomis leptcephalus*), satinfoin shiner (*Cyprinella analostana*), fantail darter (*Etheostoma flabellare*), and Piedmont darter (*Percina crassa*). Based upon the habitat type and previous experience in this part of the Piedmont, the following additional fish species are likely to occur in Long Creek; yellow bullhead (*Ameiurus natalis*), snail bullhead (*Ameiurus brunneus*), bluegill (*Lepomis macrochirus*), redbreast sunfish (*L. auritus*), green sunfish (*L. cyanellus*), spottail shiner (*Notropis hudsonius*), and tessellated darter (*Etheostoma olmstedii*).

One aquatic reptile was observed within the project study area, northern watersnake (*Nerodia sipedon*). Other species expected to occur within the project study area include painted turtle (*Chrysemys picta*) eastern mud turtle (*Kinosternon subrubrum*), and snapping turtle (*Chelydra serpentina*).

One aquatic amphibian was observed within the project study area, bullfrog (*Rana catesbeiana*). Other species expected to occur within the project study area include southern leopard frog (*R. utricularia*) and pickerel frog (*Rana palustris*).

#### **4. Potential Impacts to Wildlife**

Due to the lack of, or limited, infringement on natural communities, the proposed bridge replacement will not result in significant loss or displacement of known animal populations. Wildlife movement corridors are not expected to be significantly altered by the proposed project. Potential down-stream impacts to aquatic habitat will be avoided by bridging Long Creek to maintain regular flow and stream integrity. In addition, temporary impacts to downstream habitat from increased sediment during construction are expected to be minimized by limiting in-stream work to an absolute minimum and use of a turbidity curtain during construction, except for the removal of the portion of the sub-structure below the

water. Best Management Practices (BMPs) for Bridge Demolition and Removal will be followed to minimize impacts due to anticipated bridge demolition. BMPs for the protection of surface should be strictly enforced to reduce impacts.

## **E. SPECIAL TOPICS**

### **1. Waters of the United States**

Surface waters within the embankments of Long Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR 328.3). The waters in Long Creek within the project study area exhibit characteristics of riverine, lower perennial, rock bottom, bedrock (R2RB1) waters (Cowardin *et al.* 1979).

Long Creek is a perennial stream with moderate flow over substrate consisting of bedrock, boulder, gravel, and sand. The channel upstream of the existing bridge on SR1968 is 50 ft (15 m) wide and an average of two (2) ft (0.6 m) deep. The geomorphic characterization of the stream section of Long Creek upstream of the existing bridge is indicative of a "D" type stream (Rosgen 1996). These stream types are braided and occur in broad valleys with alluvium and have glacial debris and depositional features. "D" channels are very wide with high bed load and bank erosion (Rosgen 1996). The portion of Long Creek, downstream from the existing bridge, has a channel width of approximately 60 ft (18 m) and average depth of two (2) ft (0.6 m). This section of Long Creek is indicative of a "G" type stream. These stream types occur in narrow valleys and are unstable, with grade control problems and high bank erosion rates. The "G" designation indicates that the stream is an entrenched "gully" with a low width/depth ratio on moderate gradients (Rosgen 1996).

Wetlands subject to review under Section 404 of the Clean Water Act (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology within 12 inches [31 centimeters (cm)] of the soil surface for a portion (12.5 percent) of the growing season (DOA 1987). Based on the three parameter approach, two (2) jurisdictional wetland areas are located within the project study area. These wetlands are small areas influenced by Long Creek. Vegetation within these areas is hydrophytic in nature and includes green ash (*Fraxinus pennsylvanica*), tear thumb, sedges (*Carex* spp.), and dulichium (*Dulichium arundinaceum*). Soils exhibit hydric characteristics (Munsell color 5Y 5/2 with 7.5YR 5/8 mottles). Hydrological indicators observed include the presence of surface water and saturation within 12 inches (31 cm) of the soil surface. These areas exhibit characteristics of a palustrine, forested, broad-leaved deciduous, saturated (PFO1B) wetland (Cowardin *et al.* 1979).

## 2. Potential Impacts to Waters of the United States

Potential impacts to wetlands and open water areas are estimated based on the amount of each jurisdictional area within the proposed construction limits. Open water areas of Long Creek (R2RB1) are included in this table, although impacts are not expected due to the use of channel-spanning structures. During bridge removal procedures, NCDOT's BMP's will be utilized, including erosion control measures; therefore it is anticipated that removing the existing bents will result in no impact to surrounding surface waters. A summary of potential jurisdictional impacts is presented in Table 4.

Table 4. Potential Impacts to Jurisdictional Wetlands and Surface Waters.

| JURISDICTIONAL AREAS                                     | Potential Wetland Impacts<br>Acres (hectares) |   |                    |   |                              |   |
|--|---|---|--------------------|---|------------------------------|---|
|  | Alternative 1                                 |   | Alternative 2      |   | Alternative 3<br>(Preferred) |   |
|  | Impacts                                       | Temporary Construction Impacts <sup>a</sup> | Impacts            | Temporary Construction Impacts <sup>a</sup> | Impacts                      | Temporary Construction Impacts <sup>a</sup> |
| PFO1B  | 0   | 0   | 0                  | 0   | 0                            | 0   |
| R2RB1<br>(Long Creek)                                    | 0.05<br>(0.02)                                | 0.16 (0.06)                                 | 0.05 (0.02)        | 0.15 (0.06)                                 | 0.05<br>(0.02)               | 0.10 (0.04)                                 |
| <b>Total:</b>  | 0.05<br>(0.02)                                | 0.16 (0.06)                                 | 0.05 (0.02)        | 0.15 (0.06)                                 | 0.05<br>(0.02)               | 0.10 (0.04)                                 |
| <b>Total Wetland Impacts for Alternative</b>             | <b>0.21 (0.08)</b>                            |   | <b>0.20 (0.08)</b> |   | <b>0.15 (0.06)</b>           |   |
| <b>Potential Stream Impacts<br/>Linear feet (meters)</b> |   |   |                    |   |                              |   |
| <b>Long Creek</b>  | 30 (9)  | 112 (34)                                    | 33 (10)            | 95 (29)                                     | 32 (10)                      | 68 (21)                                     |
| <b>Total Stream Impact For Alternative:</b>              | <b>142 (43)</b>                               |   | <b>128 (39)</b>    |   | <b>100 (31)</b>              |   |

<sup>a</sup> Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure.

All three alternatives avoid major impacts to jurisdictional wetlands in the project study area. The use of a channel spanning structure will be considered during design to avoid impacts to the stream channel. Alternative 3 has the overall least amount of permanent impacts and the least amount of temporary impacts related to construction activities. This is primarily due to the fact that Alternative 3 utilizes an off-site detour. Of the alternatives that utilize an on-site detour Alternative 1 and Alternative 2 have a similar amount of impacts to Long Creek.

### **a. Permits**

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. Nationwide Permit (NWP) #23 [33 CFR 330.5(a)(23)] has been issued by the US Army Corps of Engineers (COE) for CEs due to expected minimal impact. NCDENR Division of Water Quality has issued a General 401 Water Quality Certification for NWP #23. However, use of this permit will require written notice to DWQ. In the event that NWP #23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington COE District. Notification to the Wilmington COE office is required if this general permit is utilized. NWP #33 may be required if temporary structures, work and discharges, including cofferdams are necessary for this project and not covered within the CE.

### **3. Mitigation Evaluation**

**Avoidance** – Due to the presence of surface waters within the project study area, avoidance of all impacts is not possible. Wetland and stream impacts are previously discussed in Section V.E.1.

**Minimization** – The alternatives presented were developed in part to demonstrate minimization of stream impacts. Impacts to the stream will be minimized during demolition by removing bridge components in a manner, which will avoid dropping any components into the creek channel. Bridge demolition impacts have been previously discussed in Section V.C.3. Employing 2 to 1 slopes where practicable can further minimize wetland impacts.

**Mitigation** - Compensatory mitigation is probable probably for this project due to the nature of project impacts. However, utilization of BMPs is recommended in an effort to minimize impacts, including avoiding placing staging areas within wetlands. Temporary impacts associated with the construction activities could be mitigated by replanting disturbed areas with native species and removal of any temporary fill material within the floodplain upon project completion. Final mitigation requirements rest with the COE. Mitigation may be required for wetland impacts less than one tenth (0.1) of an acre (>0.04 ha).

## F. PROTECTED SPECIES

### 1. Federal Protected Species

Species with the federal classification of Endangered (E), Threatened (T), or officially proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Federally protected species listed with ranges that extend into Stanly County are presented in Table 5 (US Fish and Wildlife Service list dated March 7, 2002).

Table 5. Federally Protected Species.

| Common Name            | Scientific Name                 | Status         | Biological Conclusion          |
|------------------------|---------------------------------|----------------|--------------------------------|
| Bald eagle             | <i>Haliaeetus leucocephalus</i> | T <sup>a</sup> | No Effect                      |
| Schweinitz's sunflower | <i>Helianthus schweinitzii</i>  | E              | Not Likely to Adversely Effect |

<sup>a</sup> Officially proposed for delisting

**Bald Eagle** - The bald eagle is a large raptor with a wingspan greater than six (6) ft (2 m). Adult bald eagles are dark brown with white head and tail. Immature eagles are brown with whitish mottling on their tail, belly, and wing linings. Bald eagles typically feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980).

Bald eagles typically nest in tall, living trees in a conspicuous location near water and forage over large bodies of water with adjacent trees available for perching (Hamel 1992). Preventing disturbance activities within a primary zone extending 750 to 1500 ft (229 to 457 m) outward from a nest tree is considered critical for maintaining acceptable conditions for eagles (FWS 1987). FWS recommends avoiding any disturbance activities, including construction and tree-cutting, within this primary zone. Within a secondary zone extending from the primary zone boundary out to a distance of one (1) mi (1.6 km) from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding significant land-clearing activities within 1500 ft (457 m) of roosting sites.

#### **Biological Conclusion: No Effect**

No large lakes or other large bodies of water, providing easy access to food, or snags for nesting are found within the project study area. Since no suitable nesting or foraging habitat for the bald eagle exists in the project

study area, this project is not expected to affect the bald eagle. A review of North Carolina Natural Heritage Program (NHP) records revealed no documentation of this species occurring within three (3) mi (4.8 km) of the project study area.

**Schweinitz's Sunflower** - Schweinitz's sunflower is an erect, unbranched, rhizomatous, perennial herb that grows to approximately six (6) ft (2 m) in height. The stem may be purple, usually pubescent, but sometimes nearly smooth. Leaves are sessile, opposite on the lower stem but alternate above; in shape they are lanceolate and average five (5) to ten (10) times as long as wide. The leaves are rather thick and stiff, with a few small serrations. The upper leaf surface is rough and the lower surface is usually pubescent with soft white hairs. Schweinitz's sunflower blooms from late August to frost; the yellow flower heads are about six tenth (0.6) of an inch (1.5 cm) in diameter. The current range of this species is within 60 mi (97 km) of Charlotte, North Carolina, occurring on upland interstream flats or gentle slopes, in soils that are thin or clayey in texture. The species needs open areas protected from shade or excessive competition, reminiscent of Piedmont prairies. Disturbances such as fire maintenance or regular mowing help sustain preferred habitat (FWS 1994).

