



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 12, 2006

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

ATTENTION: Mr. Steve Lund
NCDOT Coordinator

Dear Sir:

SUBJECT: **Nationwide Permit 33 Application** for the proposed replacement of Bridge No. 17 on SR 1486 (Lee Cline Road) over Cline Creek, in Catawba County. Federal Aid Project No. BRZ-1486(1), State Project No. 82792201, TIP No. B-4060, WBS Element 33424.1.1, Division 12.

Please find enclosed three copies of the Categorical Exclusion (CE) Document, as well as, the Pre-construction Notification Form, ½ size plans, and a bridge removal diagram with summary sheet for the above referenced project completed by the North Carolina Department of Transportation (NCDOT). The agency proposes to replace Bridge No. 17 in place, with a 75-foot single span cored slab bridge. Removal of the existing structure will create the need for a temporary impervious dike, thus resulting in 0.0076 feet of temporary stream impacts to Cline Creek. There are no jurisdictional wetlands within the project study area.

Impacts to Waters of the United States

General Description

Cline Creek (also known as UT to Lyle Creek) is located in the Catawba River Basin (sub-basin 03-08-32), and is approximately 7 feet wide and 0.33 feet deep within the project study area. The NCDWQ classifies Cline Creek as Class "C". There are no High Quality Waters (HQW), Water Supplies (WS-I or WS-II), or Outstanding Resource Waters occurring within 1.0 mile of the project study area. Cline Creek is not designated as a National Wild and Scenic River or a State Natural and Scenic River.

Permanent Impacts: There are no permanent impacts associated with this project.

Temporary Impacts: There are 0.0076 acre of temporary fill in surface water associated with this project because of an impervious dike which will aid in de-watering part of the stream for removal of a concrete abutment. The dike will be removed once demolition is complete. The stream banks will then be stabilized and vegetated.

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

TELEPHONE: 919-715-1334 or
919-715-1335
FAX: 919-715-5501

LOCATION:
PARKER LINCOLN BUILDING
2728 CAPITAL BLVD, SUITE 240
RALEIGH NC 27604

WEBSITE: WWW.NCDOT.ORG

There are no utility impacts associated with this project.

Bridge Demolition

The existing Bridge No. 17 was constructed in 1957. The dual-span structure has a clear roadway width of 19.2 feet which includes two travel lanes over the bridge. The superstructure consists of an asphalt wearing surface over a timber deck on I-beams and the substructure consists of mass concrete abutments and an interior bent composed of a timber cap and piles. Neither the superstructure nor the substructure will create any temporary fill in the creek.

Federally Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of March 8, 2006, the United States Fish and Wildlife Service (USFWS) lists two federally protected species for Catawba County.

Federally Protected Species for Catawba County

Common Name	Scientific Name	Status	Biological Conclusion
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	No Effect
Dwarf-flowered heartleaf	<i>Hexastylis naniflora</i>	T	No Effect

T-denotes Threatened

The most recent survey for *Hexastylis naniflora* was completed on May 2, 2005. No species were identified.

Avoidance, Minimization, and Mitigation

Avoidance and Minimization: Avoidance examines all appropriate and practicable possibilities of averting impacts to “Waters of the United States.” The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional stages; minimization measures were incorporated as part of the project design. The use of best management practices for construction should reduce impacts to plant communities.

- The entire stream is being spanned, therefore eliminating any permanent impacts.
- An off-site detour is being utilized to avoid impacts from an on-site temporary detour.

Mitigation: No mitigation is proposed since there are no permanent impacts.

Regulatory Approvals

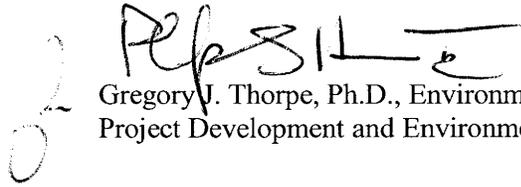
Section 404 Permit: All other aspects of this project are being processed by the Federal Highway Administration as a “Categorical Exclusion” in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 33.

Section 401 Permit: We anticipate 401 General Certification number 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their records.

We also anticipate that comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required prior to authorization by the United States Army Corp of Engineers (USACE). By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the USACE and NCDOT.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Megan Willis at mswillis@dot.state.nc.us or (919) 715-1341.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gregory J. Thorpe', with a horizontal line extending to the right.

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

cc:

W/attachment

Mr. John Hennessy, NCDWQ (2 copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. M.L. Holder, P.E., Division Engineer
Ms. Trish Simon, DEO

W/o attachment

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. Vince Rhea, P.E., PDEA 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 checked="" 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: mswillis@dot.state.nc.us

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. 17 on SR 1486 over Cline Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4060
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Catawba Nearest Town: Conover
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers/names, landmarks, etc.): SR 1486 off SR 1484 off Interstate 40.
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): 81'13'00' °N 35'45'00' °W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Lyle Creek
8. River Basin: Catawba
(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: Residential development and forest cover.

10. Describe the overall project in detail, including the type of equipment to be used: _____
Standard bridge construction equipment.

11. Explain the purpose of the proposed work: To increase the safety of travelers an SR1486.

IV. Prior Project History

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

V. Future Project Plans

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

N/A

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

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

1. Provide a written description of the proposed impacts: 0.008 feet of temporary stream impacts due to a temporary impervious dike.

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

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

3. List the total acreage (estimated) of all existing wetlands on the property: 0

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	Cline Creek	Temporary	Perennial	7 ft.		0.008
Total Stream Impact (by length and acreage)						0.008

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				

Total Open Water Impact (acres)	
---------------------------------	--

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

Stream Impact (acres):	0.008
Wetland Impact (acres):	
Open Water Impact (acres):	
Total Impact to Waters of the U.S. (acres)	0.008
Total Stream Impact (linear feet):	

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.

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. An off-site detour will be utilized and the entire body of water will be spanned.

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 required - No permanent impacts.

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. _____

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. N/A

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

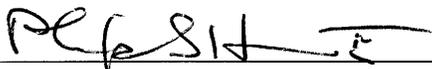
XIV. Cumulative Impacts (required by DWQ)

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: N/A

XV. Other Circumstances (Optional):

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



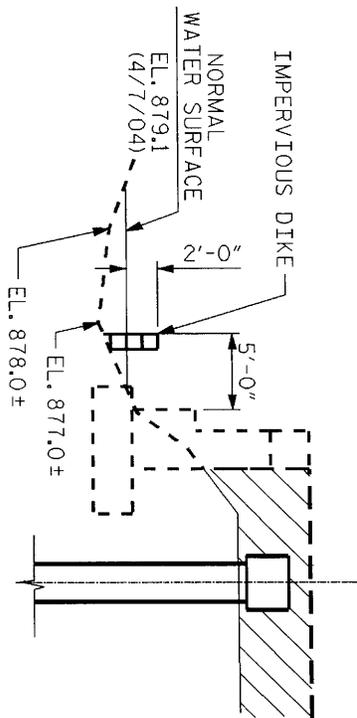
Applicant/Agent's Signature

5/15/06

Date

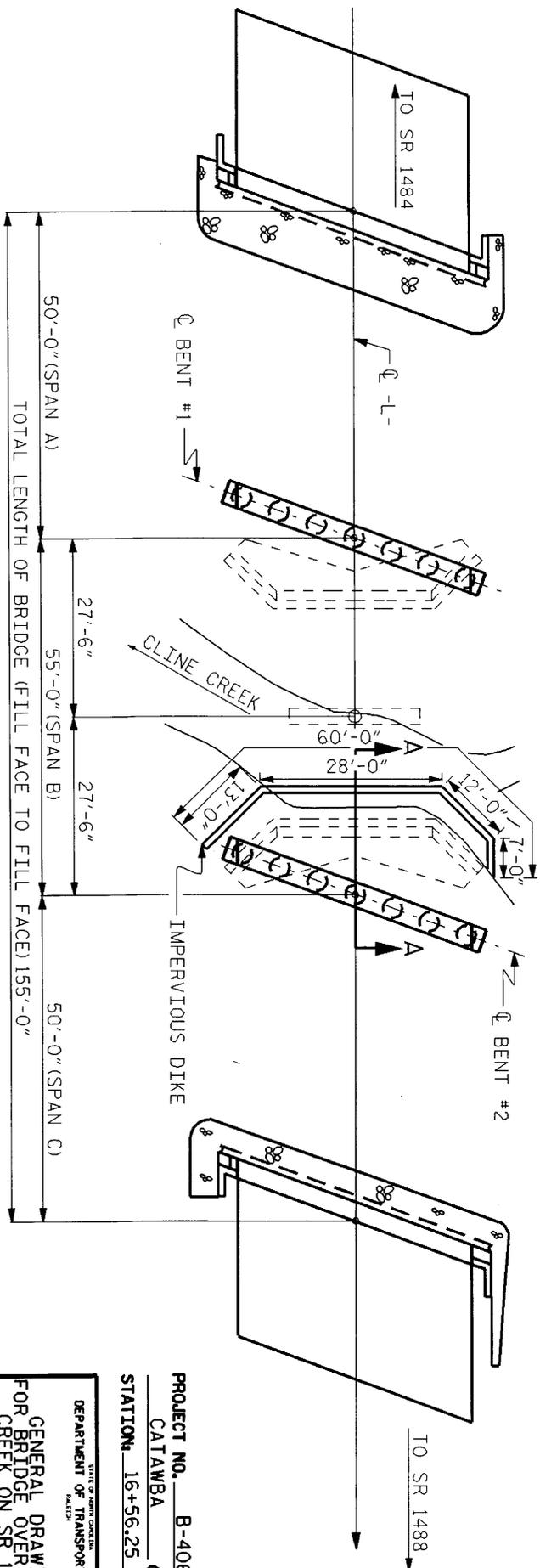
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

IMPACTS FOR
BRIDGE REMOVAL



SECTION A-A

BENT #2



PLAN

PROJECT NO. B-4060
CATAWBA COUNTY
STATION 16+56.25 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD

GENERAL DRAWING
FOR BRIDGE OVER CLINE
CREEK ON SR 1486
BETWEEN SR 1484 AND
SR 1488

REVISIONS		SHEET NO.	
NO.	BY	DATE	NO.
1			2

2025 05/06 08:00
PROJECT: 16+56.25 -L-
DATE: 05/06/25

CATAWBA COUNTY
BRIDGE NO. 17 ON SR 1486 (LEE CLINE ROAD)
OVER AN UNNAMED CREEK

FEDERAL-AID PROJECT NO. BRZ-1486(1)
STATE PROJECT NO. 8.2792201
TIP NO. B-4060

CATEGORICAL EXCLUSION

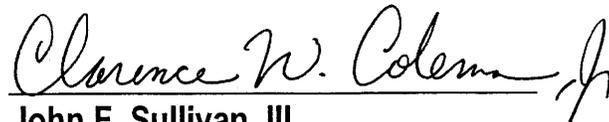
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
N.C. DEPARTMENT OF TRANSPORTATION

APPROVED:

1/30/04
DATE


FOR Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation

1/30/04
DATE


John F. Sullivan, III
Division Administrator
Federal Highway Administration

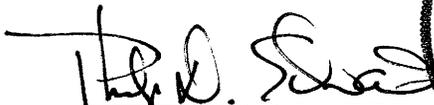
CATAWBA COUNTY
BRIDGE NO. 17 ON SR 1486 (LEE CLINE ROAD)
OVER AN UNNAMED CREEK

FEDERAL-AID PROJECT NO. BRZ-1486(1)
STATE PROJECT NO. 8.2792201
TIP NO. B-4060

CATEGORICAL EXCLUSION

January 2004

Document Prepared by
Ramey Kemp & Associates, Inc.
4928-A Windy Hill Drive
Raleigh, North Carolina 27609


Philip D. Edwards, P.E.
Ramey Kemp & Associates, Inc.



1/29/2004
Date

For the North Carolina Department of Transportation


Vincent J. Rhea, P.E., Project Development Engineer
Project Development and Environmental Analysis Branch

PROJECT COMMITMENTS

CATAWBA COUNTY
BRIDGE NO. 17 ON SR 1486 (LEE CLINE ROAD)
OVER AN UNNAMED CREEK

FEDERAL-AID PROJECT NO. BRZ-1486(1)
STATE PROJECT NO. 8.2792201
TIP NO. B-4060

In addition to the standard Nationwide Permit #23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the 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:

Project Development and Environmental Analysis Branch

A field survey for the Dwarf-flowered heartleaf will be completed prior to project construction.

CATAWBA COUNTY
BRIDGE NO. 17 ON SR 1486 (LEE CLINE ROAD)
OVER AN UNNAMED CREEK

FEDERAL-AID PROJECT NO. BRZ-1486(1)
STATE PROJECT NO. 8.2792201
T.I.P. NO. B-4060

INTRODUCTION

The replacement of Bridge No. 17 located on SR 1486 (Lee Cline Road) over an unnamed creek is included in the North Carolina Department of Transportation (NCDOT) 2004-2010 Transportation Improvement Program (TIP) and in the Federal-Aid Bridge Replacement Program (BRZ-1486(1)). The location is shown in Figure 1.

No substantial impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED

The NCDOT Bridge Maintenance Unit records indicate Bridge No. 17 has a sufficiency rating of 65.6 out of a possible 100 for a new structure. Prior to May 2001, the bridge had a sufficiency rating of 22.8 and was considered structurally deficient. In May 2001, deteriorated steel beam ends were plated and large cracks in Abutment B were repaired. These repairs raised the sufficiency rating to its current rating of 65.6. However, the bridge is still considered functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

Bridge No. 17 is located on SR 1486 (Lee Cline Road) in rural Catawba County. Refer to Figure 1 for the project location and Figures 2 and 3 for photos of the existing project study area.

Bridge No. 17 was constructed in 1957. The bridge is not currently posted to restrict weight limits.

The overall length of the dual-span structure is 41 ft. It has a clear roadway width of 19.2 ft that includes two travel lanes over the bridge. The superstructure consists of a timber deck on I-beams. The substructure consists of mass concrete abutments and an interior bent composed of a timber cap and piles. The height from crown to streambed is 13 ft.

SR 1486 is classified as a rural local in the Statewide Functional Classification System. The 2001 average daily traffic volume (ADT) is estimated to be 3,000 vehicles per day (vpd). The percentages of truck traffic are 1 percent TTST vehicles and 2 percent dual-tired vehicles. The projected 2025 ADT is 8,000 vpd.

The two-lane facility measures approximately 18-ft in width and has approximately 6-ft grassed shoulders on each side of the roadway in the vicinity of the bridge. Both the horizontal and vertical alignment are good within

the project study area. There is no posted speed limit in the immediate vicinity of the bridge. Therefore, the statutory speed limit is 55 miles per hour (mph). Existing right-of-way is approximately 60 ft in width.

There are several utilities within the vicinity of the bridge. These include overhead power lines and underground telephone, water and sewer lines.

This section of SR 1486 is not part of a designated bicycle route nor is it listed in the Transportation Improvement Program as needing incidental bicycle accommodations. There is no indication that an unusual number of bicyclists use this roadway.

Land use within the project study area is a mixture of undeveloped land, farmland, and rural residential properties.

According to Catawba County school officials, one handicapped bus crosses this bridge for a total of two trips per day.

Crash records maintained by the NCDOT indicate there have been three (3) crashes reported in the vicinity of Bridge No. 17 during a recent three year period. All three accidents were single vehicle accidents where the driver ran off the road. While one accident resulted in a non-fatal injury, no fatalities resulted from the crashes.

III. ALTERNATIVES

A. Project Description

Based upon the preliminary hydraulic report, the proposed replacement structure for Bridge No. 17 will consist of a 75 ft bridge. The structure will provide two 12-ft travel lanes with 8-ft of lateral clearance on each side of the bridge.

The length and opening size of the proposed structure may increase or decrease as necessary to accommodate peak flows, as determined by a more detailed hydraulic analysis to be performed during the final design phase of the project.

The roadway approaches will provide two 12-ft travel lanes with 8-ft grassed shoulders. The grade will be approximately the same as the existing roadway. The design speed is 60 mph.

B. Build Alternatives

Two (2) build alternatives studied for replacing the existing bridge are described below:

Alternative A (Preferred)

Alternative A consists of replacing the bridge in-place with a new bridge. During construction, traffic will be maintained by an off-site detour. The total length of approach work for this alternative is approximately 928 ft. Refer to Figure 4 for illustration of this alternative.

Existing traffic would be detoured via SR 1484 (Country Home Road), SR 1485 (10th Street N.W.), NC 16, and SR 1487 (C&B Farm Road). There are no posted structures on this route. The detour does pass two schools.

The detour length is estimated to be 7.6 miles long. Refer to Figure 1 for illustration of the temporary off-site detour.

Alternative B

Alternative B consists of replacing the bridge in-place with a new bridge. During construction, traffic will be maintained by an on-site detour north of SR 1486. The total length of roadway approach work for this alternative is approximately 928 ft. Refer to Figure 5 for illustration of this alternative.

The on-site detour will be located approximately 10 ft north of the proposed bridge. The temporary structure will be approximately 55 ft in length and will have a clear roadway width of 38 ft including two 11 ft travel lanes and 8 ft of lateral clearance on each side of the bridge. The detour roadway approaches will provide two 11 ft travel lanes and 8 ft wide shoulders on each side. The length of the temporary detour will be approximately 1287 ft.

Alternative B was not selected as the preferred because of the higher construction costs and environmental impacts associated with the temporary detour.

C. Alternatives Eliminated From Further Consideration

The "Do-Nothing" alternative will eventually necessitate closure of the bridge due to its poor condition. This is not desirable due to the traffic service provided by SR 1486.

Investigation of the existing structure by the NCDOT Bridge Maintenance Unit indicates that rehabilitation of the old bridge is not feasible due to its age and deteriorated condition.

D. Preferred Alternative (Alternative A)

Alternative A consists of replacing the bridge in-place with a new bridge. During construction, traffic will be maintained by an off-site detour. This alternative was selected as the preferred alternative because it has the lowest construction costs and least environmental impacts.

The Division Engineer concurs with Alternative A as the Preferred Alternative.

IV. ESTIMATED COSTS

The estimated costs for each alternative, based on current dollars, are shown below:

Table 1
Estimated Project Costs

	Alternative A (Preferred)	Alternative B
Structure Removal (Existing)	\$8,000	\$8,000
Structure Proposed	\$225,000	\$225,000
Detour Structure and Approaches	\$0	\$378,593
Roadway Approaches	\$158,285	\$158,285
Miscellaneous and Mobilization	\$108,715	\$237,122
Engineering and Contingencies	\$75,000	\$168,000
Right-of-Way/Easement and Utilities	49,000	77,500
Total Project Cost	\$624,000	1,252,500

The estimated cost of the project, as shown in the 2004-2010 NCDOT Transportation Improvement Program is \$430,000 including \$100,000 spent in prior years, \$30,000 for right-of-way and \$300,000 for construction.

V. NATURAL RESOURCES

Natural resources within the project study area were evaluated to provide: 1) an assessment of existing vegetation, wildlife, protected species, streams, wetlands, and water quality; 2) an evaluation of probable impacts resulting from construction; and 3) a preliminary determination of permit needs.

A. **Methodology**

Natural resource information for the project study area was obtained from several sources. Prior to an on-site evaluation of the project study area, topographic maps from the United States Geological Survey (USGS) and soil surveys from the Natural Resource Conservation Service (NRCS) were used to determine existing landscape and soil composition (USDA, 1975). Aerial photographs were studied to identify hydrologic and environmental features. The North Carolina Natural Heritage Program (NCNHP) database was used to search for the presence of known populations of federally threatened and endangered species in the county and in the Newton Quadrangle. In addition, the NCNHP database was searched for Federal Species of Concern (FSC), as well as State listed species. North Carolina Division of Water Quality (NCDWQ) records were reviewed to determine stream index number, classification, and National Pollution Discharge Elimination System (NPDES) permits within the project study area. The Catawba River Basinwide Water Quality Management Plan (CRBWQMP) was used to further characterize environmental resource conditions at and around the project study area. The North Carolina Wildlife Resources Commission (NCWRC) database was searched to identify proposed critical habitats for aquatic species.

Field investigations were conducted on August 13 and 29, 2001. Water resources were identified and their physical characteristics recorded on field data sheets. Plant communities and their associated wildlife (or potential wildlife habitat) were also identified and described. Terrestrial community classifications generally follow Schafale and Weakley (1990), where applicable, and plant taxonomy follows Radford, et al. (1968). Animal taxonomy follows Brigham, et al. (1982), Martof, et al. (1980), Menhinick (1991), Potter, et al. (1980), and Webster, et al. (1985).

Vegetative communities were mapped based on aerial photography and field work verified during the site visit. Predictions regarding wildlife community composition involved general qualitative habitat assessment based on existing vegetative communities. Wildlife identification involved various techniques including qualitative habitat assessment based on vegetative communities, active searching, and identifying characteristic signs of wildlife (sounds, scat, tracks, burrows, etc.). Cursory surveys of aquatic organisms were conducted and tactile searches for benthic organisms were administered as well. Organisms captured during these searches were identified and then released.

Jurisdictional wetlands, if present, were identified and evaluated based on criteria established in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and Guidance for Rating the Values of Wetlands in North Carolina (NCDENR, 1995). Wetlands were classified using Cowardin, et al. (1979).

B. Physiography and Soils

Catawba County lies in the Piedmont physiographic region of North Carolina. The landscape is characterized by gently rolling, well-rounded hills and long, low ridges that form a transition area between the Blue Ridge Mountains and the Atlantic Coast Plain. Elevations within the Piedmont range from 300 to 600 ft above sea level. Elevations are as high as 1,500 ft above sea level near the Blue Ridge Mountains (Menhinick, 1991).

Soil mapping units are based on the NRCS soil survey for the County (USDA, 1975). During field investigations, soils were elevated to verify map units depicted in the soil survey. The project study area is located at the intersection of SR 1486 and UT (unnamed tributary to) Lyle Creek and is mapped as Congaree (*Typic Udifluvents*), Chewacla (*Fluvaquentic Dystrochrepts*), Cecil clay loam (*Typic Hapludults*), and Hiwassee loam (*Typic Rhodudults*).

Two hydric soil types, Congaree and Chewacla, have been mapped within the project study area. Congaree soils are characterized by having moderate permeability and a high water capacity. The Congaree series consists of nearly level (slopes of 0 to 2 percent), well-drained soils on floodplains. These soils are flooded very frequently, but for brief periods of time. Soils in this group are formed in recent alluvium and occur in fairly wide bands adjacent to streams.

Chewacla soils are characterized as having a slow infiltration rate and a slow rate of water transmission. The Chewacla series consists of very deep, rather poorly drained, moderately permeable soils on floodplains. Most areas with these soils flood frequently, and slopes in these areas range from 0 to 2 percent. Soils in this group generally have moderately fine to fine texture or a layer that impedes the downward movement of water.

Cecil soils consist of well-drained, gently sloping to moderately steep soils on uplands. Within the project study area, Cecil clay loam is present. Cecil clay loam occurs in fairly wide, irregularly shaped areas on smooth broad ridges of uplands. It is characterized by having rapid runoff and a slow infiltration rate. Cecil soils are strongly

acidic. In the project study area, these soils are on eroded to severely eroded slopes ranging from 2 to 25 percent.

Hiwassee soils consist of well-drained, gently sloping to moderately steep soils on uplands. Within the project study area, Hiwassee loam is present. Hiwassee loam is characterized by having a moderate infiltration rate and rapid runoff. In the project study area, Hiwassee loam occurs on eroded slopes ranging from 2 to 10 percent. For Hiwassee soil, erosion is a severe hazard in cultivated areas. Hiwassee soil is found in long, wide bands on the upper parts of slopes that have a medium acidity.

On-site soil verification revealed that the soils within the project study area do not reflect the characteristics of the soil series described above. The soils on site generally displayed a brighter matrix color, which is probably caused by the historical disturbance to the soils from agricultural activities and introduction of fill material from road construction and other development.

C. Water Resources

C.1. Waters Impacted

Water resources within the project study area are located in the Catawba River Basin (USGS Hydrologic Unit 03050101, NCDWQ Subbasin 03-08-32). There are two water resources in the project study area. SR 1486 crosses UT Lyle Creek, a third order tributary to Lyle Creek, which discharges into Catawba River. In addition, a second order perennial tributary converges with UT Lyle Creek just upstream of the bridge.

Streams have been assigned a best usage classification by the NCDWQ that reflects water quality conditions and potential resource usage. The classification for UT Lyle Creek (NCDWQ Index No. 11-76-(0.5), 9/01/74) is Class C. Class C waters are protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, agriculture and other uses. Secondary recreation involves human body contact with water (wading, boating, etc.), which occurs in an infrequent, unorganized or incidental manner.

No surface waters classified as High Quality Water (**HQW**), Water Supply (**WS-I** or **WS-II**), or Outstanding Resource Waters (**ORW**) exist within 1 mile of the project study area.

UT Lyle Creek at SR 1486 has a channel width of approximately 7 ft and a water depth of 0.33 ft. Bankfull width at the current bridge location is 19.5 feet, and bankfull height is 3.2 feet. The Creek has a substrate composed primarily of 60 percent sand/silt, 30 percent gravel, and 10 percent cobble.

There is a small, perennial tributary to this UT Lyle Creek on the southwest side of the bridge. Lyle Creek supports fish and macroinvertebrates. The substrate is similar to that of UT Lyle Creek.

The Basinwide Monitoring Program, managed by the NCDWQ, is part of an ongoing ambient water quality monitoring program that addresses long-term trends in water quality. There are no benthic monitoring stations within the project study area or upstream of the bridge.

The CRBWQP does not rate UT Lyle Creek, but rates Lyle Creek itself as "Fully Supporting" its Class C usage. Lyle Creek is not listed as an impaired water [Clean Water Act Section 303(d)]. No NPDES permitted facilities exist within the project study area. The closest NPDES facility is the Conover NE Wastewater Treatment Plan

(WWTP) 1.8 miles downstream at the confluence with Lyle Creek. All new NPDES sites in the Lyle Creek watershed are restricted in discharge of Biological Oxygen Demand and Nitrates by the Lyle Creek Watershed Management Strategy in order to keep the load of oxygen-consuming wastes at a constant level. A fish community monitoring station (F-5) on Lyle Creek yielded a "Good-Fair" rating in 1997.

C.2. Anticipated Impacts to Water Resources

Impacts to water resources in the project study area are likely to result from activities associated with project construction. Activities likely to result in impacts consist of clearing and grubbing along stream banks, removal of riparian canopy, instream construction, use of fertilizers and pesticides as part of revegetation operations, and installation of pavement. The following impacts to surface water resources are likely to result from the aforementioned construction activities.

- Short-term increases in sedimentation and siltation downstream of the crossing associated with increased erosion potential in the project study area during and immediately following construction.
- Short-term changes in incident light levels and turbidity due to increased sedimentation rates and vegetation removal.
- Short-term alteration of water levels and flows due to interruptions and/or additions of surface water and groundwater during construction.
- Short-term increases in nutrient loading during construction via runoff from temporarily exposed land surfaces.
- A short-term increase in the potential for the release of toxic compounds (such as petroleum products) from construction equipment and other vehicles.
- Changes in and possible destabilization of water temperature regimes due to removal of vegetation within or overhanging the watercourse.
- Increased concentrations of pollutants typically associated within roadway runoff.

To minimize potential impacts to water resources in and downstream of the project study area, NCDOT's *Best Management Practices for the Protection of Surface Waters* (NCDOT, 1997) will be strictly enforced during the construction phase of the project. Impacts will be minimized to the fullest degree practicable by limiting instream activities and by revegetating stream banks immediately following the completion of grading.

C.3. Impacts Related to Bridge Demolition and Removal

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT and all contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in three NCDOT documents entitled: *Pre-Construction Guidelines for Bridge Demolition and Removal*, *Policy: Bridge Demolition and Removal in Water of the United States*, and *Best Management Practices for Bridge Demolition and Removal*.

The superstructure for Bridge No. 17 is composed of a timber deck on I-beams. The substructure is composed of mass concrete abutments and an interior bent composed of a timber cap and piles. Neither the superstructure nor the substructure will create any temporary fill in the creek. However, the removal of the substructure may create some disturbance of the streambed. If removal of the substructure will create disturbance in the streambed, a turbidity curtain should be used due to sediment concerns.

Because no moratoriums apply and UT Lyle Creek is a Class C water, this project falls under Case 3 (no special restrictions) of the *Best Management Practices for Bridge Demolitions and Removal*.

D. Biotic Resources

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

Scientific nomenclature and common names (where applicable) are provided for each animal and plant species described. Subsequent references to the same organism refer to the common name only, unless no common name is designated.

Biotic communities include terrestrial and aquatic elements. Much of the flora and fauna described within biotic communities use resources from adjacent communities, making boundaries between contiguous communities difficult to define.

D.1. Plant Communities

There are four terrestrial communities located in the project study area. The project study area is located in the County on Lee Cline Road (State Road 1486) where it crosses a tributary to UT Lyle Creek. The project study area consists of disturbed urban forest, wooded floodplain, cleared urban floodplain, and power line right-of-way (ROW). Due to the disturbed nature of this area, the terrestrial communities do not correspond to any of the classifications described by Schafale and Weakley (1990).

Disturbed Urban Forest – Within the previously mentioned disturbed urban forest, Yellow poplar (*Liriodendron tulipifera*) 36-inch (90 cm) diameter breast height (dbh) dominates the canopy. The herb layer consists of Small yellow crownbeard (*Verbesina occidentalis*), Wingstem (*V. alternifolia*), and Daylily (*Hemerocallis fulva*).

Wooded Floodplain – Trees within the wooded floodplain include Box elder (*Acer negundo*) 12-inch dbh, Yellow poplar, Black walnut (*Juglans nigra*), 8-inch dbh, and Green ash (*Fraxinus pennsylvanica*) 12-inch dbh. The understory is dominated by Microstegium (*Microstegium vimineum*), and Giant cane (*Arundinaria gigantea*).

Cleared Urban Floodplain – Vegetation within the cleared urban floodplain includes maintained lawn with Sycamore (*Platanus occidentalis*) 14-inch dbh and Persimmon (*Diospyros virginiana*) 6-inch dbh.

Power Line ROW – Maintenance activities within the power line ROW limit the vegetation to stump sprouts of Tree of heaven (*Ailanthus altissima*) and Yellow poplar, Johnson grass (*Sorghum halepense*), Pokeweed (*Phytolacca Americana*), Morning glory (*Ipomea sp.*), Jimson weed (*Datura stramonium*), and Flowering spurge (*Euphorbia corollata*).

D.2. Wildlife

Fauna observed in the terrestrial communities within the project study area include White-tailed deer (*Odocoileus virginianus*), Blue jay (*Cyanocitta cristata*), and Dragonfly (*Odonata*).

Fauna likely to exist in communities within the project study area are as follows. The roadside community could potentially provide habitat for the Southeastern shrew (*Sorex longirostris*), Eastern mole (*Scalopus aquaticus*), Eastern cottontail (*Sylvilagus floridanus*), Woodchuck (*Marmota monax*), Old-field mouse (*Peromyscus polionitus*), Cotton rat (*Sigmodon hispidus*), Pine vole (*Microtus pinetorum*), Eastern harvest mouse (*Reithrodontomys humulis*), Red fox (*Vulpes fulva*), and White-tailed deer (*Odocoileus virginianus*). Various species of birds may use the roadside areas for foraging and hunting rodents, etc.