**Biological Conclusion: Not Likely to Adversely Effect**

Potentially suitable habitat for Schweinitz's sunflower was identified within the project study area, along roadside shoulders, and other open areas. A systematic survey of all potentially suitable habitat was conducted by ESI biologists in July 2001. Since this survey was conducted prior to the flowering season for Schweinitz's sunflower, search efforts focused on the identification all members of the genus *Helianthus* (if present) using vegetative characteristics in the field. During this survey no members of the genus *Helianthus* were observed. Therefore, construction of the proposed project should not affect Schweinitz's sunflower. A review of NHP records revealed no documentation of this species occurring within three (3) mi (4.8 km) of the project study area.

**2. Federal species of concern**

The March 7, 2002 FWS list also includes a category of species designated as "Federal species of concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. However, these are listed since they may attain federal protected status in the future. The presence of potential suitable habitat (Amoroso 1999, LeGrand *et al.* 2001) within the project study area has been evaluated for the FSC species listed for Stanly County (Table 6).

Table 6. Federal Species of Concern (FSC).

| Common Name            | Scientific Name                 | Potential Habitat | State Status <sup>a</sup> |
|------------------------|---------------------------------|-------------------|---------------------------|
| Carolina darter        | <i>Etheostoma collis collis</i> | Y                 | SC                        |
| Brook floater          | <i>Alasmidonta varicosa</i>     | Y                 | T (PE)                    |
| Carolina creekshell    | <i>Villosa vaughaniana</i>      | Y                 | SC (PE)                   |
| Georgia aster          | <i>Aster georgianus</i>         | Y                 | T                         |
| Butternut              | <i>Juglans cinerea</i>          | Y                 | W5                        |
| Heller's trefoil       | <i>Lotus helleri</i>            | Y                 | C                         |
| Savanna cowbane        | <i>Oxypolis ternata</i>         | N                 | W1                        |
| Yadkin River goldenrod | <i>Solidago plumosa</i>         | Y                 | E                         |
| Riverbank vervain      | <i>Verbena riparia</i>          | N                 | C                         |

<sup>a</sup> E-Endangered, T-Threatened, SC- Special Concern, C -Candidate, W - Watch List, P – Proposed, SR – Significantly Rare.

NHP records do not indicate any documented occurrences of FSC species within three (3) miles (4.8 km) of the project study area.

### 3. State Protected Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), or Special Concern (SC), receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*).

NHP records do not indicate any documented occurrences of state protected species within three (3) miles (4.8 km) of the project study area.

## VI. CULTURAL RESOURCES

### A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historical Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires federal agencies to take into account the effect of their understanding (federally funded, licensed, or permitted projects) on properties listed in or eligible for the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such understanding. The project was coordinated with the North

Carolina State Historic Preservation Office (HPO) in accordance with the Advisory Council's regulations and FHWA procedures.

### **B. Historic Architecture**

A field survey of the Area of Potential Effects (APE) was conducted on March 28, 2002. All structures within the APE were photographed and submitted for review. In a meeting between NCDOT and the HPO on April 16, 2002 a concurrence form was signed that states that no eligible properties are within the APE. Compliance with Section 106 is complete and a copy of the concurrence form is found in the Appendix.

### **C. Archaeology**

On May 23-24, 2002 archaeologist with the Project Development and Environment Analysis Branch of the North Carolina Department of Transportation conducted an archaeological survey of the site. The survey consisted of background research and field survey of the APE. Background research did not identify any previously recorded archaeological sites within a half mile (0.8 kilometers) of the proposed project, and no archaeological projects have been conducted in the vicinity. Examination of historic maps identified no early 20<sup>th</sup> Century structures within the APE.

The field survey consisted of excavating shovel tests on 100 foot (30 meter) grid within the APE but outside the existing ROW. Two shovel tests in the southwestern quadrant of the APE identified an archaeological site, 31ST184. Site 31ST184 is a prehistoric lithic scatter that produced nine non-diagnostic artifacts. The site has been disturbed by plowing, land clearing, erosion and modern dumping, has little research potential and is therefore recommended ineligible for the National Register of Historic Places (NRHP). A memorandum from the HPO dated September 16, 2002 concur with these findings and is found in the appendix.

The proposed project will not impact any archaeological sites that are eligible for the NRHP.

## **VII. ENVIRONMENTAL EFFECTS**

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

The project is a Federal "Categorical Exclusion" due to its limited scope and lack of significant environmental consequences.

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

No Adverse impact on families or communities is anticipates. Right of way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is anticipated. The project is not expected to adversely affect social, economic, or religious opportunities in the area. There are no publicly owned recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project.

No North Carolina Geodetic Survey control monuments will be impacted during construction of this project.

The Farmland Protection Policy Act requires all federal agencies or the representatives to consider potential impacts to prime and important farmland soils be all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). Since there are no prime or important farmlands in the immediate vicinity of the proposed bridge the Farmland Protection Policy does not apply.

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

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

The traffic volumes will not increase or decrease because of this project. There are no receptors located in the immediate project area. The project’s impact on noise and air quality will not be significant.

Any noise level increased during construction will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise (23 CFR Part 722) and for air quality (1990 CAAA and NEPA) and no additional reports are required.

As 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 hazardous waste sites in the project area.

Stanly County is a participant in the Federal Flood Insurance Program. The bridge is within an Approximate Study Area. The new structures should be designed to match or lower the existing 100-year storm elevation upstream of the roadway. Since the proposed replacement for Bridge No. 99 would be a structure similar in waterway opening size, it is not anticipated that it will have any significant adverse impact on the existing floodplain and floodway.

On the basis of the above discussion, it is concluded that no significant adverse environmental effects will result from implementation of the project.

#### **VIII. PUBLIC INVOLVEMENT**

Efforts were taken early in the planning process to contact local officials to involve them in the project development with a scoping letter. Additionally, 12 newsletters detailing the alternatives considered were mailed to citizens in the vicinity of the project. Newsletters were also mailed to local officials. No comments were received in response to the newsletter mailings.

#### **IX. AGENCY COMMENTS**

The US Army Corps of Engineers provided jurisdictional wetland determination. US Fish & Wildlife Services provided comments. The North Carolina Department of Crime Control and Public Safety responded to the scoping letter locating B-3909 in the Special Flood Hazard Area – Zone A (100-Year Floodplain). NCDENR Division of Water Quality provided comments, as did the State Historic Preservation office.

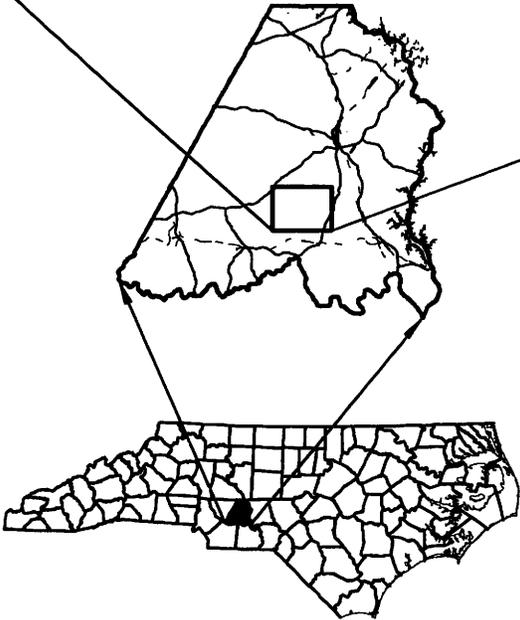
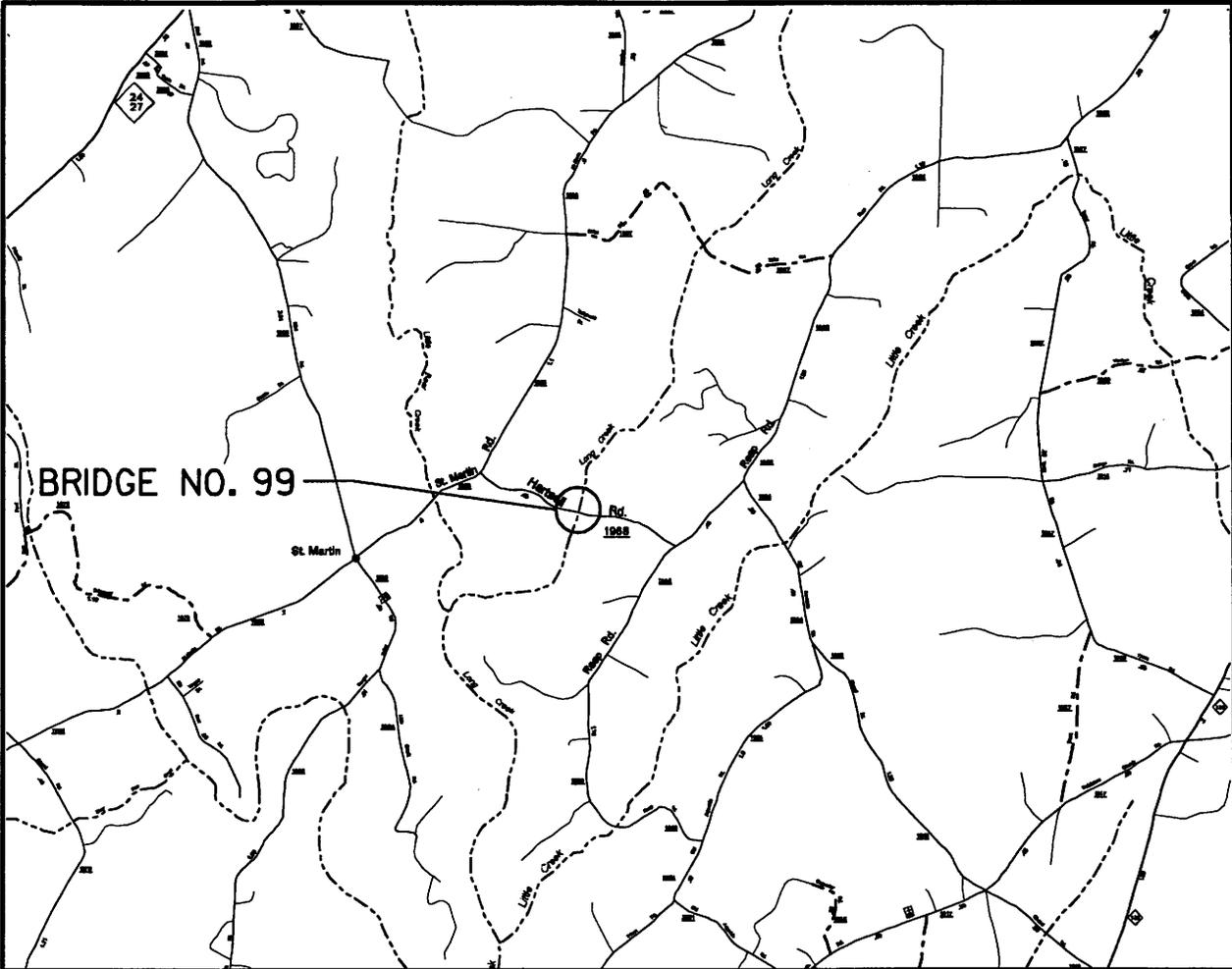
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## **FIGURES**