Likely fauna inhabiting the forested stream bank corridor will include similar species to the surrounding roadside communities described above. However, this riparian corridor, although thin, may allow movement of mammals from larger forested communities up and downstream of the project study area. These species may include Opossum (*Didelphis virginiana*), Short-tailed shrew (*Blarina brevicauda*), Eastern mole, Eastern cottontail, Eastern chipmunk (*Tamias striatus*), Gray squirrel (*Sciurus carolinensis*), Southern flying squirrel (*Glaucomys volans*), White-footed mouse (*P. leucopus*), Raccoon (*Procyon lotor*), Striped skunk (*Mephitis mephitis*), Bobcat (*Lynx rufus*), and White-tailed deer. Additional bird species, which forage in the adjacent habitats, may nest in the trees located along the stream bank.

Fauna likely to exist in the urban areas include Opossum (*Didelphis virginiana*), Evening bat (*Nycticeius humeralis*), Big brown bat (*Eptesicus fuscus*), Gray squirrel (*Sciurus carolinensis*), Norway rat (*Rattus norvegicus*), House mouse (*Mus musculus*), and Raccoon (*Procyon lotor*).

D.3. Aquatic Communities

There are two aquatic communities located in the project study area. These communities include UT Lyle Creek and one of its tributaries.

Macroinvertebrates found in these communities include mayflies (*Baetidae*), net making caddisflies (*Hydropsychidae*), alderflies (*Magaloptera*), damselfly and dragonfly larvae (*Odonata*), and Crayfish (*Decapoda*).

Fishes observed within these communities include Creek chub (*Semotilus atromaculatus*), Bluehead chub (*Nocomis leptocephalus*), Striped jumprock (*Scartomyzon rupriscartes*), Rosyside dace (*Clinostomus funduloides*), and Greenhead shiner (*Notropis chlorocephalus*).

In addition, the North American bullfrog (*Rana catesbiana*) was observed in the stream.

A review of the NCWRC database showed no occurrence of Significant Aquatic Endangered species within 1 mile of the project study area. There are no Essential Fish Habitats or Construction Moratoria for the project study area.

D.4. Anticipated Impacts to Biotic Communities

D.4.a. Terrestrial Communities Impacts

Potential impacts to plant communities are estimated based on the approximate area of each plant community present within both the proposed right-of-way and the temporary construction limits of any on-site detour or easement that falls outside the estimated permanent right-of-way limit. A summary of potential plant community impacts is presented in Table 2. All plant community impacts are based on aerial photograph base mapping. A portion of the permanent plant community impact amount will consist of proposed right-of-way for the road after the bridge replacement is complete. Impervious surface and open water areas are not included in this analysis.

**Table 2
Potential Impacts to Plant Communities**

PLANT COMMUNITY	POTENTIAL IMPACTS		
	acres		
	ALT A (Preferred)	ALT B	
	Impacts	Impacts	Temp. Impacts*
Disturbed Urban Forest	0.05	0.05	0.00
Wooded Floodplain	<0.01	<0.01	0.12
Cleared Urban Floodplain	0.00	0.00	0.37
Power Line ROW	0.00	0.00	0.29
Total (acre)	0.05	0.05	0.78
TOTAL FOR ALT (acre)	0.05	0.83	

* Note: Temporary construction impacts are based on the portion of the impacts that fall outside the estimated right-of-way limit or impacts of temporary on-site detours.

Permanent community impacts for Alternative A represent the least amount of the two alternatives when the potential temporary impacts are included. The plant community with the largest amount of potential permanent and temporary impacts for all proposed alternatives is the Disturbed Urban Forest community.

D.4.b. Aquatic Communities Impacts

The replacement of Bridge No. 17 over UT Lyle Creek will result in certain unavoidable impacts to the aquatic community. Probable impacts will be associated with the physical disturbance of the benthic habitat and water column disturbances resulting from changes in water quantity and quality. Significant disturbance of stream segments can have an adverse effect on aquatic community composition by reducing species diversity and the overall quality of aquatic habitats. Physical alterations to aquatic habitats can result in the following impacts to aquatic communities:

- Inhibition of plant growth.
- Resuspension of organic detritus and removal of aquatic vegetation that can lead to increased nutrient loading. Nutrient loading can, in turn, lead to algal blooms and ensuing depletion of dissolved oxygen levels.
- Increases in suspended and settleable solids that can, in turn, lead to clogging of feeding structures of

filter-feeding organisms and the gills of fish.

- Loss of benthic macroinvertebrates through increased scouring and sediment loading.
- Loss of fish shelter through removal of overhanging stream banks and snags.
- Increases in seasonal water temperatures resulting from removal of riparian canopy.
- Burial of benthic organisms and associated habitat.

Unavoidable impacts to aquatic communities within and immediately downstream of the project study area will be minimized to the fullest degree practicable through strict adherence to NCDOT's *Best Management Practices for the Protection of Surface Waters* (NCDOT, 1997) and other applicable guidelines pertaining to best management practices. Means to minimize impacts will include (1) utilizing construction methods that will limit instream activities as much as practicable, (2) restoring the stream bed as needed, and (3) revegetating stream banks immediately following the completion of grading.

E. Special Topics

E.1. "Waters of the United States": Jurisdictional Issues

Surface waters within the embankments of UT Lyle Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR 328.3). 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 of the soil surface for a portion (12.5 percent) of the growing season (DOA 1987). No wetlands have been mapped within the project study area under the National Wetlands Inventory (NWI) program.

E.2. Anticipated Impacts to Waters of the United States

Temporary and permanent impacts to surface waters and wetlands are estimated based on the amount of each jurisdictional area within the project limits. Temporary impacts include those impacts that will result from temporary construction activities outside of permanent right-of-way and/or those associated with temporary on-site detours. Temporary impact areas will be restored to their original condition after the project has been completed. Permanent impacts are those areas that will be in the construction limits and/or the proposed right-of-way of the new structure and approaches. Portions of those areas that are considered temporary impact areas often end up being within the final right-of-way.

No jurisdictional wetlands were found within the project study area. Neither alternative will have any stream channel impacts because each alternative calls for the existing bridge to be replaced with a new bridge. The on-site detour proposed in Alternative B also utilizes a temporary bridge.

E.3. Permits

Section 404 of the Clean Water Act - In accordance with Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit is required from the United States Army Corp of Engineers (USACE) for projects of this type for the discharge of dredge or fill material in "Waters of the United States". The USACE issues two types of permits for these activities. A general permit may be issued on a nationwide or regional basis for a category, or categories, of activities when: those activities are substantially similar in nature and cause only minimal individual or cumulative environmental impacts, or when the general permit would result in avoiding unnecessary duplication of regulatory control exercised by another Federal, state, or local agency provided that the environmental consequences of the action are individually and cumulatively minimal. If a general permit is not appropriate for a

particular activity, then an individual permit must be utilized. Individual permits are authorized on a case-by-case evaluation of a specific project involving the proposed discharges.

It is anticipated that this project will fall under Nationwide Permit 23, which is a type of general permit. Nationwide Permit 23 is relevant to approved Categorical Exclusions. This permit authorizes any activities, work, and discharges undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another federal agency and that the activity is "categorically excluded" from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the environment. Activities authorized under nationwide permits must satisfy all terms and conditions of the particular permit. However, final permit decisions are left to the discretionary authority of the USACE.

Section 401 Water Quality Certification - A 401 Water Quality Certification, administered through the DWQ, will also be required. This certification is issued for any activity which may result in a discharge into waters for which a federal permit is required. According to the DWQ, one condition of the permit is that the appropriate sediment and erosion control practices must be utilized to prevent exceedences of the appropriate turbidity water quality standard.

E.4. Mitigation

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

Avoidance – Mitigation by avoidance examines appropriate and practicable measures for averting impact to Waters of the United States. A 1990 Memorandum of Agreement between the Environmental Protection Agency (EPA) and the USACE, states that in determining appropriate and practicable measures to offset unavoidable impacts; such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes.

The proposed alternative involves replacing the bridge "in-place" and utilizing an off-site detour thereby avoiding any impacts.

Minimization – Minimization of adverse impact to Waters of the United States includes examination of appropriate and practicable measures to reduce such impacts. Implementation of these steps will be required through project modifications and permit conditions. Adverse impacts are typically minimized by decreasing the proposed project footprint through reduction of median widths, right-of-way widths, and/or fill slopes.

Other practical mechanisms to minimize impacts to waters of the United States include strict enforcement of sedimentation control BMPs for protection of surface waters during the entire life of the project; reduction of clearing and grubbing activity; reduction/elimination of direct discharge into streams; reduction of runoff velocity; reestablishment of vegetation on exposed areas, with judicious pesticide and herbicide management; minimization of instream activity; and litter/debris control.

No measures are proposed for this project because there are no jurisdictional wetlands within the project study area.

Compensatory Mitigation – Compensatory mitigation, including restoration, creation and enhancement of Waters of the United States, is typically not considered unless anticipated impacts to Waters of the United States have been avoided and minimized to the maximum extent practicable. Further, it is recognized that “no net loss of wetlands” may not be achievable in every permit action. Therefore, compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization measures have been required.

Compensatory mitigation is not expected to be required for this project. A final determination regarding mitigation requirements rest with the USACE.

F. Protected Species

F.1. Federally Protected Species

Species with the federal classification of Endangered (E), Threatened (T), or Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Table 3 lists the federal protected species for Catawba County (USFWS list dated February 5, 2003).

**Table 3
Federally Protected Species Listed for Catawba County, North Carolina**

Common Name	Scientific Name	Status	Biological Conclusion
Dwarf-flowered heartleaf	<i>Hexastylis naniflora</i>	T	No Effect

Threatened - any native or once-native species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Dwarf-flowered heartleaf – The dwarf-flowered heartleaf is a small, spicy-smelling, rhizomatous perennial herb. The long-stalked evergreen leaves (to about 6 inches long) are leathery, heart-shaped, and mottled with white (Kral 1983). The solitary purplish flower is jug-shaped, fleshy and firm, and has three triangular lobes. Flower and fruits appear in April and early May, usually under leaf litter (Cooper et al. 1977).

Preferred habitat is north-facing slopes of rich deciduous forest, usually associated with mountain laurel in acidic, sandy loam soils. Suitable soils in this region of the state are Pacolet sandy loam, Madison gravelly sandy loam, and Musella fine sandy loam. Dwarf-flowered heartleaf is known from the Piedmont of North and South Carolina (Kral 1983).

BIOLOGICAL CONCLUSION: NO EFFECT

NHP records document the nearest dwarf-flowered heartleaf individuals approximately 3.8 miles southeast of the project study area. Field surveys conducted on June 11, 2003 identified suitable habitat along a short reach of stream, in the floodplain, and on a low bluff. A systematic survey of these areas of suitable habitat failed to identify this species.

F.2. Federal Species of Concern

Federal Species of Concern (FSC) are not afforded federal protection under the Endangered Species Act and are not subject to any of the provisions included in Section 7 until they are formally proposed or listed as Threatened or Endangered. In addition to the federal program, organisms that are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the North Carolina Natural Heritage Program (NCNHP) on its list of Rare Plant and Animal Species are afforded state protection under the N.C. State Endangered Species Act and the N.C. Plant Protection and Conservation Act of 1979. Table 4 lists the Federal Species of Concern for Catawba County, the state status of these species, and the potential for suitable habitat in the project study area. The NCNHP database shows no occurrences of FSC within 1 mile (1.6 km) of the project study area as of August 2001.

Table 4
Federal Species of Concern (FSC) for Catawba County, North Carolina

Common Name	Scientific Name	Potential Habitat	State Status
Catawba crayfish ostracod	<i>Dactylocythere isabelae</i>	Yes	SR
Sweet pinesap	<i>Monotropis odorata</i>	No	SR-T

Threatened (T) - any native or once-native species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Significantly Rare (SR) - a species not listed as "E", "T", or "SC", but which exists in the state in small numbers and has been determined to need monitoring.

F.3. Summary of Anticipated Impacts

The proposed project is not anticipated to impact any threatened or endangered species.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation'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 undertakings (federally funded, licensed, or permitted) on properties listed in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. This project has been coordinated with the North Carolina State Historic Preservation Officer (SHPO) in accordance with the Advisory Council's regulations and FHWA procedures.

B. Historic Architecture

The SHPO, in a memorandum dated April 10, 2002, stated "We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed." A copy of the SHPO memorandum is included in the Appendix.

C. Archaeology

The SHPO, in a memorandum dated April 10, 2002, stated "We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed." A copy of the SHPO memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

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

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

Replacement of Bridge No. 17 will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

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

No adverse impact on families or communities is anticipated. Right-of-way acquisition will be limited. No relocations are expected with implementation of the proposed alternative.

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

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine whether minority or low-income populations were receiving disproportionately high and adverse human health and environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

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

This project has been coordinated with the United States Department of Agriculture, Natural Resources Conservation Service. The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland for all land acquisition and construction projects. The proposed project involves replacing the bridge in its existing location; therefore, no impacts to prime or locally important farmland are anticipated.

No publicly owned parks or recreational facilities, wildlife and waterfowl refuges, or historic sites of national, state or local significance in the immediate vicinity of the project will be impacted.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

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

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

The NCDOT Geotechnical Unit determined that no underground storage tanks or areas of other contamination were present at or near the project study area.

Catawba County is a participant in the Federal Flood Insurance Program. The project is located in a Detailed Study Area. The replacement structure is proposed as an in-kind replacement and in the absence of historical problems, increased flood impacts associated with this bridge replacement are not anticipated. The approximate 100-year floodplain in the project study area is shown in Figure 6.

Geotechnical borings for the bridge foundation will be necessary.

Based on the above discussion, it is concluded that no substantial adverse environmental impacts will result from the replacement of Bridge No. 17.

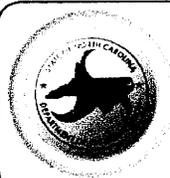
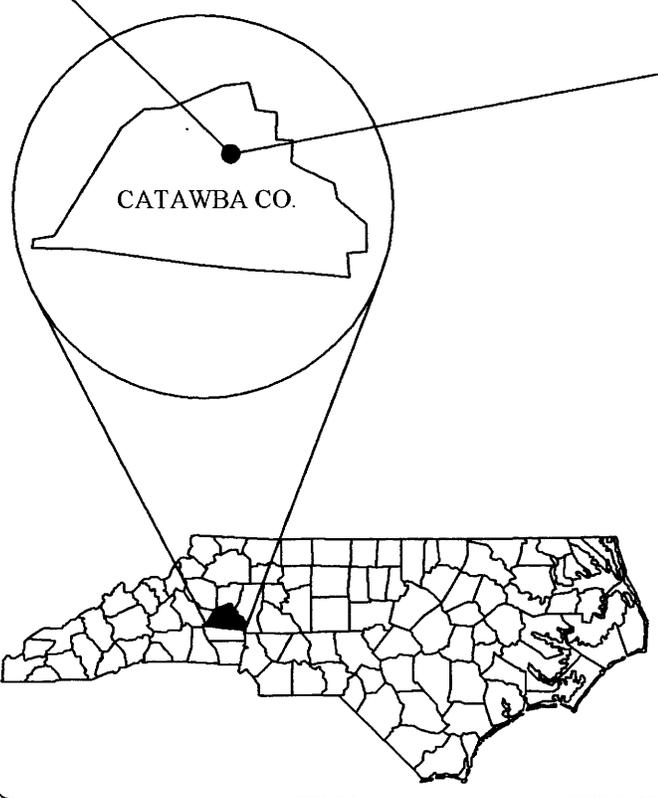
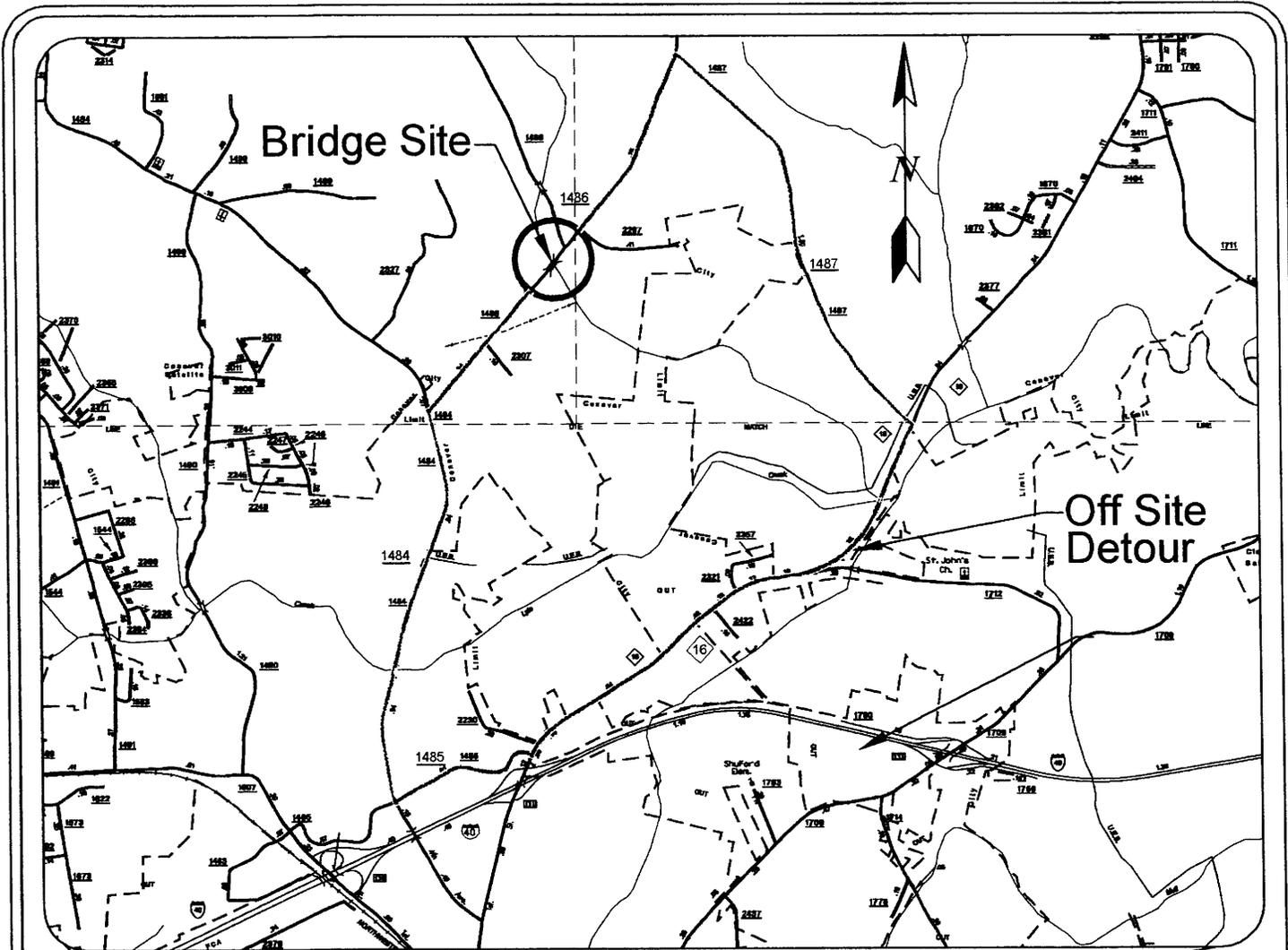
VIII. PUBLIC INVOLVEMENT

Due to the isolated nature of this bridge replacement project, no formal public involvement program was initiated. Efforts were undertaken early in the planning process to contact local officials to involve them in the project development with a scoping letter.

IX. AGENCY COMMENTS

Agencies have commented on the proposed bridge replacement (see letters in the Appendix). These comments were noted and considered during the environmental and design processes.

FIGURES



**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**SR 1486
Replace Bridge No. 17 over
unnamed creek
Catawba County, North Carolina**

**TIP NO. B-4060
PROJECT VICINITY MAP**

Not to Scale

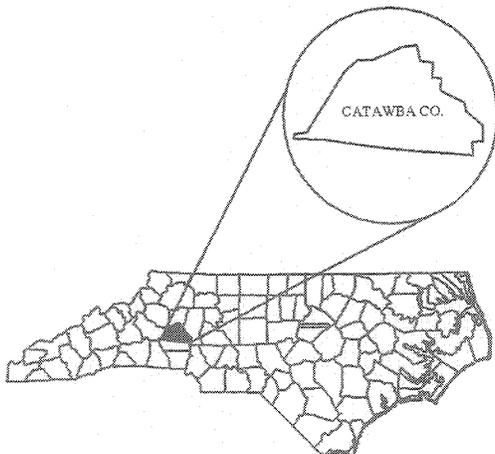
FIGURE 1



Looking North across Bridge No. 17



Looking South across Bridge No. 17



**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**SR 1486
Replace Bridge No. 17 over
unnamed creek
Catawba County, North Carolina**

TIP NO. B-4060

Not to Scale

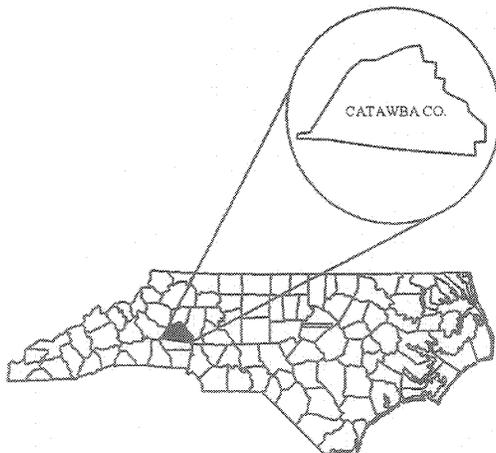
FIGURE 2



Looking East at Bridge No. 17



Looking West from Bridge No. 17



**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**SR 1486
Replace Bridge No. 17 over
unnamed creek
Catawba County, North Carolina**

TIP NO. B-4060

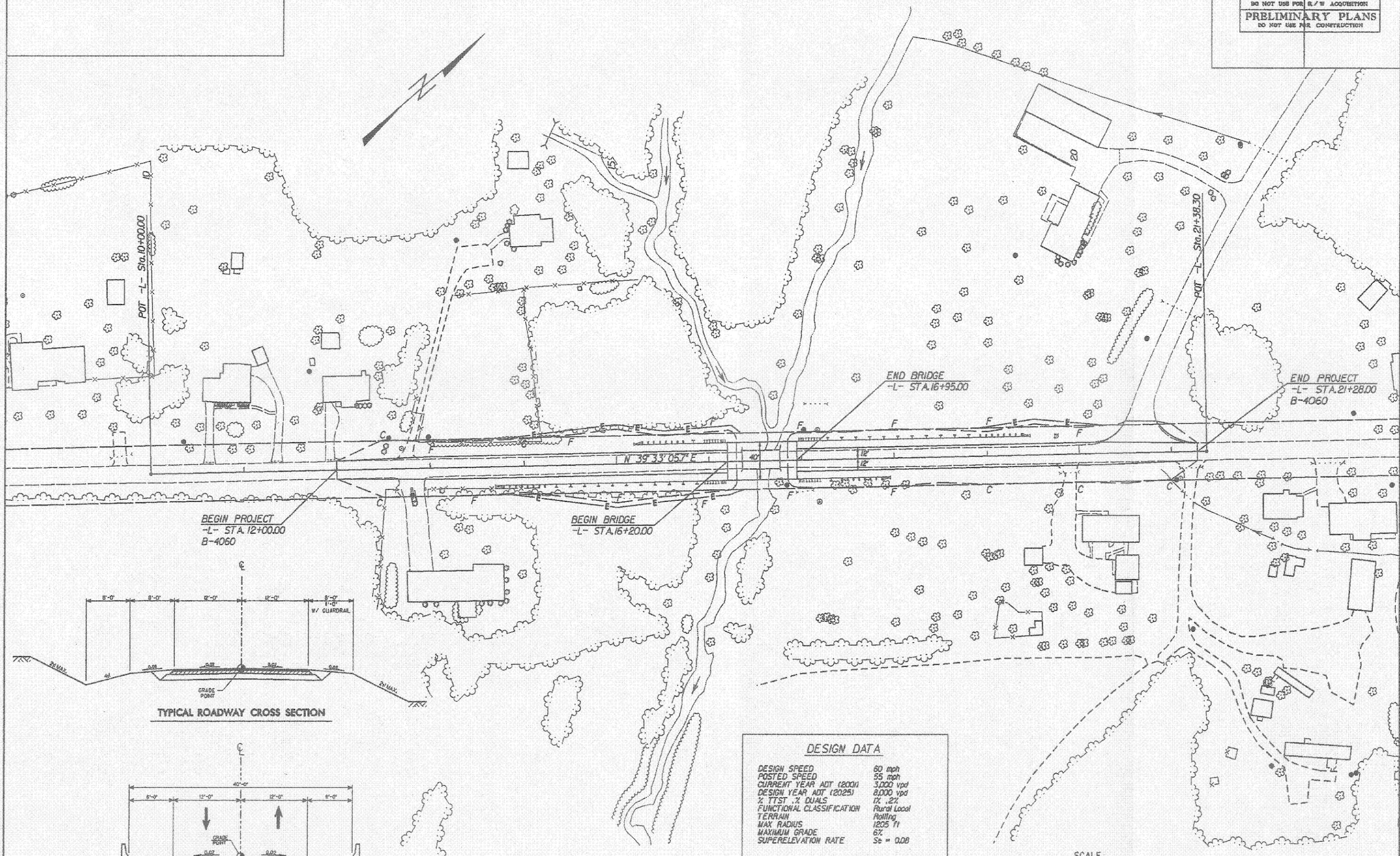
Not to Scale

FIGURE 3

REVISIONS

ALTERNATIVE A (REPLACE IN - PLACE WITH OFF-SITE DETOUR)

PROJECT REFERENCE NO. B-4060	SHEET NO.
BW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



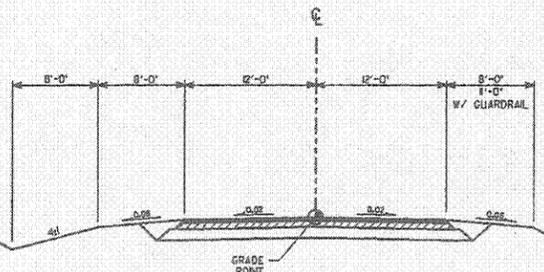
BEGIN PROJECT
-L- STA. 12+00.00
B-4060

BEGIN BRIDGE
-L- STA. 16+20.00

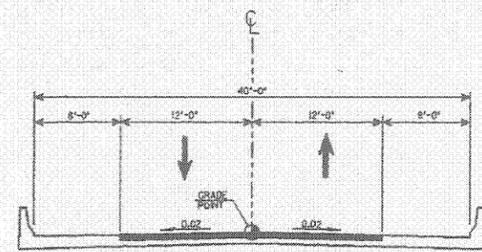
END BRIDGE
-L- STA. 16+95.00

END PROJECT
-L- STA. 21+28.00
B-4060

N 39° 33' 05.7\"/>



TYPICAL ROADWAY CROSS SECTION



TYPICAL BRIDGE CROSS SECTION

DESIGN DATA	
DESIGN SPEED	60 mph
POSTED SPEED	55 mph
CURRENT YEAR ADT (2001)	3,000 vpd
DESIGN YEAR ADT (2025)	8,000 vpd
% TTST % DUALS	1% .2%
FUNCTIONAL CLASSIFICATION	Rural Local
TERRAIN	Rolling
MAX RADIUS	1205 Ft
MAXIMUM GRADE	6%
SUPERELEVATION RATE	Se = 0.08

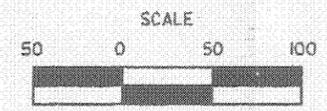
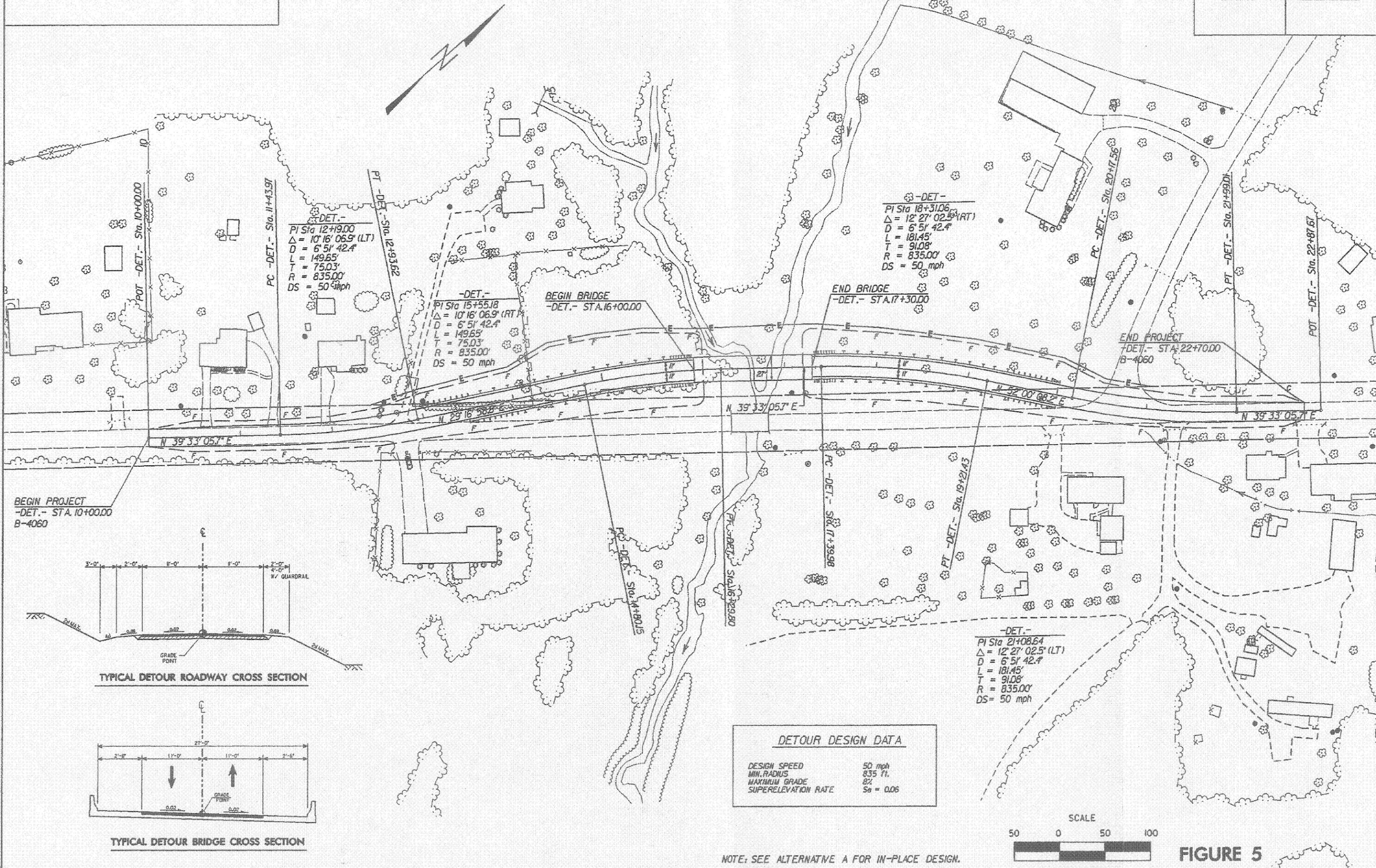


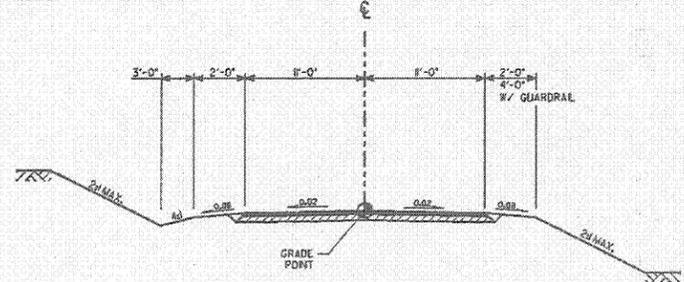
FIGURE 4

ALTERNATIVE B (DETOUR DESIGN)