STANLY COUNTY



|   |   |
|---|---|
|  | NORTH CAROLINA DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>PROJECT DEVELOPMENT AND<br>ENVIRONMENTAL ANALYSIS BRANCH |
|   | BRIDGE NO. 99<br>SR 1968 OVER LONG CREEK<br>STANLY COUNTY<br>B-3909   |
| <b>VICINITY MAP</b>   |   |
| FIGURE 1  |   |

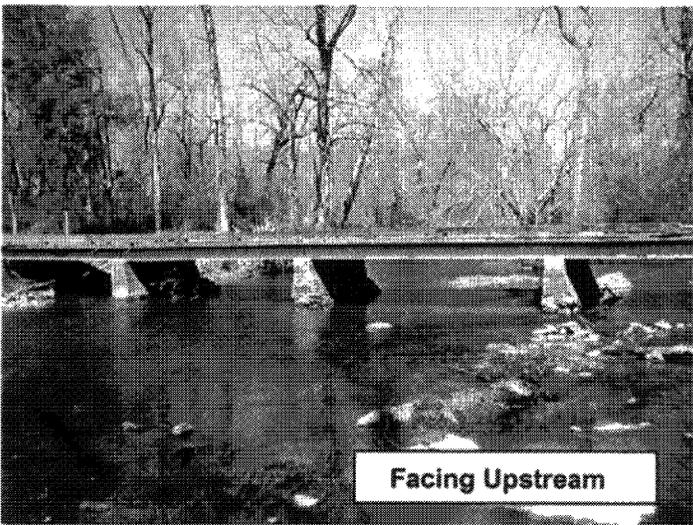


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PROJECT DEVELOPMENT AND  
ENVIRONMENTAL ANALYSIS BRANCH

B-3909  
STANLY COUNTY  
BRIDGE #99 OVER LONG CREEK

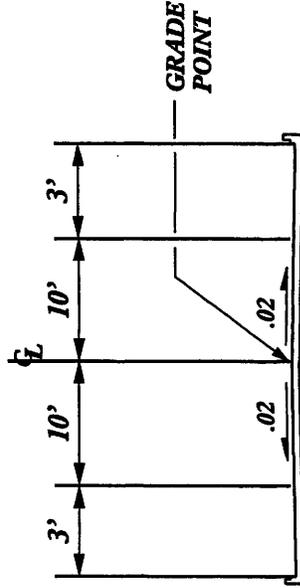
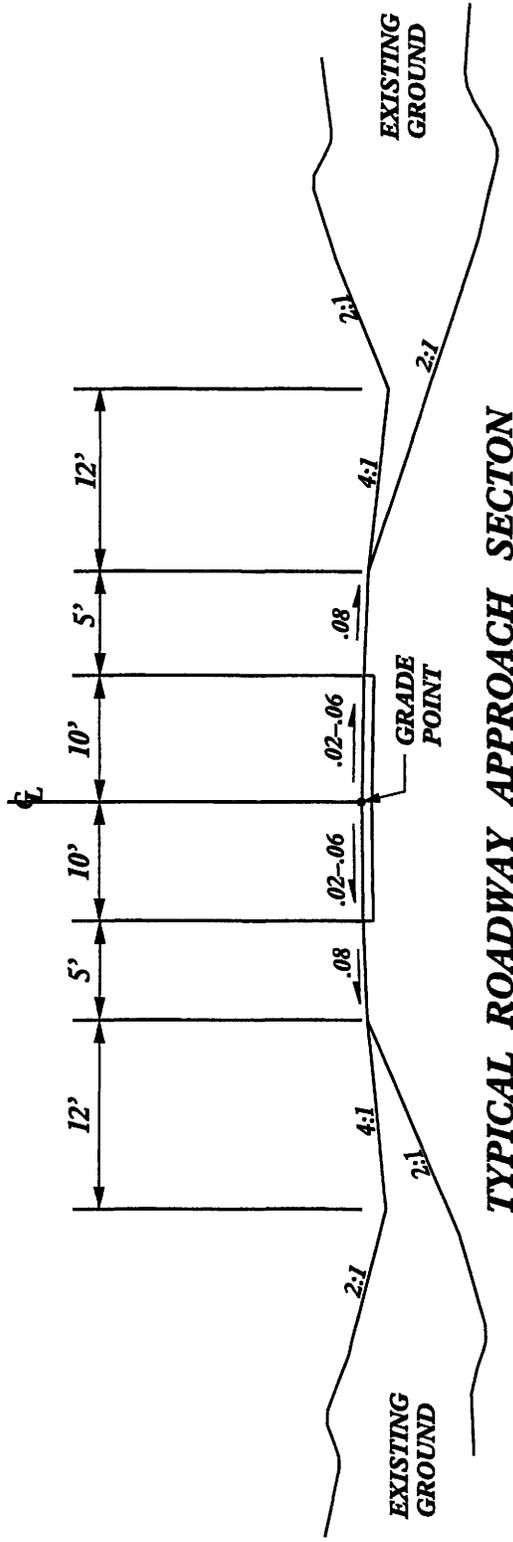
SEPTEMBER 2002 NOT TO SCALE

FIGURE 2



**B-3909**  
**Replacement of Bridge**  
**Bridge No. 99**  
**SR 1968 over**  
**Long Creek**  
**Stanly County**

**FIGURE 3**



**TRAFFIC DATA**

|          |      |
|----------|------|
| ADT 2001 | 600  |
| ADT 2025 | 1000 |
| DUAL     | 2%   |
| TTST     | 1%   |

**FUNCTIONAL CLASSIFICATION: LOCAL (RURAL)**

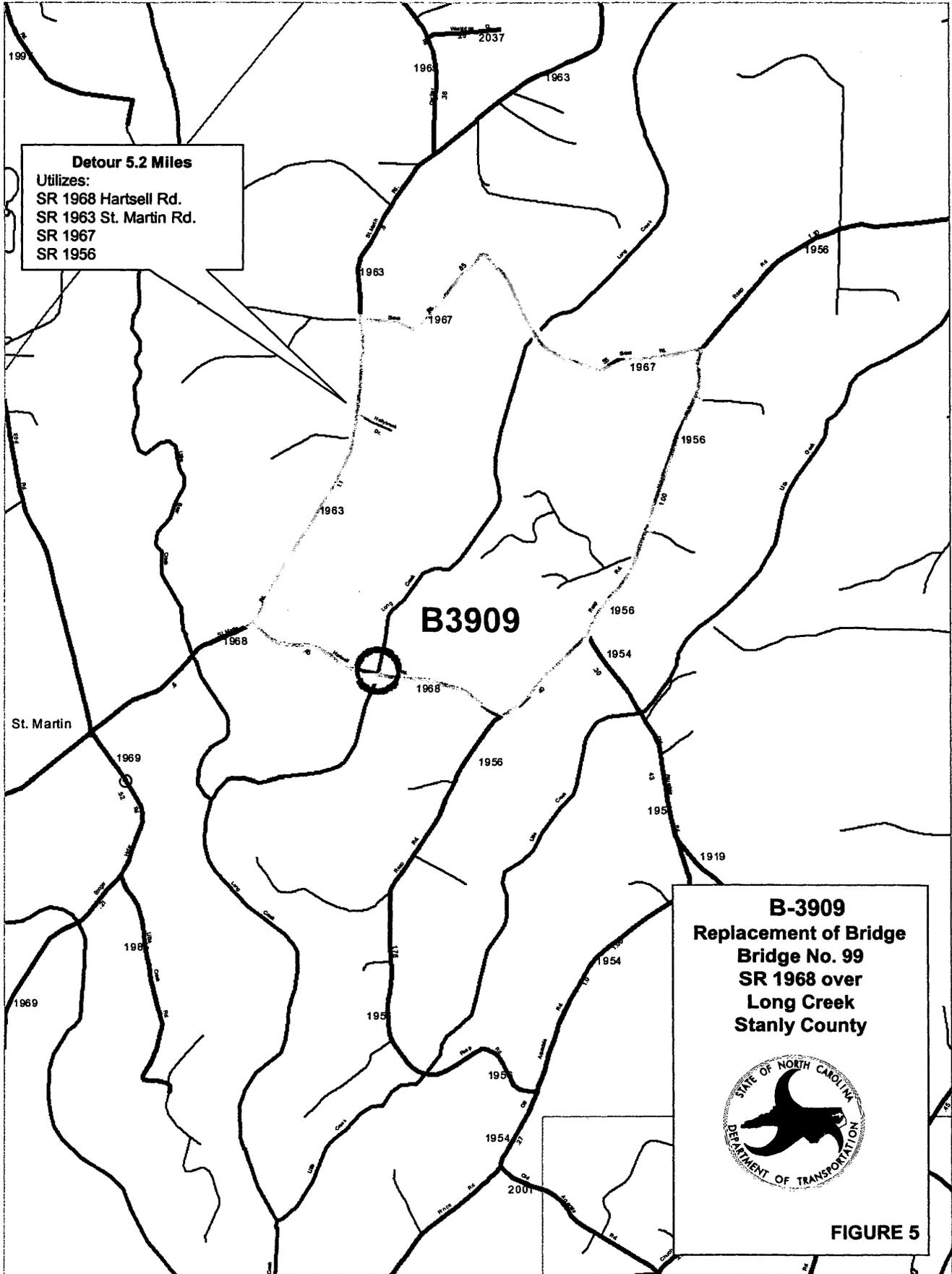


**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
 DIVISION OF HIGHWAYS  
 PROJECT DEVELOPMENT AND  
 ENVIRONMENTAL ANALYSIS BRANCH

STANLY COUNTY

BRIDGE NO. 99 ON SR 1968  
 OVER LONG CREEK

B-3909



# **APPENDIX**

U.S. Department  
of Transportation

United States  
Coast Guard



Commander  
United States Coast Guard (Aowb)  
Fifth Coast Guard District

431 Crawford Street  
Portsmouth, Va. 23704-5004  
Staff Symbol: Aowb  
Phone: (757)398-6227  
FAX: (757) 398-6334

16590  
May 22, 2002

Mr. Michael Penney  
Project Development Engineer  
North Carolina Department of Transportation  
Project Development and Environmental Analysis  
1549 Mail Service Center  
Raleigh, North Carolina 27699-1549

Dear Mr. Penney:

This is in response to your letter dated May 14, 2002, regarding the replacement of Bridge No. 246 across Big Bear Creek in Stanly County, Bridge No. 99 across Long Creek in Stanly County, Bridge No. 81 across Gum Long Creek in Cumberland County, Bridge No. 133 across Doomas Creek in Montgomery County, Bridge No. 47 across Lumber River, in Scotland and Hoke Counties, and Bridge No. 33 across Brown Creek in Anson County, North Carolina.

Since Big Bear Creek, Long Creek, Gum Long Creek, Doomas Creek, Lumber River and Brown Creek are not subject to tidal influence, they are considered legally non-navigable for Bridge Administration purposes. Also, since these waterways are not susceptible for use by interstate or foreign commerce, they meet the criteria set forth in Section 107 of the Coast Guard Authorization Act of 1982. This section of the Act exempts such waterways from Coast Guard bridge permit requirements.

The fact that a Coast Guard permit is not required does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or local agency who may have jurisdiction over any aspect of the project.

If you should have any questions regarding this matter, please contact Ms. Linda Gilliam-Bonenberger, Bridge Management Specialist, at (757) 398-6227.

Sincerely,

A handwritten signature in black ink, appearing to read "Ann B. Deaton".

ANN B. DEATON  
Chief, Bridge Administration Section  
By direction of the Commander  
Fifth Coast Guard District

**U.S. ARMY CORPS OF ENGINEERS  
Wilmington District**

Action ID: 200230733

County: Stanly

**Notification of Jurisdictional Determination**

**Property Owner: NCDOT  
Address: William D. Gilmore, Project  
Development and Environmental Analysis  
1548 Mail Service Center  
Raleigh, NC 27699-1548  
Telephone: 919-733-3141**

**Authorized Agent: Environmental Services, Inc.  
Attn. Matt K Smith  
Address: 524 New Hope Road  
Raleigh, NC 27610  
Telephone: 919-212-1760**

**Size and Location of Property (waterbody, Highway name/number, town, etc.):  
TIP No. B-3909, Bridge over Long Creek on SR 1968 near Albemarle, Stanly County**

**Basis for Determination: Delineation Map and Data Forms dated March 6, 2002**

**Indicate Which of the Following apply:**

- ◇ There are wetlands on the above described property which we strongly suggest should be delineated and surveyed. The surveyed wetland lines must be verified by our staff before the Corps will make a final jurisdictional determination on your property.
- ◇ On \_\_\_\_\_ the undersigned inspected the Section 404 jurisdictional line as determined by the NCDOT and/or its representatives for the subject NCDOT project/corridor. A select number of sites were inspected and all were found to accurately reflect the limits of Corps jurisdiction. The Corps believes that this jurisdictional delineation can be relied on for planning purposes and impact assessment.
- ✱ The surface waters and wetlands on this project have been delineated and the limits of the Corps jurisdiction have been explained to you. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ◇ There are no wetlands present on the above described property which are subject to the permit requirements of section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ◇ The project is located in one of the 20 Coastal Counties. You should contact the nearest State Office of Coastal Management to determine their requirements.

**Placement of dredged or fill material in wetlands on this property without a Department of the Army permit is in most cases a violation of Section 301 of the Clean Water Act (33 USC 1311). A permit is not required for work on the property restricted entirely to existing high ground. If you have any questions regarding the Corps of Engineers regulatory program, please contact Steven W. Lund at 828-271-7980 x 4.**

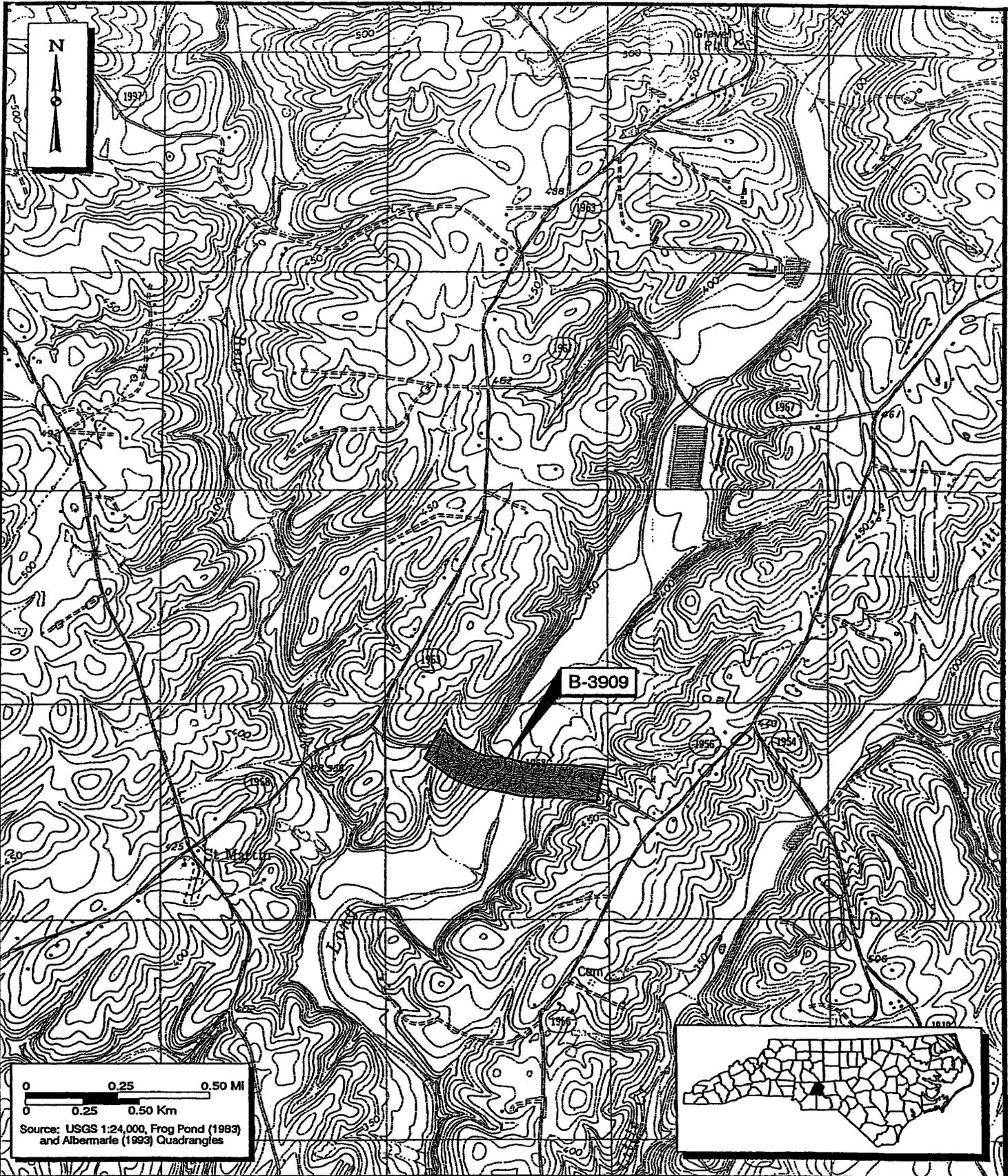
**Project Manager Signature** \_\_\_\_\_

*Steven W. Lund*

**Date: April 23, 2002**

**Expiration Date: April 23, 2007**

**SURVEY PLAT OR FIELD SKETCH OF DESCRIBED PROPERTY AND THE WETLAND DELINEATION FORM MUST BE ATTACHED TO THIS FORM.**



ER01049/b3909\_loc.cdf



**Environmental  
Services, Inc.**

**Location Map Bridge B-3909  
Bridge Group 35  
Stanly County, North Carolina**

Figure: 1

Project: ER01049

Date: February 2002

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

|   |   |
|---|---|
| Project/Site: <u>Bridge Group C B-3909</u><br>Applicant/Owner: <u>NCOOT</u><br>Investigator: <u>ESI</u>   | Date: <u>7-3-01</u><br>County: <u>Stanly</u><br>State: <u>NC</u>                        |
| Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No<br>Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No<br>Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No<br>(If needed, explain on reverse) | Community ID: <u>Successional</u><br>Transect ID: <u>EK</u><br>Plot ID: <u>EB 1 wet</u> |

**VEGETATION**

| Dominant Plant Species           | Stratum  | Indicator   | Dominant Plant Species | Stratum | Indicator |
|----------------------------------|----------|-------------|------------------------|---------|-----------|
| 1. <u>Fraxinus pennsylvanica</u> | <u>S</u> | <u>FACW</u> | 9. _____               | _____   | _____     |
| 2. <u>Carex sp.</u>              | <u>H</u> | _____       | 10. _____              | _____   | _____     |
| 3. <u>Polygonum sp.</u>          | <u>H</u> | _____       | 11. _____              | _____   | _____     |
| 4. <u>Dulichium arundinaceum</u> | <u>H</u> | <u>OBL</u>  | 12. _____              | _____   | _____     |
| 5. _____                         | _____    | _____       | 13. _____              | _____   | _____     |
| 6. _____                         | _____    | _____       | 14. _____              | _____   | _____     |
| 7. _____                         | _____    | _____       | 15. _____              | _____   | _____     |
| 8. _____                         | _____    | _____       | 16. _____              | _____   | _____     |

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100%

Remarks:

**HYDROLOGY**

|  |  |
|--|--|
| Recorded Data (Describe in Remarks):<br><input type="checkbox"/> Stream, Lake or Tide Gauge<br><input type="checkbox"/> Aerial Photographs<br><input type="checkbox"/> Other<br><input checked="" type="checkbox"/> No Recorded Data Available | <b>Wetland Hydrology Indicators:</b><br><b>Primary Indicators:</b><br><input checked="" type="checkbox"/> Inundated<br><input checked="" type="checkbox"/> Saturated in Upper 12 Inches<br><input type="checkbox"/> Water Marks<br><input type="checkbox"/> Drift Lines<br><input type="checkbox"/> Sediment Deposits<br><input type="checkbox"/> Drainage Patterns in Wetlands<br><b>Secondary Indicators (2 or more required):</b><br><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches<br><input type="checkbox"/> Water-Stained Leaves<br><input type="checkbox"/> Local Soil Survey Data<br><input type="checkbox"/> FAC-Neutral Test<br><input type="checkbox"/> Other (Explain in Remarks) |
| Field Observations:<br>Depth of Surface Water: <u>0-4</u> (in.)<br>Depth to Free Water in Pit: <u>-</u> (in.)<br>Depth to Saturated Soil: <u>0</u> (in.)   | Remarks:   |