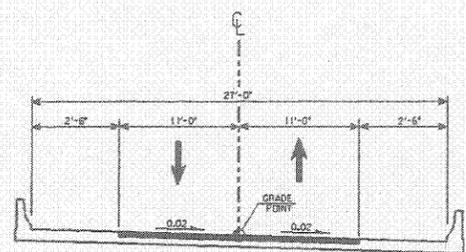
PROJECT REFERENCE NO. B-4060	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



BEGIN PROJECT
-DET.- STA. 10+00.00
B-4060



TYPICAL DETOUR ROADWAY CROSS SECTION

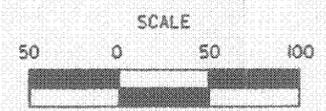


TYPICAL DETOUR BRIDGE CROSS SECTION

DETOUR DESIGN DATA

DESIGN SPEED	50 mph
MIN. RADIUS	835 ft.
MAXIMUM GRADE	8%
SUPERELEVATION RATE	Se = 0.06

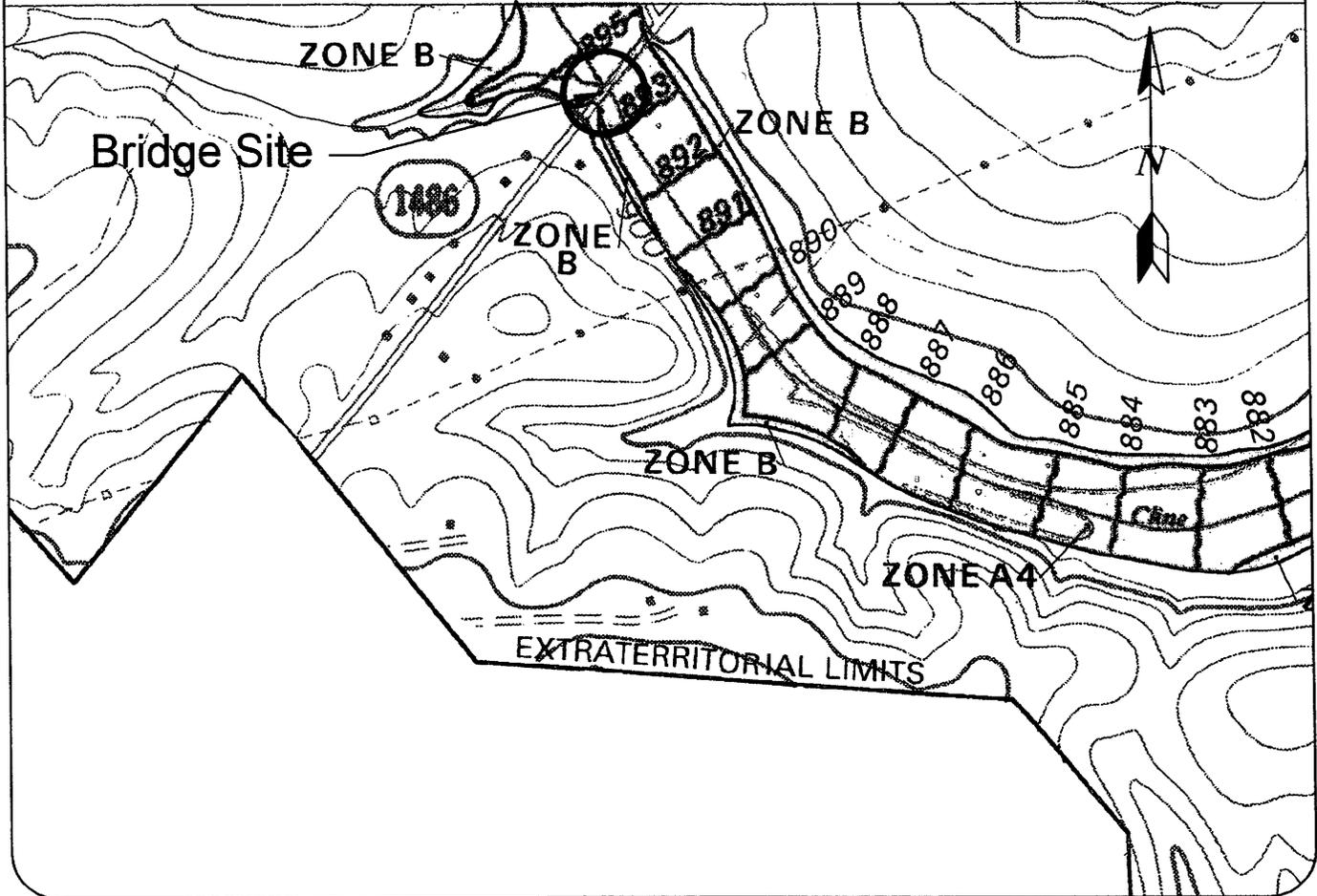
-DET-
PI Sta 21+08.64
Δ = 12° 27' 02.5" (LT)
D = 6' 5" 42.4"
L = 181.45'
T = 91.08'
R = 835.00'
DS = 50 mph



NOTE: SEE ALTERNATIVE A FOR IN-PLACE DESIGN.

FIGURE 5

JOINS PANEL 40



FLOOD INSURANCE RATE MAP

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

PANEL 130 OF 350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
370050 0130 B

EFFECTIVE DATE:
SEPTEMBER 3, 1980



federal emergency management agency
federal insurance administration



**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**SR 1486
Replace Bridge No. 17 over
Cline Creek
Catawba County, North Carolina**

**TIP NO. B-4060
FEMA 100-YEAR FLOOD PLAIN
MAP**

Not to Scale

FIGURE 6

APPENDIX

US Fish and Wildlife Service

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

MEMO FOR: William T. Goodwin, P.E.

DATE: June 27, 2002

FROM: Marella Buncick

SUBJECT: Review of NCDOT 2005 Bridge Program

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

Attached is a spreadsheet with specific comments for each project reviewed. All of the projects have been assigned a Green, Yellow, or Red ranking depending on the resources affected and the need for future consultation. As you will note, the majority of the projects received a Yellow ranking. This is due in large part to the fact that there are unresolved issues related to listed species. Many of these projects likely will become Green projects after further field review. However, obligations under Section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) actions are subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

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

Report Content and Organization

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

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

Listed Species Surveys

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

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

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

Bridge Design and Construction Practices

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

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

PDE	TIP	County	Rank	Reason for Rank	FWS Log Number
SH	B-2988	Haywood	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-391
MD	B-4011	Ashe	Y	FWS requests resurvey for spiraea, assessment for bog turtle and green floater, review bridge plans	4-2-02-405
MD	B-4012	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle	4-2-02-404
MD	B-4013	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-403
MD	B-4015	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-402
MD	B-4016	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-401
SH	B-4032	Buncombe	G	FWS requests review of bridge design	4-2-02-387
SH	B-4036	Buncombe	Y	unresolved for mussels, FWS requests review of bridge design	4-2-02-395
SH	B-4037	Buncombe	Y	unresolved for mussels, FWS requests review of bridge design	4-2-02-396
DW	B-4038	Burke	Y	unresolved for listed species, be careful of downstream effects	4-2-02-379
DW	B-4039	Burke	Y	unresolved for heartleaf	4-2-02-360
RY	B-4040	Burke	Y	FWS requests resurvey for heartleaf	4-2-02-381
DW	B-4041	Burke	Y	FWS requests resurvey for heartleaf	4-2-02-382
RY	B-4043	Burke	Y	FWS requests mussel survey, requests bridge to bridge and review of bridge design	4-2-02-383
RY	B-4044	Burke	Y	FWS requests resurvey for heartleaf and pogonia, bridge to bridge	4-2-02-384
RY	B-4045	Burke	Y	FWS requests resurvey for heartleaf, new occurrence w/in 1 mile	4-2-02-385
RY	B-4046	Burke	Y	unresolved for pogonia, FWS requests resurvey for heartleaf, request bridge for high quality stream	4-2-02-408
RY	B-4047	Burke	Y	unresolved for heartleaf	4-2-02-386
MD	B-4052	Caldwell	Y	unresolved for heartleaf, be careful of the USGS gaging station at this location	4-2-02-407
JJ	B-4059	Cawtaba	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-409
DW	B-4060	Cawtaba	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-410
RY	B-4067	Cherokee	Y	unresolved for listed species, close coordination w/USFS, high quality stream	4-2-02-394
DW	B-4070	Cherokee	Y	all listed species unresolved, FWS requests special consideration here for sicklefin redhorse	4-2-02-571
JJ	B-4076	Cleveland	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-413
SH	B-4103	Davidson	Y	FWS requests mussel survey, requests bridge to bridge because of stream quality	4-2-02-370
JJ	B-4116	Gaston	Y	Need resurvey for heartleaf	4-2-02-416
DW	B-4123	Graham	Y	unresolved for listed species, Indiana Bat, close coordination w/USFS, high quality stream	4-2-02-393
SH	B-4144	Haywood	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-392
DP	B-4155	Iredell	G	FWS requests survey for bog turtle	4-2-02-412
DP	B-4158	Iredell	G	FWS requests survey for bog turtle, contractor suggested survey for heartleaf, FWS requests bridge	4-2-02-411
DW	B-4161	Jackson	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-388
JJ	B-4177	Lincoln	Y	Need resurvey for heartleaf	4-2-02-414
DW	B-4178	Lincoln	Y	Need resurvey for heartleaf	4-2-02-415
DW	B-4179	Macon	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-389
RY	B-4180	Macon	Y	unresolved for listed species, FWS requests bridge to bridge, consideration for green salamander	4-2-02-390
RY	B-4183	Madison	Y	These 2 bridge replacements are part of R-2518 and 2519 merger process, review by merger team	

PDE	TIP	County	Rank	Reason for Rank	FWS Log Number
DW	B-4192	McDowell	Y	Need to assess pogonia	4-2-02-418
JJ	B-4194	McDowell	Y	Need to assess pogonia	4-2-02-419
JJ	B-4195	McDowell	Y	Need to assess pogonia	4-2-02-420
JJ	B-4196	McDowell	Y	Need to assess pogonia	4-2-02-421
DW	B-4197	McDowell	Y	Need to assess pogonia, FWS requests mussel surveys, bridge to bridge for high quality stream	4-2-02-422
JJ	B-4198	McDowell	Y	Need to assess pogonia	4-2-02-423
DW	B-4199	McDowell	Y	Need to assess pogonia	4-2-02-424
DW	B-4202	Mitchell	Y	Unresolved for Elktoe, FWS requests bridge to bridge, NO SURVEY NEEDED FOR INDIANA BAT	4-2-02-417
DW	B-4239	Polk	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-369
DW	B-4240	Polk	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-361
SH	B-4255	Rowan	G	may need resurvey for Schweinitz's sunflower	4-2-02-375
SH	B-4258	Rutherford	Y	unresolved for small-whorled pogonia	4-2-02-362
RY	B-4259	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another heartleaf survey	4-2-02-363
RY	B-4260	Rutherford	Y	unresolved for small-whorled pogonia	4-2-02-364
SH	B-4261	Rutherford	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-365
RY	B-4264	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf	4-2-02-368
RY	B-4265	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf and irisette	4-2-02-366
RY	B-4266	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf	4-2-02-367
SH	note for Rutherford Co projects--No survey is required for Indiana bat because the record is a winter record.				
SH	B-4282	Stokes	R	unresolved for cardamine and James spiny mussel, FWS concerned about bridge design	4-2-02-376
DP	B-4284	Surry	Y	unresolved for pogonia, FWS requests assessment for bog turtle and brook floater, bridge to bridge	4-2-02-426
DP	B-4285	Surry	Y	unresolved for pogonia, FWS requests assessment for bog turtle and brook floater	4-2-02-425
RY	B-4286	Swain	R	unresolved for listed species, esp. Indiana bat, FWS concerned with bridge design	4-2-02-378
DW	B-4287	Swain	R	unresolved for listed species, esp. Indiana bat, FWS concerned with bridge design	4-2-02-377
RY	B-4288	Transylvania	Y	unresolved for listed species, esp. Indiana bat, FWS requests survey for bunched arrowhead	4-2-02-374
SH	B-4290	Transylvania	Y	unresolved for listed species	4-2-02-373
SH	B-4291	Transylvania	Y	need mussel surveys	4-2-02-372
MD	B-4316	Watauga	Y	FWS requests bridge to bridge for high quality stream, FWS requests survey for green floater	4-2-02-398
JJ	B-4317	Watauga	G	FWS requests bridge to bridge for high quality stream	4-2-02-399
MD	B-4318	Watauga	G	FWS requests bridge to bridge for high quality stream, FWS requests survey for green floater	4-2-02-400
MD	B-4322	Wilkes	G	FWS requests bridge to bridge for high quality stream, assessment for bog turtle	4-2-02-406
DW	B-4330	Yancey	Y	unresolved for elktoe, FWS requests resurvey for Spiraera, be careful of downstream effects	4-2-02-397

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality



Michael Easley, Governor
Bill Ross, Secretary
Gregory Thorpe, Director

June 18, 2002

Memorandum To: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch

Through: John Dorney *J. Dorney*
NC Division of Water Quality

From: Robert Ridings *Robert Ridings*
NC Division of Water Quality

Subject: Review of Natural Systems Technical Reports for bridge
replacement projects scheduled for construction in CFY 2005:
"Green Light" Projects: B-4077, B-4082, B-4090, B-4152, B-4248,
B-4036, B-4059, B-4060, B-4155, B-4158, B-4177, B-4178,
B-4198, B-4197, B-4194, & B-4192.

On all projects, use of proper sediment and erosion control will be needed. Sediment and erosion control measures should not be placed in wetlands. Sediment should be removed from any water pumped from behind a cofferdam before the water is returned to the stream.

This office would prefer bridges to be replaced with new bridges. However if the bridge must be replaced by a culvert and 150 linear feet or more of stream is impacted, a stream mitigation plan will be needed prior to the issuance of a 401 Water Quality Certification. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification

For permitting, any project that falls under the Corps of Engineers' Nationwide Permits 23 or 33 do not require written concurrence by the NC Division of Water Quality. Notification and courtesy copies of materials sent to the Corps, including mitigation plans, are required. For projects that fall under the Corps of Engineers Nationwide Permit 14 or Regional General Bridge Permit 31, the formal 401 application process will be required including appropriate fees and mitigation plans.

Any proposed culverts shall be installed in such a manner that the original stream profile is 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.

Do not use any machinery in the stream channels unless absolutely necessary. Additionally, vegetation should not be removed from the stream bank unless it is absolutely necessary. NCDOT should especially avoid removing large trees and undercut banks. If large, undercut trees must be removed, then the trunks should be cut and the stumps and root systems left in place to minimize damage to stream banks.

Special Note on projects B-4077 and B-4090: these waters are classified as 303(d) waters. Special measures for sediment control will be needed

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.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
151 PATTON AVENUE
ROOM 208
ASHEVILLE, NORTH CAROLINA 28801-5006

Regulatory Division
Asheville Regulatory Field Office

June 14, 2002

Mr. William T. Goodwin, Jr., PE
Bridge Replacement Planning Unit
Project Development & Environmental Analysis Branch
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Subject: Review of Natural Systems Technical Reports for bridge replacement projects
scheduled for construction in CFY 2005; **Distribution Group 3**

Dear Mr. Goodwin:

Reference your letters February 18, 2002, March 1, 2002, March 18, 2002, and
April 24, 2002 regarding our scoping comments on the following proposed bridge
replacement projects:

1. TIP Project No. B-4059, Bridge No. 79 on SR 1156 over Anthony Creek,
Catawba County.
2. TIP Project No. B-4060, Bridge No. 17 on SR 1486 over UT Lyle Creek,
Catawba County.
3. TIP Project No. B-4076, Bridge No. 156 on SR 1804 over Buffalo Creek,
Cleveland County.
4. TIP Project No. B-4116, Bridge No. 148 on SR 1618 over Beaver Dam Creek,
Gaston County.
5. TIP Project No. B-4155, Bridge No. 116 on SR 1521 over Third Creek, Iredell
County.
6. TIP Project No. B-4158, Bridge No. 228 on SR 1854 over Rocky Creek, Iredell
County.
7. TIP Project No. B-4177, Bridge No. 142 on SR 1193 over Howards Creek,
Lincoln County.
8. TIP Project No. B-4178, Bridge No. 33 on SR 1357 over Dellinger Creek,
Lincoln County.