**SOILS**

| <b>Map Unit Name</b><br>(Series and Phase): <u>60F Goldston Series</u> |         | <b>Drainage Class:</b> <u>well to excessively</u>   |                                  |                              |  |
|--|---------|---|----------------------------------|------------------------------|--|
| <b>Taxonomy (Subgroup):</b> <u>Typic Oxytrachrepts</u>                 |         | <b>Field Observations</b><br>Confirm Mapped Type: Yes <input type="radio"/> No <input checked="" type="radio"/> |                                  |                              |  |
| <b>Profile Description:</b>  |         |   |                                  |                              |  |
| Depth<br>(inches)  | Horizon | Matrix Color<br>(Munsell Moist)   | Mottle Colors<br>(Munsell Moist) | Mottle<br>Abundance/Contrast | Texture, Concretions,<br>Structure, etc. |
| 0-4  |         | 5Y 5/2  | 7.5YR 5/8                        | C/D                          | clay 10cm                                |
| 4-10   |         | 5Y 5/3  | 7.5YR 5/8                        | C/D                          | gravelly 10cm                            |
| 10+  |         |   |                                  |                              | Rock                                     |
|  |         |   |                                  |                              |  |
|  |         |   |                                  |                              |  |
|  |         |   |                                  |                              |  |
|  |         |   |                                  |                              |  |
|  |         |   |                                  |                              |  |
| <b>Hydric Soil Indicators:</b>   |         |   |                                  |                              |  |
| <input type="checkbox"/> Histosol                                      |         | <input type="checkbox"/> Concretions  |                                  |                              |  |
| <input type="checkbox"/> Histic Epipedon                               |         | <input type="checkbox"/> High Organic Content in Surface layer in Sandy Soils                                   |                                  |                              |  |
| <input type="checkbox"/> Sulfidic Odor                                 |         | <input type="checkbox"/> Organic Streaking in Sandy Soils   |                                  |                              |  |
| <input type="checkbox"/> Aquic Moisture Regime                         |         | <input type="checkbox"/> Listed on Local Hydric Soils List  |                                  |                              |  |
| <input type="checkbox"/> Reducing Conditions                           |         | <input type="checkbox"/> Listed on National Hydric Soils List   |                                  |                              |  |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors        |         | <input type="checkbox"/> Other (Explain in Remarks)   |                                  |                              |  |
| <b>Remarks:</b>  |         |   |                                  |                              |  |

**WETLAND DETERMINATION**

|   |  |
|---|--|
| Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)<br>Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No<br>Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No | (Circle)<br>Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No |
| <b>Remarks:</b>   |  |

Approved by HQUACE 2/92

EA Wet  
VA

DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)

|   |  |
|---|--|
| Project/Site: <u>Bridge Group C B-7909</u>  | Date: <u>7/3/01</u>  |
| Applicant/Owner: <u>NC DOT</u>  | County: <u>Stanly</u>  |
| Investigator: <u>ESI</u>  | State: <u>NC</u>   |
| Do Normal Circumstances exist on the site?<br>Is the site significantly disturbed (Atypical Situation)?<br>Is the area a potential Problem Area?<br>(If needed, explain on reverse) | <input checked="" type="radio"/> Yes <input checked="" type="radio"/> No<br><input checked="" type="radio"/> Yes <input checked="" type="radio"/> No<br><input checked="" type="radio"/> Yes <input checked="" type="radio"/> No |
|   | Community ID: <u>Hardwood Forest</u><br>Transect ID: <u>VA2</u><br>Plot ID: <u>Wet</u>   |

VEGETATION

| Dominant Plant Species              | Stratum  | Indicator  | Dominant Plant Species | Stratum | Indicator |
|-------------------------------------|----------|------------|------------------------|---------|-----------|
| 1. <u>Salix nigra</u>               | <u>S</u> | <u>OBL</u> | 9. _____               | _____   | _____     |
| 2. <u>Scirpus cyperinus</u>         | <u>H</u> | <u>OBL</u> | 10. _____              | _____   | _____     |
| 3. <u>Cephalanthus occidentalis</u> | _____    | <u>OBL</u> | 11. _____              | _____   | _____     |
| 4. <u>Polygonum spp.</u>            | <u>H</u> | <u>OBL</u> | 12. _____              | _____   | _____     |
| 5. <u>Eriocaulon spp.</u>           | <u>H</u> | <u>-</u>   | 13. _____              | _____   | _____     |
| 6. _____                            | _____    | _____      | 14. _____              | _____   | _____     |
| 7. _____                            | _____    | _____      | 15. _____              | _____   | _____     |
| 8. _____                            | _____    | _____      | 16. _____              | _____   | _____     |

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100%

Remarks:

HYDROLOGY

|   |   |
|---|---|
| <input type="checkbox"/> Recorded Data (Describe in Remarks):<br><input type="checkbox"/> Stream, Lake or Tide Gauge<br><input type="checkbox"/> Aerial Photographs<br><input type="checkbox"/> Other<br><input checked="" type="checkbox"/> No Recorded Data Available | <b>Wetland Hydrology Indicators:</b><br><b>Primary Indicators:</b><br><input checked="" type="checkbox"/> Inundated<br><input type="checkbox"/> Saturated in Upper 12 Inches<br><input type="checkbox"/> Water Marks<br><input type="checkbox"/> Drift Lines<br><input type="checkbox"/> Sediment Deposits<br><input type="checkbox"/> Drainage Patterns in Wetlands<br><b>Secondary Indicators (2 or more required):</b><br><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches<br><input type="checkbox"/> Water-Stained Leaves<br><input type="checkbox"/> Local Soil Survey Data<br><input type="checkbox"/> FAC-Neutral Test<br><input type="checkbox"/> Other (Explain in Remarks) |
| <b>Field Observations:</b><br>Depth of Surface Water: <u>7/2</u> (in.)<br>Depth to Free Water in Pit: <u>N/A</u> (in.)<br>Depth to Saturated Soil: <u>N/A</u> (in.)   |   |
| Remarks: <u>Abandoned farm pond</u>   |   |

**SOILS**

|   |                |   |  |                                  |  |
|---|----------------|---|--|----------------------------------|--|
| <b>Map Unit Name</b><br>(Series and Phase): <u>CK-Chewodasilt loam, frequently flooded</u>  |                | <b>Drainage Class:</b> <u>Somewhat poorly</u>   |  |                                  |  |
| <b>Taxonomy (Subgroup):</b> <u>Fluvaquentic Dystrachrepts</u>   |                | <b>Field Observations</b><br>Confirm Mapped Type: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |  |                                  |  |
| <b>Profile Description:</b>   |                |   |  |                                  |  |
| <b>Depth (inches)</b>   | <b>Horizon</b> | <b>Matrix Color (Munsell Moist)</b>   | <b>Mottle Colors (Munsell Moist)</b>   | <b>Mottle Abundance/Contrast</b> | <b>Texture, Concretions, Structure, etc.</b> |
| 0-18  |                | 2.5 Y 6/4   |  |                                  | SCL  |
|   |                | 10 YR 5/8   |  | c/d                              |  |
|   |                |   |  |                                  |  |
|   |                |   |  |                                  |  |
|   |                |   |  |                                  |  |
|   |                |   |  |                                  |  |
|   |                |   |  |                                  |  |
|   |                |   |  |                                  |  |
| <b>Hydric Soil Indicators:</b>  |                |   |  |                                  |  |
| <input type="checkbox"/> Histosol<br><input type="checkbox"/> Histic Epipedon<br><input type="checkbox"/> Sulfidic Odor<br><input type="checkbox"/> Aquic Moisture Regime<br><input type="checkbox"/> Reducing Conditions<br><input type="checkbox"/> Gleyed or Low-Chroma Colors |                |   | <input type="checkbox"/> Concretions<br><input type="checkbox"/> High Organic Content in Surface layer in Sandy Soils<br><input type="checkbox"/> Organic Streaking in Sandy Soils<br><input type="checkbox"/> Listed on Local Hydric Soils List<br><input type="checkbox"/> Listed on National Hydric Soils List<br><input type="checkbox"/> Other (Explain in Remarks) |                                  |  |
| <b>Remarks:</b>   |                |   |  |                                  |  |

**WETLAND DETERMINATION**

|                                 |     |             |  |
|---------------------------------|-----|-------------|--|
| Hydrophytic Vegetation Present? | Yes | No (Circle) |  |
| Wetland Hydrology Present?      | Yes | No          | (Circle)                                 |
| Hydric Soils Present?           | Yes | No          | Is this Sampling Point Within a Wetland? |
|                                 |     |             | Yes    No                                |
| <b>Remarks:</b>                 |     |             |  |

Approved by HQUACE 2/92

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

|  |   |
|--|---|
| Project/Site: <u>Bridge Group C B-3907</u><br>Applicant/Owner: <u>NCOOT</u><br>Investigator: <u>ESJ</u>  | Date: <u>7-3-01</u><br>County: <u>Stony</u><br>State: <u>NC</u>                         |
| Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span><br>Is the site significantly disturbed (Atypical Situation)? <span style="float: right;">Yes <input type="radio"/> No <input checked="" type="radio"/></span><br>Is the area a potential Problem Area? <span style="float: right;">Yes <input type="radio"/> No <input checked="" type="radio"/></span><br>(If needed, explain on reverse) | Community ID: <u>Successional</u><br>Transect ID: <u>EB</u><br>Plot ID: <u>EB 1 wet</u> |

**VEGETATION**

| Dominant Plant Species           | Stratum  | Indicator   | Dominant Plant Species | Stratum | Indicator |
|----------------------------------|----------|-------------|------------------------|---------|-----------|
| 1. <u>Fraxinus pennsylvanica</u> | <u>S</u> | <u>FACW</u> | 9. _____               | _____   | _____     |
| 2. <u>Carex sp.</u>              | <u>H</u> | _____       | 10. _____              | _____   | _____     |
| 3. <u>Polygonum sp.</u>          | <u>H</u> | _____       | 11. _____              | _____   | _____     |
| 4. <u>Dulichium arundinaceum</u> | <u>H</u> | <u>OBL</u>  | 12. _____              | _____   | _____     |
| 5. _____                         | _____    | _____       | 13. _____              | _____   | _____     |
| 6. _____                         | _____    | _____       | 14. _____              | _____   | _____     |
| 7. _____                         | _____    | _____       | 15. _____              | _____   | _____     |
| 8. _____                         | _____    | _____       | 16. _____              | _____   | _____     |

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100%

Remarks:

**HYDROLOGY**

|   |   |
|---|---|
| <p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p> | <p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
| <p>Field Observations:</p> <p>Depth of Surface Water: <u>0-7</u> (in.)</p> <p>Depth to Free Water in Pit: <u>-</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>   | <p>Remarks:</p>   |