With the exception of B-4155, Bridge No. 116, Iredell Co., it does not appear that any
of these proposed bridge replacement projects will impact jurisdictional wetlands. Pursuant

to Section 404 of the Clean Water Act of 1977, as amended, Department of the Army (DA) permit authorization will be required for the discharge of excavated or fill material in waters (and wetlands, if applicable) of the United States, including disposal of construction debris. Specific permit requirements will depend on design of the projects, extent of fill work within the waters of the United States, construction methods, and other factors.

Although these projects may qualify as a Categorical Exclusion, to qualify for nationwide permit authorization under Nationwide Permit #23, the project planning report should contain sufficient information to document that the proposed activity does not have more than a minimal individual or cumulative impact on the aquatic environment. All activities, including temporary construction, access, and dewatering activities, should be included in the project planning report. Our experience has shown that replacing bridges with culverts often results in sufficient adverse impacts to consider the work as having more than minimal impacts on the aquatic environment. Accordingly, the following items need to be addressed in the project planning report:

a. The report should contain the amount of permanent and temporary impacts to waters and wetlands as well as a description of the type of habitat that will be affected by the proposed project.

b. Off-site detours are generally preferable to on-site (temporary) detours which impact waters or wetlands. If an on-site detour is the recommended action, justification should be provided that demonstrates that alternatives with lesser impacts are not practicable. Please note that an onsite detour constructed on a spanning structure can potentially avoid permanent impacts to waters or wetlands and should be considered whenever an on-site detour is the recommended action. For projects where a spanning structure is not feasible, the NCDOT should investigate the existence of previous onsite detours at the site that were used in previous construction activities. These areas should be utilized for onsite detours whenever possible to minimize impacts.

For proposed projects and associated on-site detours that cause minimal losses of waters or wetlands, an approved restoration and monitoring plan will be required prior to issuance of a DA nationwide or Regional general permit. For proposed projects and associated on-site detours that cause more than minimal losses of waters or wetlands, an individual DA permit and a compensatory mitigation proposal for the unavoidable impacts may be required.

c. Project commitments should include the removal of all temporary fills from waters and wetlands and "time-of-year" restrictions on in-stream work if recommended by the NC Wildlife Resources Commission.

d. All restored areas should be planted with endemic vegetation including trees, if appropriate. For projects proposing a temporary onsite detour, the entire detour area, including any previous detour from past construction, should be removed in its entirety.

e. The report should provide an estimate of the linear feet of new impacts to streams resulting from construction of the project.

d. If a bridge is proposed to be replaced with a culvert, NCDOT must demonstrate that the work will not result in more than minimal impacts to the aquatic environment, specifically addressing the passage of aquatic life including anadromous fish. The work must also not alter the stream hydraulics and create flooding of adjacent properties or result in unstable stream banks.

g. The report should discuss and recommend bridge demolition methods and shall include the impacts of bridge demolition and debris removal in addition to the impacts of constructing the bridge. The report should also incorporate the bridge demolition policy recommendations pursuant to the NCDOT policy entitled "Bridge Demolition and Removal in Waters of the United States" dated September 20, 1999.

h. Lengthening existing bridges can often benefit the ecological and hydrological functions of the associated wetlands and streams. In some cases bridge approaches are connected to earthen causeways that were built over wetlands and streams. Replacing these causeways with longer bridges would allow previously impacted waters, wetlands and floodplains to be restored. In an effort to encourage this type of work, mitigation credit for wetland restoration activities can be provided to offset the added costs of lengthening an existing bridge.

i. Based on the information provided, determinations of "No Effect" were made in Biological Conclusions regarding Federally protected species identified within counties of the subject projects. It is noted that recommendations were made for further investigation regarding the bog turtle (B-4155, Iredell Co.) and the dwarf-flowered heartleaf (B-4158, Lincoln Co.), indicating that the presence of federally listed species identified in the natural systems report for some of these projects remains unresolved, and will require further study before an effect determination can be made.

j. You have requested that the referenced projects be given a designation of "Red", "Green" or "Yellow" as explained in your letters. At this time, all the projects listed above would receive a "Yellow" designation by our office.

Should you have any questions please call Mr. John W. Hendrix in the Asheville
Regulatory Field Office at 828-271-7980, ext. 7.

Sincerely,

A handwritten signature in cursive script that reads "John W. Hendrix".

John W. Hendrix
Project Manager



☒ North Carolina Wildlife Resources Commission ☒

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

TO: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement & Environmental Analysis Branch

FROM: Ron Linville, Habitat Conservation Coordinator
Habitat Conservation Program *RL*

DATE: May 20, 2002

SUBJECT: NCDOT Bridge Replacements:
Catawba County – Bridge No. 79, SR1156, Anthony Creek, B-4059
Catawba County – Bridge No. 17, SR1486, Wyle Creek, B-4060
Caldwell County – Bridge No. 7, NC268, Yadkin River, B-4052
Lincoln County – Bridge No. 33, SR1357, Dellinger Creek, B-4178
Lincoln County – Bridge No. 142, SR1193, Howards Creek, B-4177
Gaston County – Bridge No. 148, SR1618, Beaver Dam Creek, B-4116
Cleveland County – Bridge No. 156, SR1804, Buffalo Creek, B-4076
Surry County – Bridge No. 221, SR1625, Pauls Creek, B-4285
Surry County – Bridge No. 29, SR1322, Mill Creek, B-4284
Iredell County – Bridge No. 116, SR1521, Third Creek, B-4155
Watauga County – Bridge No. 320, SR1153, Beech Creek, B-4316
Watauga County – Bridge No. 16, SR1541, MF SF New River, B-4317
Watauga County – Bridge No. 321, SR1598, Watauga River, B-4318
Wilkes County – Bridge No. 71, SR1167, Stony Fork Creek, 4322
Ashe County – Bridge No. 85, SR1106, Mill Creek, B-4011
Ashe County – Bridge No. 117, SR1118, NF New River, B-4012
Ashe County – Bridge No. 338, SR1320, Roaring River, B-4013
Ashe County – Bridge No. 165, SR1362, Big Horse Creek, B-4015
Ashe County – Bridge No. 273, SR1347, Big Horse Creek, B-4016
Iredell County – Bridge No. 228, SR1854, Rocky Creek, B-4158

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).

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

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Live concrete should not be allowed to contact the water in or entering into the stream.
4. If possible, bridge supports (bents) should not be placed in the stream.
5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.
6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.
11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.
12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.
15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.
16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

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

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

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

Project specific comments:

1. Catawba County – Bridge No. 79, SR1156, Anthony Creek, B-4059, GREEN LIGHT
No special concerns indicated. Standard requirements should apply.
2. Catawba County – Bridge No. 17, SR1486, Wyle Creek, ~~B-4060~~, GREEN LIGHT
No special concerns indicated. Standard requirements should apply.
3. Caldwell County – Bridge No. 7, NC268, Yadkin River, B-4052, YELLOW LIGHT
Warmwater species including small mouth bass. Brown trout moratorium (October 15 through April 15). NEW spanning bridge preferred.
4. Lincoln County – Bridge No. 33, SR1357, Dellinger Creek, ~~B-4178~~, GREEN LIGHT
No special concerns indicated. Standard requirements should apply.
5. Lincoln County – Bridge No. 142, SR1193, Howards Creek, B-4177, GREEN LIGHT
No special concerns indicated. Standard requirements should apply.
6. Gaston County – Bridge No. 148, SR1618, Beaver Dam Creek, B-4116, GREEN LIGHT
Moratorium (May 1 – July 15). Standard requirements should apply.
7. Cleveland County – Bridge No. 156, SR1804, Buffalo Creek, B-4076, GREEN LIGHT
Warmwater fishery. No special concerns indicated. Standard requirements should apply.
8. Surry County – Bridge No. 221, SR1625, Pauls Creek, B-4285, YELLOW/RED LIGHT
Hatchery Supported Waters. Trout stocking location. Work should be accomplished between June 15 – March 15. New spanning bridge structure requested.
9. Surry County – Bridge No. 29, SR1322, Mill Creek, B-4284, RED LIGHT
Small mouth bass moratorium (May 1 – June 30). Survey for brook floater (*Alasmidonta varicose*) due to proximity to Mitchell River. Sensitive water erosion controls. New spanning bridge structure requested.
10. Iredell County – Bridge No. 116, SR1521, Third Creek, B-4155, GREEN LIGHT
No special concerns indicated. Standard requirements should apply.
11. Watauga County – Bridge No. 320, SR1153, Beech Creek, B-4316, YELLOW/RED LIGHT
Rainbow trout moratorium. NEW spanning bridge preferred.
12. Watauga County – Bridge No. 16, SR1541, MF SF New River, B-4317, RED LIGHT
Rainbow and brown trout moratorium (October 15 through April 15). Hatchery Supported Waters. Many listed fish and mussels in SF New River. Surveys recommended. Sensitive water erosion control methods. NEW spanning bridge requested.

13. Watauga County – Bridge No. 321, SR1598, Watauga River, B-4318, YELLOW LIGHT Rainbow and Brown trout. NEW spanning bridge preferred.
14. Wilkes County – Bridge No. 71, SR1167, Stony Fork Creek, 4322, YELLOW LIGHT Rainbow and Brown trout. NEW spanning bridge preferred.
15. Ashe County – Bridge No. 85, SR1106, Mill Creek, B-4011, YELLOW LIGHT Brown trout moratorium. NEW spanning bridge preferred.
16. Ashe County – Bridge No. 117, SR1118, NF New River, B-4012, YELLOW LIGHT Rainbow and Brown trout moratorium. NEW spanning bridge preferred.
17. Ashe County – Bridge No. 338, SR1320, Roaring River, B-4013, GREEN LIGHT Rainbow and Brown trout. NEW spanning bridge preferred.
18. Ashe County – Bridge No. 165, SR1362, Big Horse Creek, B-4015, GREEN LIGHT Rainbow trout moratorium. NEW spanning bridge preferred.
19. Ashe County – Bridge No. 273, SR1347, Big Horse Creek, B-4016, YELLOW LIGHT Small mouth bass moratorium. NEW spanning bridge?
20. Iredell County – Bridge No. 228, SR1854, Rocky Creek, B-4158, YELLOW LIGHT Small mouth bass moratorium. Standard requirements should apply.

NCDOT should routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. Restoring previously disturbed floodplain benches should narrow and deepen streams previously widened and shallowed during initial bridge installation. 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 and reduce habitat fragmentation.

Please be advised that this is a cursory review and that other issues may arise during additional site reviews and visits. If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (336) 769-9453. Thank you for the opportunity to review and comment on these projects.

Cc: David Cox, WRC



Weaver

North Carolina Department of Cultural Resources
State Historic Preservation Office

David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary
Office of Archives and History

Division of Historical Resources
David J. Olson, Director

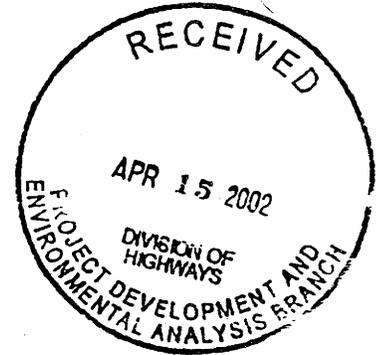
April 10, 2002

MEMORANDUM

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

FROM: David Brook *BJS for DB*

SUBJECT: Replacc Bridge No. 17 on SR 1486 over Creek, B-4060, Catawba County, ER 02-860



Thank you for your memorandum of September 25, 2001, concerning the above project.

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

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.

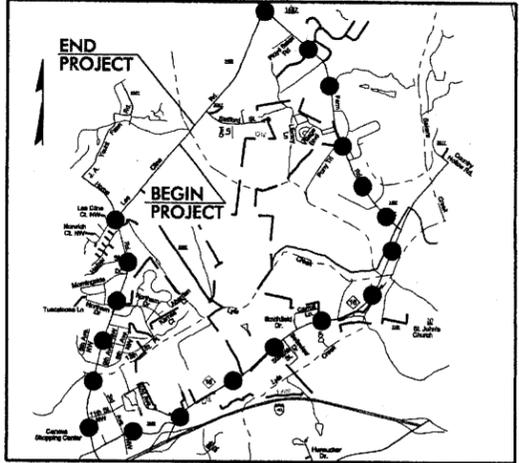
Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

DB:kgc

09/08/09

CONTRACT: C201427 TIP PROJECT: B-4060

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

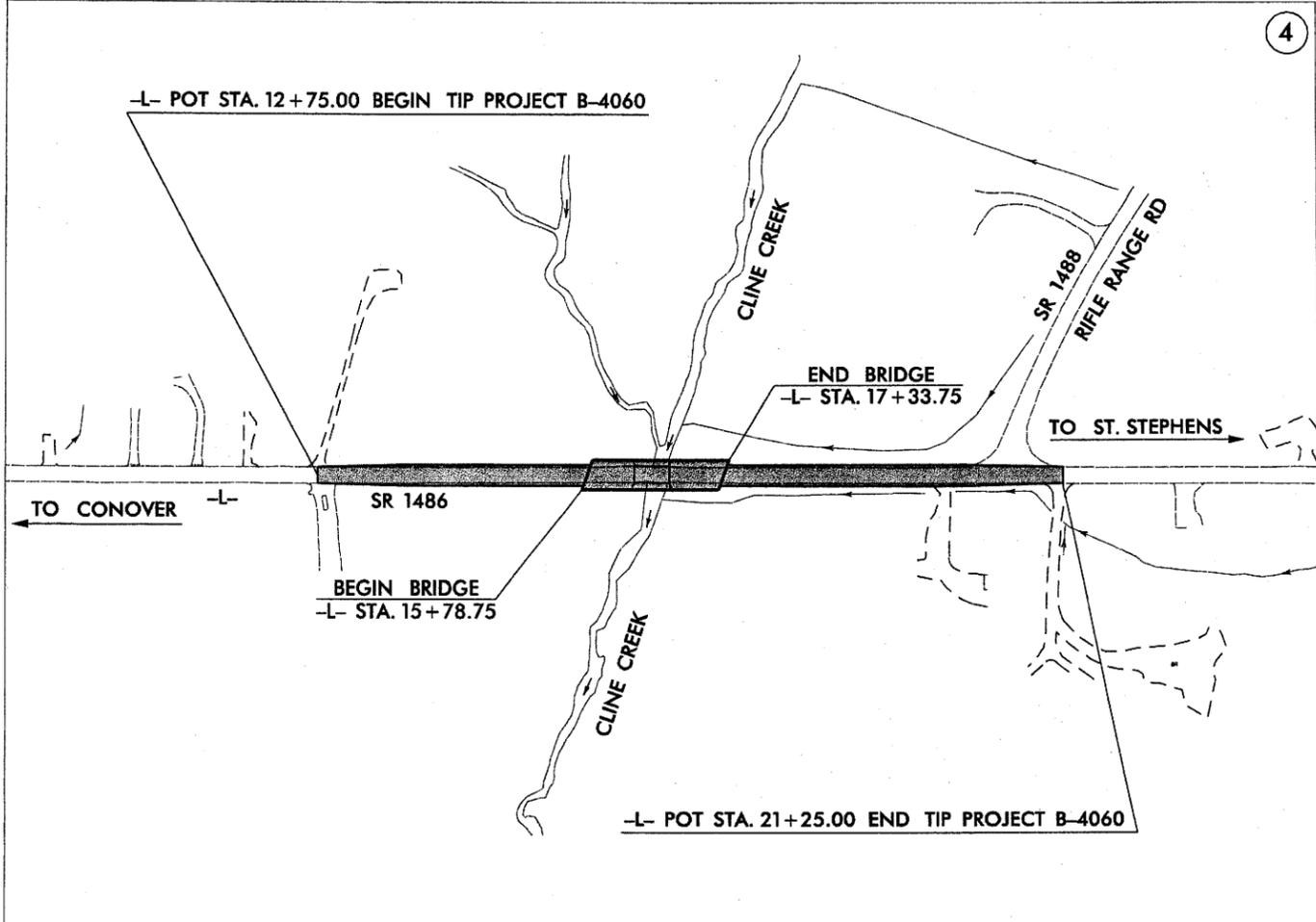


VICINITY MAP
●—● DENOTES OFFSITE DETOUR



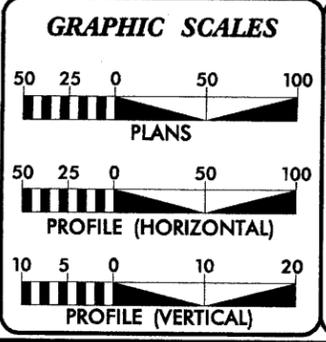
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CATAWBA COUNTY

LOCATION: BRIDGE NO.17 OVER CLINE CREEK ON SR 1486 (LEE CLINE RD.)
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE



SUNGATE DESIGN GROUP, P.A.
15 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27602
TEL: 919.859.2400 FAX: 919.859.4258

** DESIGN EXCEPTION FOR VERTICAL ALIGNMENT & MAXIMUM GRADE



DESIGN DATA

ADT 2006 =	3,870
ADT 2025 =	8,000
DHV =	10%
D =	70%
T =	3% *
** V =	60 MPH
* TTST 1%	DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4060	=	0.132 mi
LENGTH STRUCTURE TIP PROJECT B-4060	=	0.029 mi
TOTAL LENGTH TIP PROJECT B-4060	=	0.161 mi

Plans prepared in the office of:

RAMEY KEMP & ASSOCIATES, INC.
TRANSPORTATION ENGINEERS
4028-A WOOD HILL DRIVE
RALEIGH, NORTH CAROLINA 27609
919-872-3112 FAX 919-872-5218

for the North Carolina Department of Transportation

2002 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: JANUARY 21, 2005	N.C.D.O.T. CONTACT: CATHY S. HOUSER, PE PROJECT ENGINEER ROADWAY DESIGN
LETTING DATE: JUNE 20, 2006	

HYDRAULICS ENGINEER

11/17/05 P.E.
W. HENRY WELLS, JR.