**SOILS**

| Map Unit Name<br>(Series and Phase): <u>G0F Goldston Series</u> |   | Drainage Class: <u>well to excessively</u>   |                                  |                              |  |
|---|---|--|----------------------------------|------------------------------|--|
| Taxonomy (Subgroup): <u>Typic Oxystrachrepts</u>                |   | Field Observations<br>Confirm Mapped Type: Yes <input type="radio"/> No <input checked="" type="radio"/> |                                  |                              |  |
| <b>Profile Description:</b>                                     |   |  |                                  |                              |  |
| Depth<br>(inches)   | Horizon   | Matrix Color<br>(Munsell Moist)  | Mottle Colors<br>(Munsell Moist) | Mottle<br>Abundance/Contrast | Texture, Concretions,<br>Structure, etc. |
| 0-4   |   | 5Y 5/2   | 7.5YR 5/8                        | C/D                          | clay loam                                |
| 4-10  |   | 5Y 5/3   | 7.5YR 5/8                        | C/D                          | gravelly loam                            |
| 10+   |   |  |                                  |                              | Rock                                     |
|   |   |  |                                  |                              |  |
|   |   |  |                                  |                              |  |
|   |   |  |                                  |                              |  |
|   |   |  |                                  |                              |  |
|   |   |  |                                  |                              |  |
|   |   |  |                                  |                              |  |
| <b>Hydric Soil Indicators:</b>                                  |   |  |                                  |                              |  |
| <input type="checkbox"/> Histosol                               | <input type="checkbox"/> Concretions  |  |                                  |                              |  |
| <input type="checkbox"/> Histic Epipedon                        | <input type="checkbox"/> High Organic Content in Surface layer in Sandy Soils |  |                                  |                              |  |
| <input type="checkbox"/> Sulfidic Odor                          | <input type="checkbox"/> Organic Streaking in Sandy Soils                     |  |                                  |                              |  |
| <input type="checkbox"/> Aquic Moisture Regime                  | <input type="checkbox"/> Listed on Local Hydric Soils List                    |  |                                  |                              |  |
| <input type="checkbox"/> Reducing Conditions                    | <input type="checkbox"/> Listed on National Hydric Soils List                 |  |                                  |                              |  |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Other (Explain in Remarks)                           |  |                                  |                              |  |
| Remarks:  |   |  |                                  |                              |  |

**WETLAND DETERMINATION**

|   |  |
|---|--|
| Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)<br>Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No<br>Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No | (Circle)<br>Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Remarks:  |  |

Approved by HQUSACE 2/92

EA Wet  
VA

DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)

|   |                                      |
|---|--------------------------------------|
| Project/Site: <u>Bridge Group C B-3909</u>  | Date: <u>7/3/01</u>                  |
| Applicant/Owner: <u>NC DOT</u>  | County: <u>Stanly</u>                |
| Investigator: <u>ESI</u>  | State: <u>NC</u>                     |
| Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No                | Community ID: <u>Hardwood Forest</u> |
| Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No | Transect ID: <u>VA2</u>              |
| Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No                     | Plot ID: <u>Wet</u>                  |
| (If needed, explain on reverse)   |                                      |

VEGETATION

| Dominant Plant Species              | Stratum  | Indicator  | Dominant Plant Species | Stratum | Indicator |
|-------------------------------------|----------|------------|------------------------|---------|-----------|
| 1. <u>Salix nigra</u>               | <u>S</u> | <u>OBL</u> | 9. _____               | _____   | _____     |
| 2. <u>Scirpus cyperinus</u>         | <u>H</u> | <u>OBL</u> | 10. _____              | _____   | _____     |
| 3. <u>Cephalanthus occidentalis</u> | _____    | <u>OBL</u> | 11. _____              | _____   | _____     |
| 4. <u>Polygonum spp.</u>            | <u>H</u> | <u>OBL</u> | 12. _____              | _____   | _____     |
| 5. <u>Eriocaulon spp.</u>           | <u>H</u> | <u>-</u>   | 13. _____              | _____   | _____     |
| 6. _____                            | _____    | _____      | 14. _____              | _____   | _____     |
| 7. _____                            | _____    | _____      | 15. _____              | _____   | _____     |
| 8. _____                            | _____    | _____      | 16. _____              | _____   | _____     |

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100%

Remarks:

HYDROLOGY

|   |   |
|---|---|
| <p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p> | <p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
| <p>Field Observations:</p> <p>Depth of Surface Water: <u>&gt;12</u> (in.)</p> <p>Depth to Free Water in Pit: <u>N/A</u> (in.)</p> <p>Depth to Saturated Soil: <u>N/A</u> (in.)</p>  |   |
| <p>Remarks: <u>Abandoned farm pond</u></p>  |   |





# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Asheville Field Office  
160 Zillicoa Street  
Asheville, North Carolina 28801

April 5, 2002



Ms. Iona L. Hauser  
Wilbur Smith Associates  
333 Fayetteville Street Mall, Suite 1450  
Raleigh, North Carolina 27601

Dear Ms. Hauser:

Subject: Review of Bridge Replacement Group 35 for the North Carolina Department of Transportation, Stanly and Anson Counties, North Carolina

We have reviewed the subject projects and are providing these comments in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e), and Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

### **EFFECTS TO WATERS AND WETLANDS**

We are pleased with the decision to replace bridges with bridges. The new bridge designs should include provisions for roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream. This buffer should be large enough to alleviate any potential effects from the run-off of storm water and pollutants. The bridge designs should not alter the natural stream and stream-bank morphology or impede fish passage. Any piers or bents should be placed outside the bank-full width of the stream. The bridges and approaches should be designed to avoid any fill that will result in damming or constriction of the channel or floodplain. If spanning the floodplain is not feasible, culverts should be installed in the floodplain portion of the approach to restore some of the hydrological functions of the floodplain and reduce high velocities of flood waters within the affected area.

For the two bridges where the preferred alternative is to replace the structure on its current location, we recommend that, if possible, an off-site detour be provided rather than using temporary structures near the existing bridge. This will minimize the amount of riparian vegetation that must be removed and, in general, reduce the amount of disturbance to the stream. We recommend that erosion- and sedimentation-control measures be in place prior to any

ground-disturbing activities. Wet concrete should never be allowed to come into contact with the stream.

## **FEDERALLY LISTED SPECIES**

**Stanly County - B-3908 - Bridge 246 over Big Bear Creek and B-3909 and B-4276 - Bridges 99 and 73 over Long Creek (our Log Numbers 4-2-02-235, 4-2-02-236, and 4-2-02-237, respectively).**

In the Natural Resources Technical Reports for each of these projects, biologists considered the two federally listed species in Stanly County--the threatened bald eagle (*Haliaeetus leucocephalus*) and the endangered Schweinitz's sunflower (*Helianthus schweinitzii*). No suitable habitat for the bald eagle exists within the project areas, and there are no documented occurrences in the vicinity of the projects. Surveys for Schweinitz's sunflower revealed no individuals within the project areas. Based on the lack of habitat and negative survey information, we concur with the conclusion of "no effect" to federally listed species for these projects. In view of this, 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.

**Anson County - B-4009 - Bridge 33 over Brown Creek (our Log Number 4-2-02-238).**

In the Natural Resources Technical Report for this project, biologists considered the five federally listed species in Anson County--the threatened bald eagle (*Haliaeetus leucocephalus*) and the endangered Schweinitz's sunflower (*Helianthus schweinitzii*), shortnose sturgeon (*Acipenser brevirostrum*), red-cockaded woodpecker (*Picoides borealis*), and Carolina heelsplitter (*Lasmigona decorata*). No suitable habitat for the bald eagle, shortnose sturgeon, red-cockaded woodpecker, or Schweinitz's sunflower exists within the project area, and there are no documented occurrences in the vicinity of the project. Suitable habitat for the Carolina heelsplitter was determined to occur in Brown Creek; therefore, field surveys were conducted for this species. Although seven species of native freshwater mussels were found during surveys in Brown Creek and Little Brown Creek, no federally listed species were found. With over 35 person-hours of surveys conducted for this project and in the vicinity of the project, no Carolina heelsplitter mussels were located. Therefore, we concur with your conclusion of "no effect" to the Carolina heelsplitter for this project. In view of this, 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.

As further protection for the native freshwater mussels that may be affected by the construction of this project, we recommend that, if possible, they be removed from the area of impact. They could be moved to suitable habitat upstream of the project or held in a secure location until the construction is completed and then be placed back in Brown Creek at their original location.

We appreciate the opportunity to provide these comments. If you have any questions or concerns, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. As noted above, we have assigned log numbers to each project. Please reference these numbers in any future correspondence concerning these projects.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian P. Cole". The signature is written in a cursive style with a large, prominent initial "B".

Brian P. Cole  
State Supervisor



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



Michael F. Easley, Governor  
Beth C. Evans, Secretary  
Trey J. Crow, Deputy Secretary

September 16, 2002

MEMORANDUM

TO: William D. Gilmore, Manager  
Project Development and Environmental Analysis Branch  
NCDOT Division of Highways

FROM: David Brook *for David Brook*

SUBJECT: Archaeological Survey for Bridge No. 99 on SR 1968 over Long Creek, B-3909, 8.2681701, Federal Aid No. BRZ-1968(1), Stanly County, ER 02-7898

SEP 18 2002

Thank you for your letter August 5, 2002 of transmitting the archaeological survey report by Caleb Smith for the above project.

We appreciate the old maps and the project specific information included in the background section of the report. We also appreciate the current photographs illustrating land-use and ground disturbance in the area. The following property is determined not eligible for listing in the National Register of Historic Places:

31ST184

In the future, please do not include archeological site forms in the report, either in the text or as an appendix.

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

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

cc: FHwA  
ACOE

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

Project Description: Replace Bridge No. 99 on SR 1968 over Long Creek

On 04/12/2002, representatives of the

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

Reviewed the subject project at

- Scoping meeting
- 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.
- 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.
- 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 Properties 132 is considered not eligible for the National Register and no further evaluation of it is necessary.
- There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- 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.
- There are no historic properties affected by this project. (Attach any notes or documents as needed)

Signed:

*Richard S. ...* 16 APRIL 2002  
 Representative, NCDOT Date

*Michael ...* 4/16/02  
 FHWA, for the Division Administrator, or other Federal Agency Date

*Claudia ...* 4-16-02  
 Representative, HPO Date

*David ...* 5/2/02  
 State Historic Preservation Officer Date

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

NOV 8 2001



Vance

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

Michael F. Easley, Governor  
Lisbeth C. Evans, Secretary

Division of Archives and History  
Jeffrey J. Crow, Director

November 5, 2001

MEMORANDUM

TO: William D. Gilmore, Manager  
Project Development and Environmental Analysis Branch  
Division of Highways  
Department of Transportation

FROM: David Brook *for David Brook*

SUBJECT: Bridge #99 on SR 1968 over Long Creek, TIP B-3909, Stanly County, ER 02-7898

Thank you for your letter of September 26, 2001, concerning the above project.

We have conducted a search of our maps and files and located the following structure of historical or architectural importance within the general area of this project:

Jacob and Alma Hartsell Farm (ST 401) is located due east of Bridge #99.

We recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

There are no known archaeological sites within the proposed project area. We recommend archeological work for the do-nothing, rehabilitation or off-site detour alternatives. If an on-site detour I used, please send plans so that we may continue our review.