ROADWAY DESIGN ENGINEER

11/16/05 P.E.
MATTHEW B. COPPLE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED: _____ DATE: _____
DIVISION ADMINISTRATOR

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4060	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33424.1.1	BRZ-1486(1)	P.E.	
33424.3.1	BRZ-1486(1)	R /W & UTIL.	
33424.2.2	BRZ-1486(1)	CONST.	

4

5

6

7

8

9

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

*S.U.E = SUBSURFACE UTILITY ENGINEER

ROADS & RELATED ITEMS

Edge of Pavement	---
Curb	---
Prop. Slope Stakes Cut	-C-
Prop. Slope Stakes Fill	-F-
Prop. Woven Wire Fence	○-○
Prop. Chain Link Fence	□-□
Prop. Barbed Wire Fence	◇-◇
Prop. Wheelchair Ramp	(WCR)
Curb Cut for Future Wheelchair Ramp	(CCFR)
Exist. Guardrail	—+—+—+—+—
Prop. Guardrail	—+—+—+—+—
Equality Symbol	⊕
Pavement Removal	⊗

RIGHT OF WAY

Baseline Control Point	◆
Existing Right of Way Marker	△
Exist. Right of Way Line w/Marker	—△—
Prop. Right of Way Line with Proposed	—▲—
RW Marker (Iron Pin & Cap)	▲
Prop. Right of Way Line with Proposed	—▲—
(Concrete or Granite) RW Marker	⊙
Exist. Control of Access Line	⊙
Prop. Control of Access Line	⊙
Exist. Easement Line	-E-
Prop. Temp. Construction Easement Line	-E-
Prop. Temp. Drainage Easement Line	-TDE-
Prop. Perm. Drainage Easement Line	-PDE-

HYDROLOGY

Stream or Body of Water	—
River Basin Buffer	—RBB—
Flow Arrow	→
Disappearing Stream	—
Spring	⊙
Swamp Marsh	—
Shoreline	—
Falls, Rapids	—
Prop Lateral, Tail, Head Ditches	—

STRUCTURES

MAJOR	
Bridge, Tunnel, or Box Culvert	—CONC—
Bridge Wing Wall, Head Wall and End Wall	—CONC WW—

MINOR	
Head & End Wall	—CONC HW—
Pipe Culvert	—
Footbridge	—
Drainage Boxes	□ CB
Paved Ditch Gutter	—

UTILITIES

Exist. Pole	•
Exist. Power Pole	•
Prop. Power Pole	•
Exist. Telephone Pole	•
Prop. Telephone Pole	•
Exist. Joint Use Pole	•
Prop. Joint Use Pole	•
Telephone Pedestal	⊕
U/G Telephone Cable Hand Hold	⊕
Cable TV Pedestal	⊕
U/G TV Cable Hand Hold	⊕
U/G Power Cable Hand Hold	⊕
Hydrant	⊕
Satellite Dish	⊕
Exist. Water Valve	⊕
Sewer Clean Out	⊕
Power Manhole	⊕
Telephone Booth	⊕
Cellular Telephone Tower	⊕
Water Manhole	⊕
Light Pole	⊕
H-Frame Pole	⊕
Power Line Tower	⊕
Pole with Base	⊕
Gas Valve	⊕
Gas Meter	⊕
Telephone Manhole	⊕
Power Transformer	⊕
Sanitary Sewer Manhole	⊕
Storm Sewer Manhole	⊕
Tank; Water, Gas, Oil	⊕
Water Tank With Legs	⊕
Traffic Signal Junction Box	⊕
Fiber Optic Splice Box	⊕
Television or Radio Tower	⊕
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement	—TS—TS—

Recorded Water Line	—W—W—
Designated Water Line (S.U.E.*)	—W—W—
Sanitary Sewer	—SS—SS—
Recorded Sanitary Sewer Force Main	—FSS—FSS—
Designated Sanitary Sewer Force Main(S.U.E.*)	—FSS—FSS—
Recorded Gas Line	—G—G—
Designated Gas Line (S.U.E.*)	—G—G—
Storm Sewer	—S—S—
Recorded Power Line	—P—P—
Designated Power Line (S.U.E.*)	—P—P—
Recorded Telephone Cable	—T—T—
Designated Telephone Cable (S.U.E.*)	—T—T—
Recorded U/G Telephone Conduit	—TC—TC—
Designated U/G Telephone Conduit (S.U.E.*)	—TC—TC—
Unknown Utility (S.U.E.*)	—?UTL—?UTL—
Recorded Television Cable	—TV—TV—
Designated Television Cable (S.U.E.*)	—TV—TV—
Recorded Fiber Optics Cable	—FO—FO—
Designated Fiber Optics Cable (S.U.E.*)	—FO—FO—
Exist. Water Meter	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to U/G Record	ATTUR
End of Information	E.O.I.

BOUNDARIES & PROPERTIES

State Line	—
County Line	—
Township Line	—
City Line	—
Reservation Line	—
Property Line	—
Property Line Symbol	⊕
Exist. Iron Pin	⊕
Property Corner	+
Property Monument	⊕
Property Number	123
Parcel Number	6
Fence Line	—X—X—X—
Existing Wetland Boundaries	—WLB—
High Quality Wetland Boundary	—HQ WLB—
Medium Quality Wetland Boundaries	—MQ WLB—
Low Quality Wetland Boundaries	—LQ WLB—
Proposed Wetland Boundaries	—WLB—
Existing Endangered Animal Boundaries	—EAB—
Existing Endangered Plant Boundaries	—EPB—

BUILDINGS & OTHER CULTURE

Buildings	—
Foundations	—
Area Outline	—
Gate	—
Gas Pump Vent or U/G Tank Cap	—
Church	—
School	—
Park	—
Cemetery	—
Dam	—
Sign	—
Well	—
Small Mine	—
Swimming Pool	—

TOPOGRAPHY

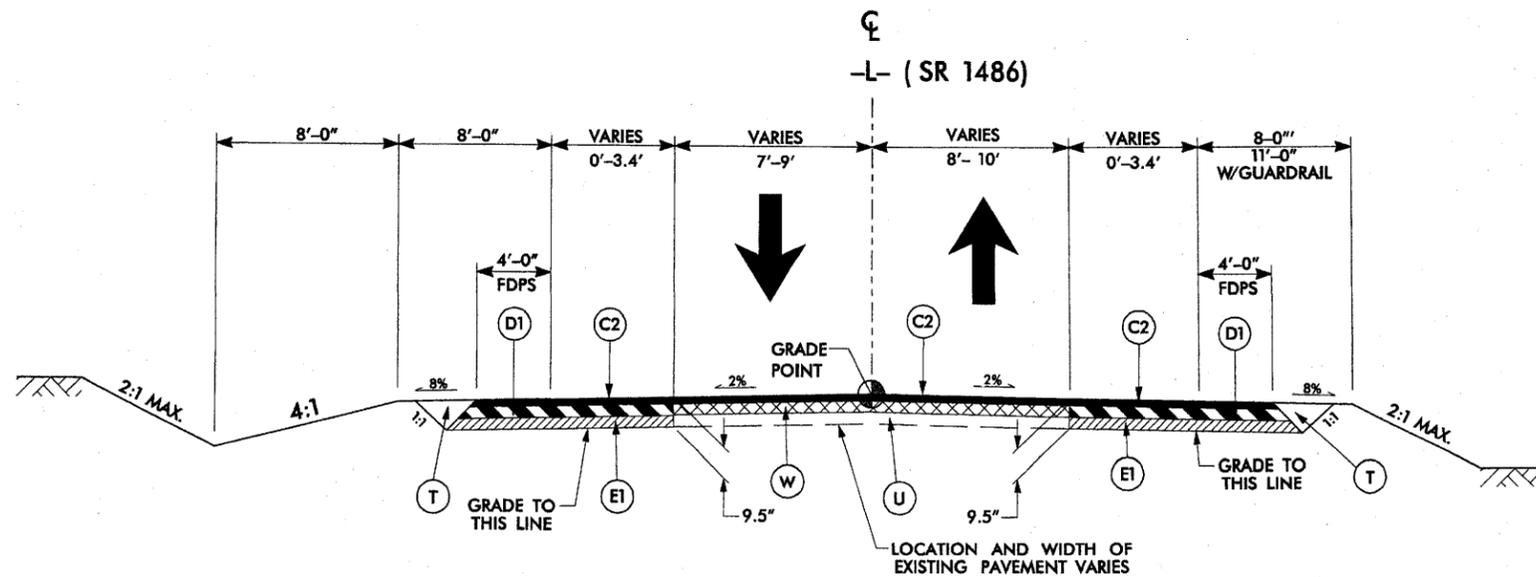
Loose Surface	—
Hard Surface	—
Change in Road Surface	—
Curb	—
Right of Way Symbol	R/W
Guard Post	⊕ GP
Paved Walk	—
Bridge	—
Box Culvert or Tunnel	—
Ferry	—
Culvert	—
Footbridge	—
Trail, Footpath	—
Light House	—

VEGETATION

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

RAILROADS

Standard Gauge	—
RR Signal Milepost	—
Switch	—



USE TYPICAL SECTION NO. 1

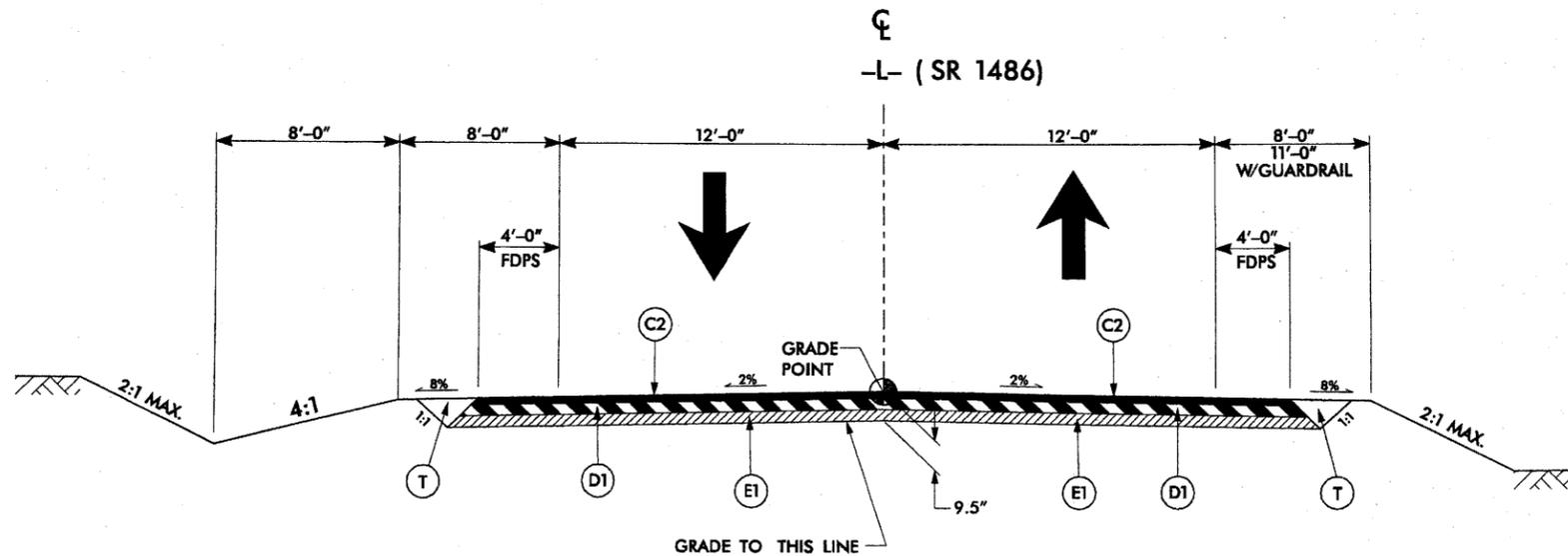
-L- STA. 13+00.00 TO STA. 14+50.00
-L- STA. 18+35.00 TO STA. 21+00.00

NOTE:
FEATHER TO EXISTING PAVEMENT FROM
-L- STA. 12+75.00 TO STA. 13+00.00 AND
FROM -L- STA. 21+00.00 TO STA. 21+25.00

TYPICAL SECTION NO. 1

PAVEMENT SCHEDULE	
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL THIS SHEET).