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

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

DB:kgc

cc: Mary Pope Furr, NCDOT  
Matt Wilkerson, NCDOT

|                   | Location                      | Mailing Address                              | Telephone/Fax             |
|-------------------|-------------------------------|--|---------------------------|
| Administration    | 507 N. Blount St, Raleigh, NC | 4617 Mail Service Center, Raleigh 27699-4617 | (919) 733-4763 • 733-8653 |
| Restoration       | 515 N. Blount St, Raleigh, NC | 4613 Mail Service Center, Raleigh 27699-4613 | (919) 733-6547 • 715-4801 |
| Survey & Planning | 515 N. Blount St, Raleigh, NC | 4618 Mail Service Center, Raleigh 27699-4618 | (919) 733-4763 • 715-4801 |



October 31, 2001

MEMORANDUM

To: Elmo Vance, NCDOT Project Development & Environmental Analysis Branch  
Through: John Dorney, NC Division of Water Quality  
From: Cynthia F. Van Der Wiele, NCDOT Coordinator  
Subject: Scoping Comments for Bridge Replacement Projects: B-3908, B-3909, B-4009, B-4205, B-4276, B-3680.

This memo is in reference to your correspondence dated October 3, 2001, in which you requested scoping comments for the above projects. The Division of Water Quality (DWQ) requests that the following topics be addressed:

1. DWQ requests that best management practices (BMPs) for bridge demolition shall be adhered to, particularly on TIP Project B-4205 in Montgomery County, as Doomas Creek is listed as a High Quality Water (HQW).
2. Disturbance of the stream channels must be limited to only what is necessary to perform the bridge demolition and removal. Heavy equipment must be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.
3. Project B-4205 in Montgomery County shall comply with the requirements for High Quality Waters with regards to stormwater management, sedimentation and erosion control and buffer requirements.
4. Ensure that sediment & erosion control measures are not placed in wetlands.
5. Borrow/waste areas should avoid wetlands to the maximum extent practicable. Prior to the approval of any borrow/waste site in a wetland, the contractor must obtain a 401 certification from DWQ.
6. The information packet did not include information regarding the types of structures that will be replacing the deficient bridges. Two voice mail messages were left in regard to a request for more information (and not returned). DWQ prefers that the structures that will be replacing the deficient bridges will be bridges. All structures shall be installed in such a manner that the original stream profiles are not altered (i.e. the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions are to be maintained above and below locations of culvert extensions.
7. All work shall be performed during low flow conditions.
8. All mechanized equipment operated near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

9. Written concurrence of 401 Water Quality Certification may be required for these projects (e.g., applications requesting coverage under NW 14 or Regional General Permit 198200031). Please be aware that 401 certification may be denied if wetland or water impacts have not been avoided and minimized to the maximum extent practicable.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Cynthia Van Der Wiele at (919) 733.5715.

Pc: USACE Wilmington Field Office  
USACE Asheville Field Office  
Marella Buncick, USFWS Asheville Field Office  
MaryEllen Haggard, NCWRC  
File Copy

Elmo Vance



North Carolina Department of Crime Control and Public Safety  
Division of Emergency Management

Michael F. Easley, Governor

Bryan E. Beatty, Secretary

October 19, 2001

Mr. William D. Gilmore, P.E.,  
Manager of the Project Development and Environmental Analysis Branch  
Division of Highways  
1549 Mail Service Center  
Raleigh, NC 27699-1549

OCT 22 2001

Subject: **RE: Bridge Replacement Projects**

Dear Mr. Gilmore:

Thank you for your letters dated September 26, 2001 regarding the review of nine bridge replacement projects. The North Carolina Division of Emergency Management has reviewed the proposed projects and would like to provide comments to the Department of Transportation.

My staff has reviewed the Flood Insurance Rate Maps (FIRMs) for your project areas. The majority of these projects are located in Special Flood Hazard Areas, also known as the 100-year floodplain. Please ensure that the proposed projects do not cause an increase in the Base Flood Elevation (BFE) in these areas and that they comply with Nation Flood Insurance Program guidelines.

**Projects Located in Special Flood Hazard Areas (100-year floodplain)**

- B-4009, Bridge No. 33 in Anson County - Zone A
- B-3830, Bridge No. 363 in Columbus County - Zone A
- B-4205, Bridge No. 133 in Montgomery County - Zone A
- B-4273, Bridge No. 37 in Scotland County - Zone A
- B-3908, Bridge No. 246 in Stanly County - Zone A
- B-3909, Bridge No. 99 in Stanly County - Zone A
- B-4276, Bridge No. 33 in Stanly County - Zone A5

**Projects Not Located in Special Flood Hazard Areas (100-year floodplain)**

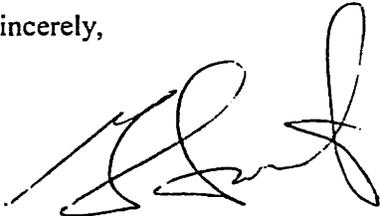
- B-4093, Bridge No. 81 in Cumberland County - Zone B (500-year floodplain)
- B-3680, Bridge No. 2 in Moore County - Zone X (500-year floodplain)

The Division of Emergency Management does not oversee the routing of Emergency Response Units on a day-to-day basis. However, utilizing off-site detour routes has the potential to increase response times of these units, especially if alternate routes are not available. Your agency should contact local emergency management officials or the local representatives responsible for roadways. NCEM would

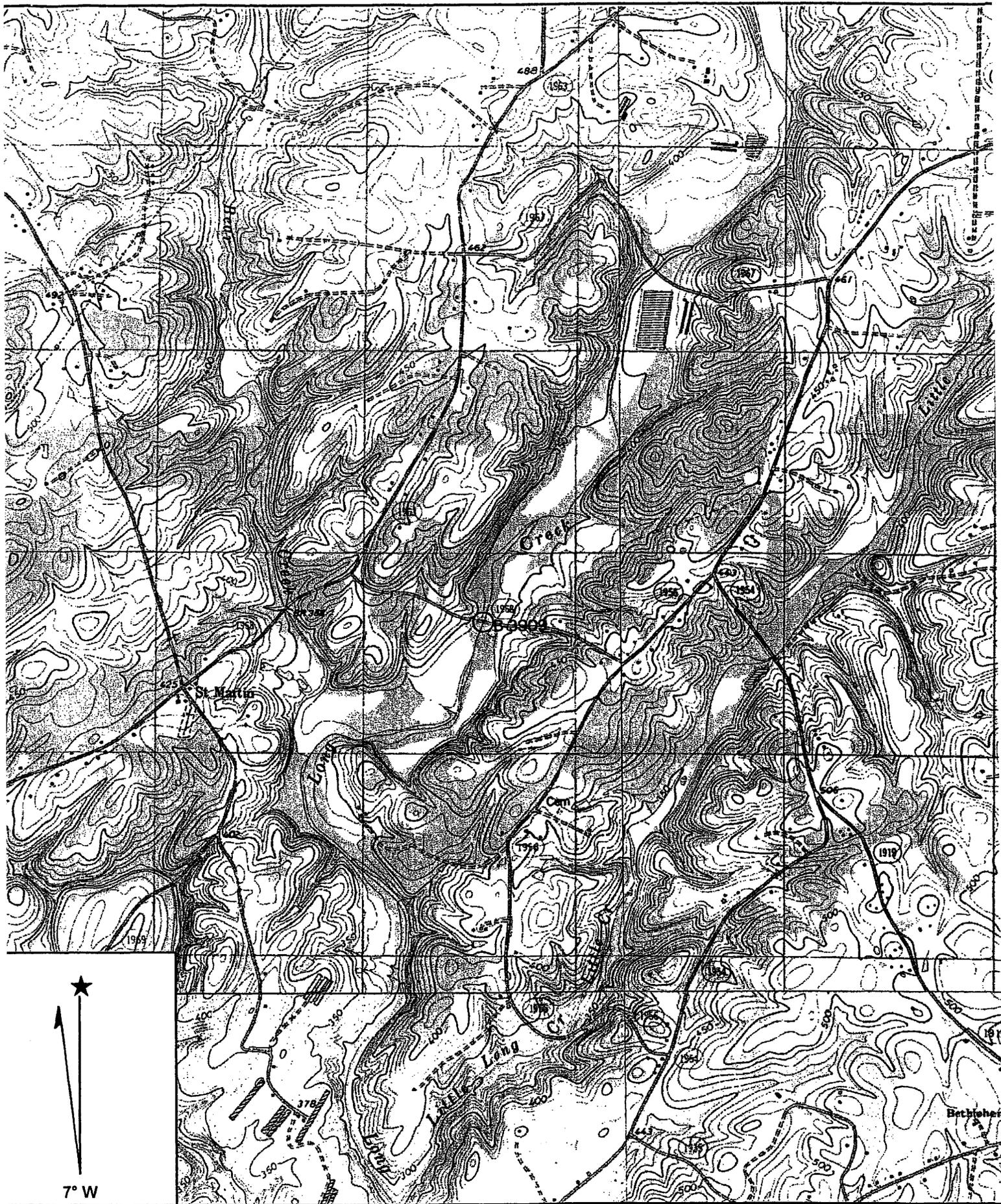
also like to advise that you pay close attention to roadways that have been identified as evacuation routes and the potential impacts your projects may have on evacuation travel.

If you have any further questions or need additional information, please do not hesitate to contact Steve Garrett at (919) 715-8000, extension 349.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gavin Smith', with a large, stylized flourish at the end.

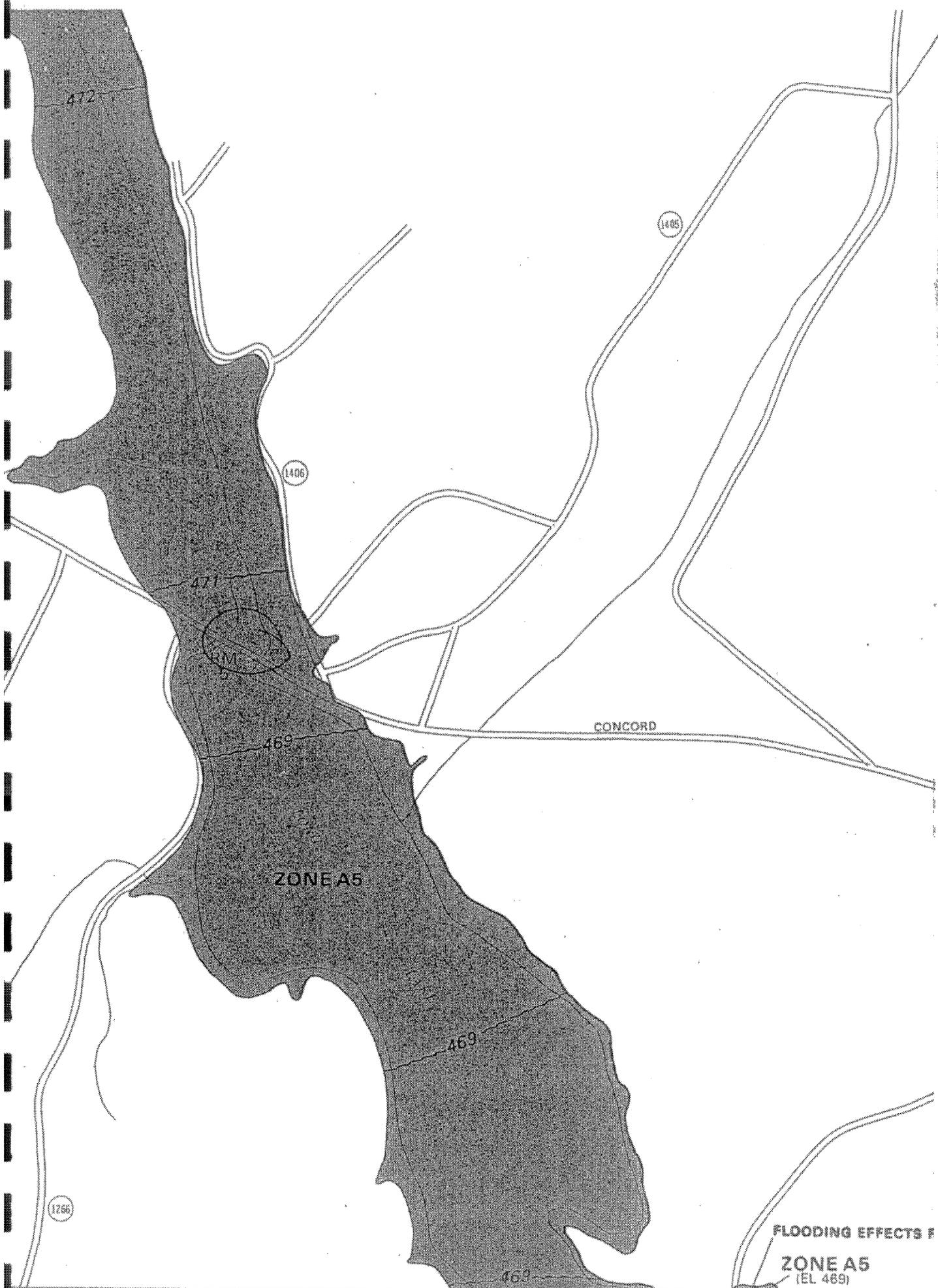
Gavin Smith, Ph.D.  
Assistant Director, Hazard Mitigation  
North Carolina Division of Emergency Management



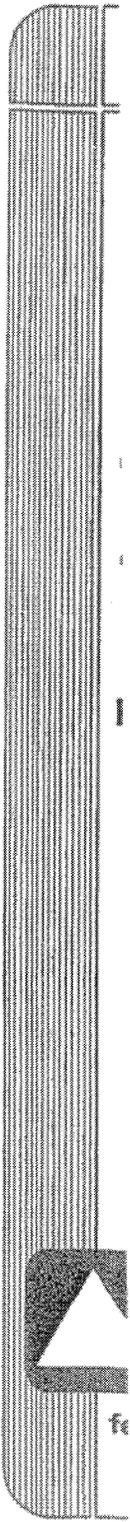
Name: FROG POND  
Date: 10/10/2001  
Scale: 1 inch equals 2000 feet

Location: 17 567603 E 3902743 N  
Caption: Stanly County, B-3909  
Bridge no. 99 on SR 1968 over Long Creek. L=83ft,  
W=12.2 ft. yr built 1957

ished.  
determine if  
tact your insu  
gram at (800)



500



FLOODING EFFECTS F  
ZONE A5  
(EL 469)

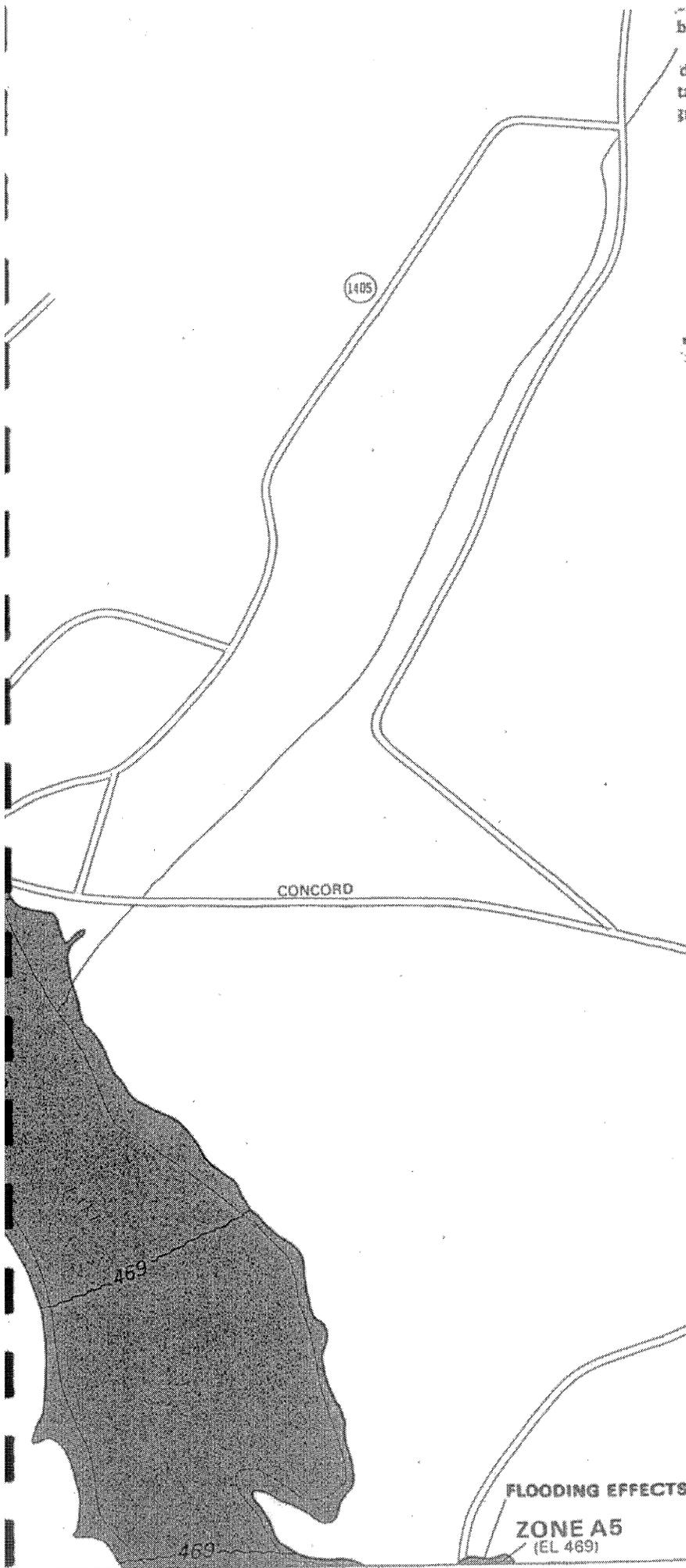
JOINS PANEL 78

blished.

determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance program at (800) 638-6620,



APPROXIMATE SCALE



**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
**FLOOD INSURANCE RATE MAP**

**STANLY COUNTY,  
NORTH CAROLINA  
(UNINCORPORATED AREAS)**

**PANEL 76 OF 175**

**COMMUNITY-PANEL NUMBER**  
**370361 0076 B**

**EFFECTIVE DATE:**  
**DECEMBER 1, 1981**

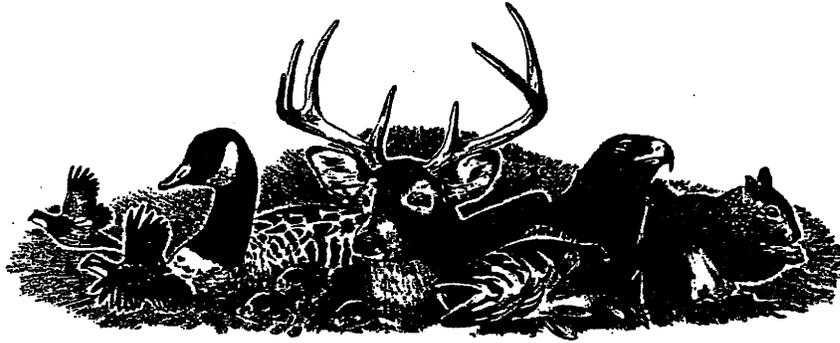


federal emergency management agency

**FLOODING EFFECTS F**

**ZONE A5**  
(EL 469)

JOINING PANEL 7R



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☒ North Carolina Wildlife Resources Commission ☒

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Charles R. Fullwood, Executive Director

TO: Elmo Vance  
Project Engineer, NCDOT

FROM: Maryellen Haggard, Highway Project Coordinator  
Habitat Conservation Program *Maryellen Haggard*

DATE: October 12, 2001

SUBJECT: NCDOT Bridge Replacements in Stanly county, North Carolina. TIP Nos.  
B-3908, B-3909

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

On bridge replacement projects of this scope our standard recommendations are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Wet concrete should not be allowed to contact stream water. This will lessen the chance of altering the stream's water chemistry and causing a fish kill.
4. If possible, bridge supports (bents) should not be placed in the stream.
5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. All mechanized equipment operated near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

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

1. The culvert must be designed to allow for fish passage. The culvert or pipe invert should be buried at least 1 foot below the natural streambed. The installation of the culvert or pipe should insure that all waters flow without freefalling or damming on either end during low flow conditions. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.

2. When two pipes are installed, only the lower pipe should be buried 1 foot into the substrate so that all base flows continue uninterrupted in the lower pipe during normal and low flow conditions to maintain aquatic life passage. The bottom of the second pipe should be placed at grade or at bankfull elevation. The second pipe should remain dry during normal flows to allow for wildlife passage. Where disrupted, natural floodplain benching should be restored upstream and downstream of the second, "dry", pipe.
3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.
4. Riprap should not be placed on the streambed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3908 – Stanly County – Bridge No. 246 over Big Bear Creek. This creek supports the Carolina darter, *Etheostoma collis*, and the Carolina creekshell, *Villosa vaughaniana*. Both the Carolina darter and the Carolina creekshell are Federal Species of Concern and state-listed Endangered. We request that the bridge be replaced with another bridge. NCDOT should adhere to strict erosion control measures.
2. B-3909 – Stanly County – Bridge No. 99 over Long Creek. Long Creek supports the Carolina darter. The Natural Heritage database shows a record of occurrence upstream of the project area. We request that the bridge be replaced with another bridge. NCDOT should adhere to strict erosion control measures.

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 (336) 527-1549. Thank you for the opportunity to review and comment on these projects.