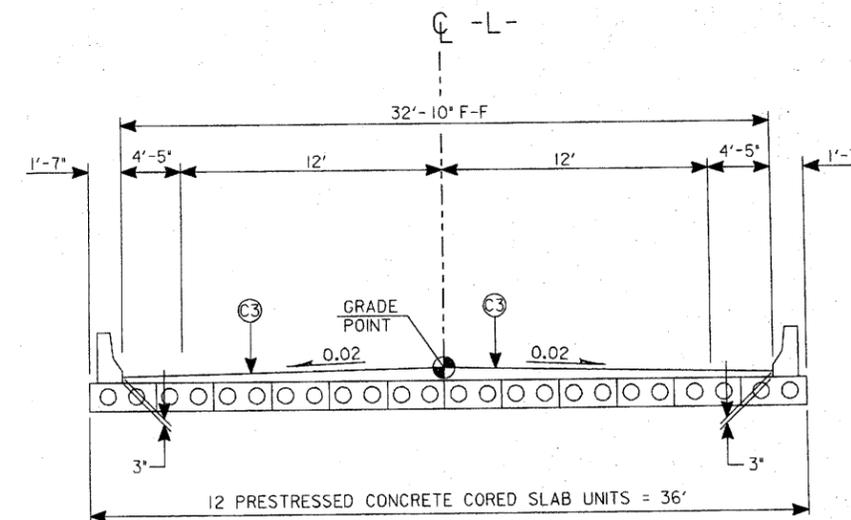
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



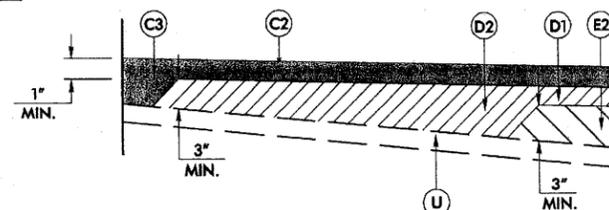
USE TYPICAL SECTION NO. 2

-L- STA. 14+50.00 TO STA. 15+78.75 (BEGIN BRIDGE)
-L- STA. 17+33.75 (END BRIDGE) TO STA. 18+35.00

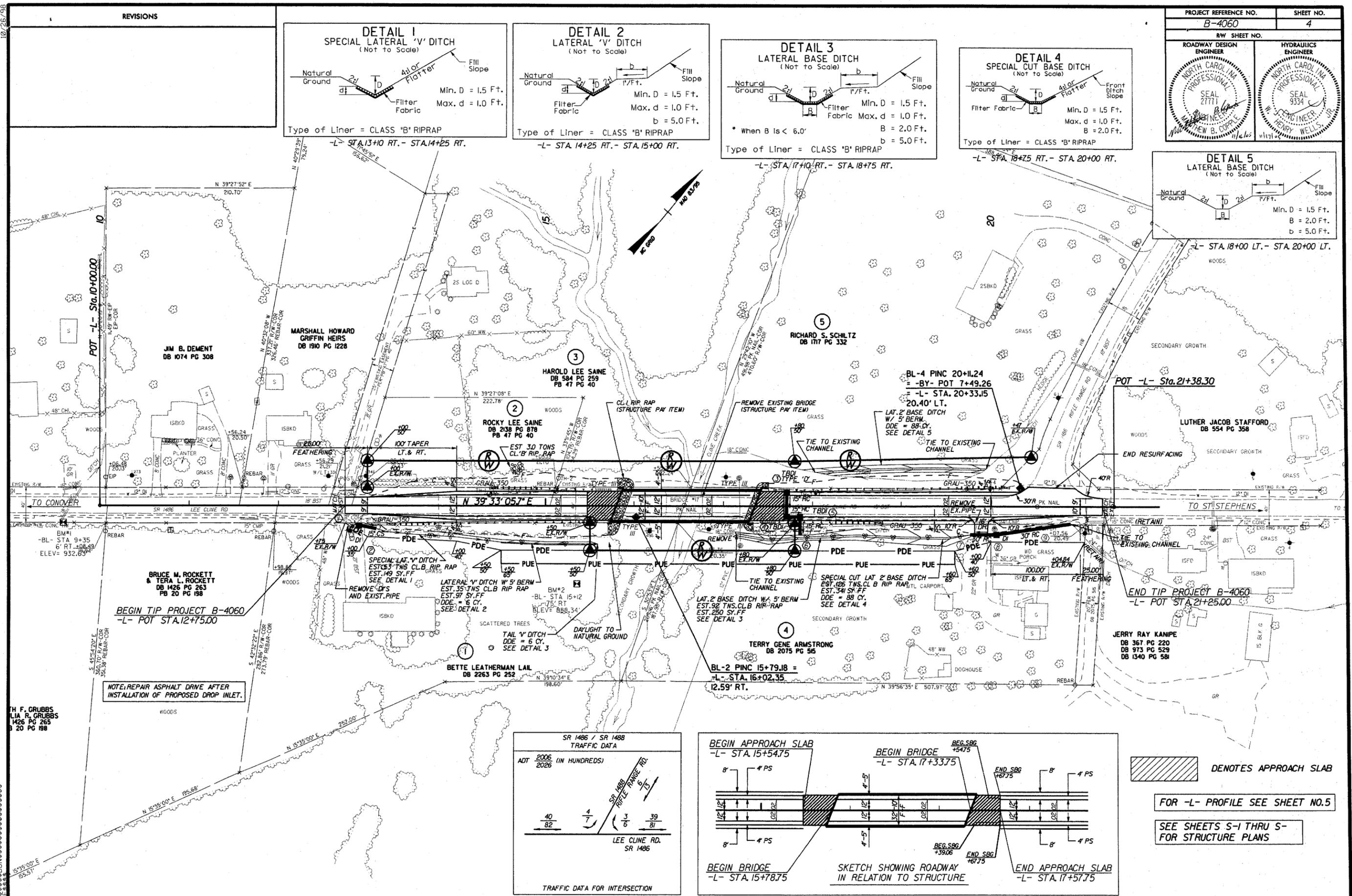
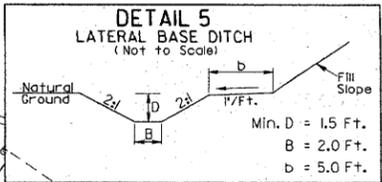
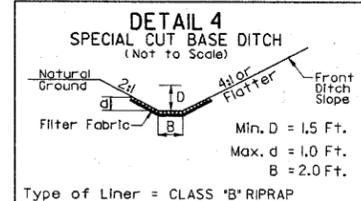
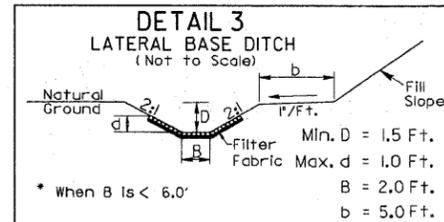
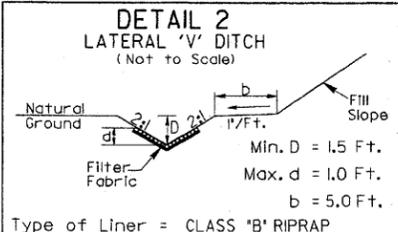
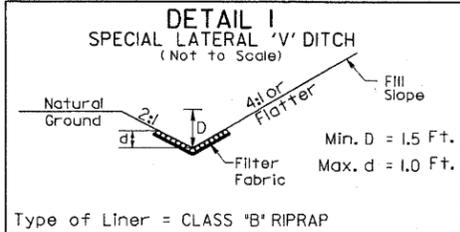
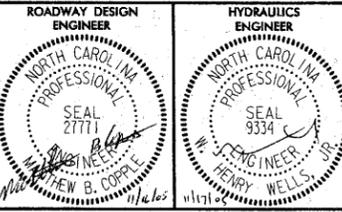
TYPICAL SECTION NO. 2



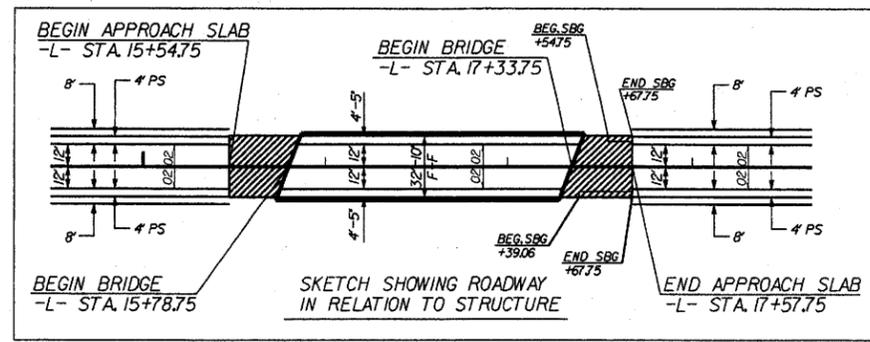
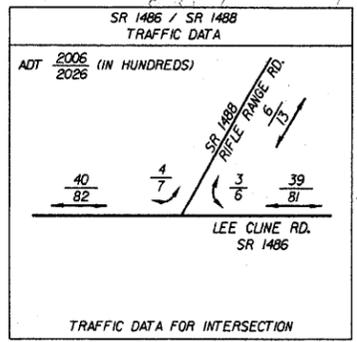
CORED SLAB DETAIL



Detail Showing Method of Wedging



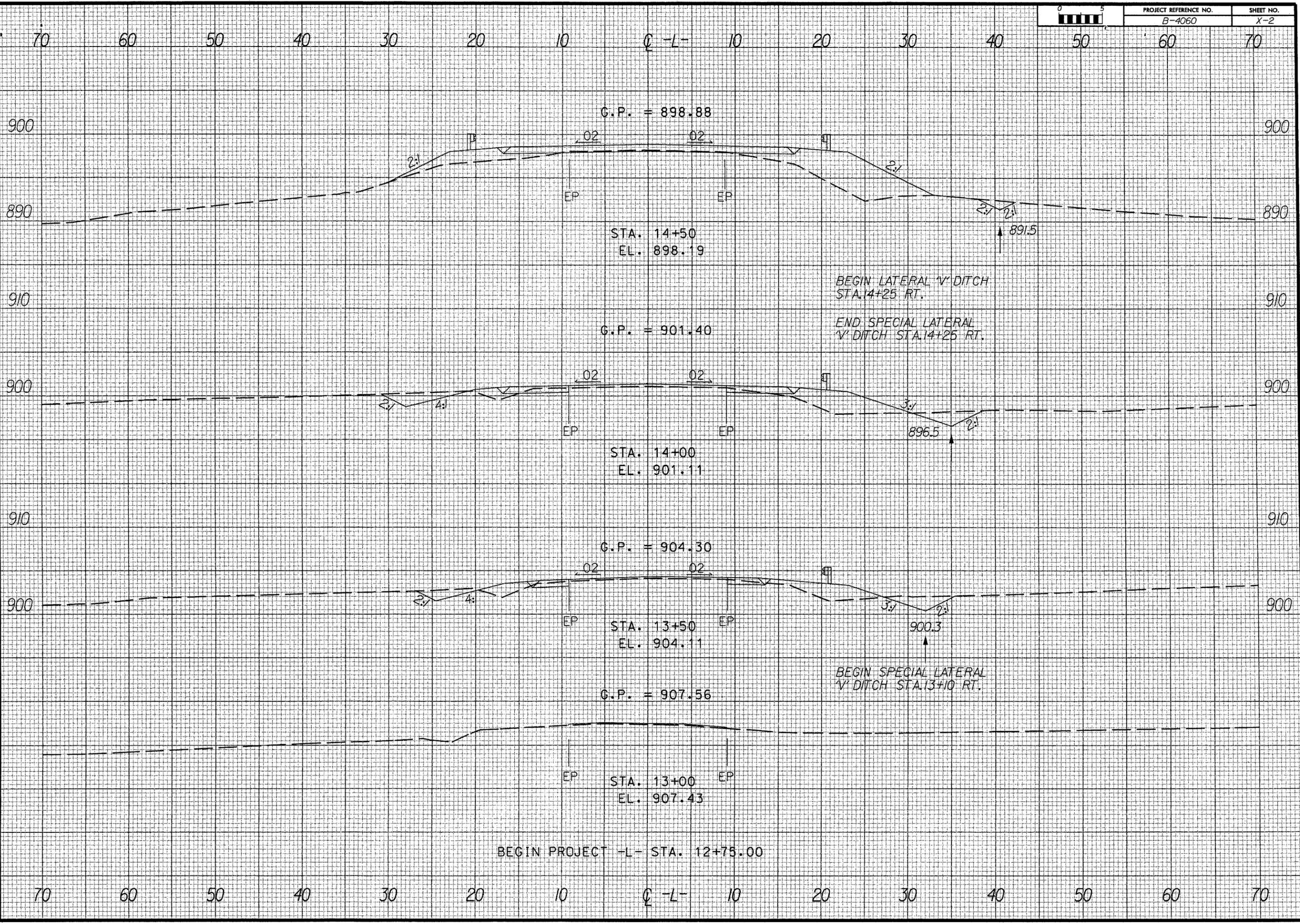
NOTE: REPAIR ASPHALT DRIVE AFTER INSTALLATION OF PROPOSED DROP INLET.



DENOTES APPROACH SLAB

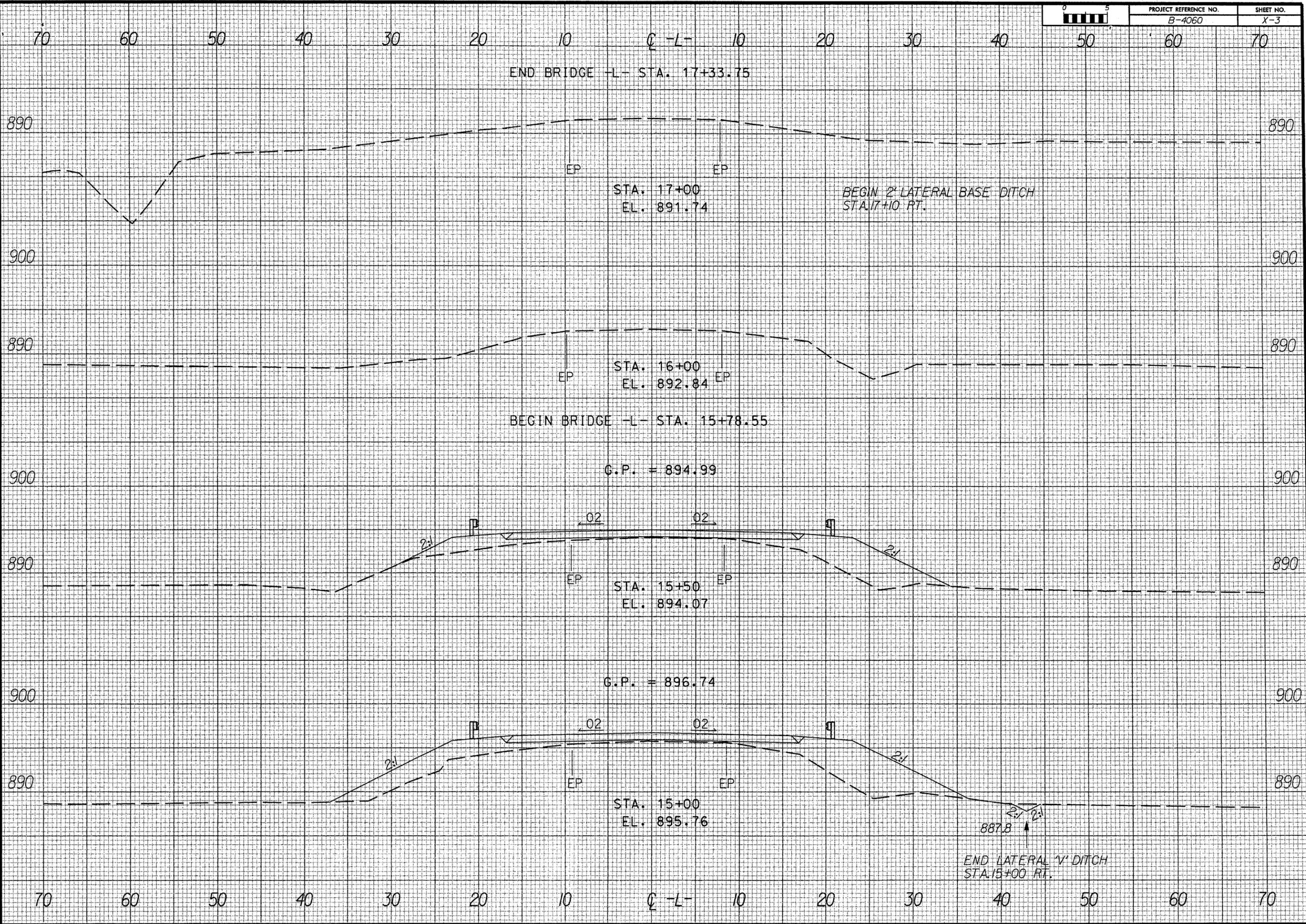
FOR -L- PROFILE SEE SHEET NO.5

SEE SHEETS S-1 THRU S-4 FOR STRUCTURE PLANS



11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



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900 900

BEGIN SPECIAL CUT 2' BASE DITCH STA. 18+75 RT.
END 2' LATERAL BASE DITCH STA. 18+75 RT.

G.P. = 892.25

890 890



STA. 18+50
EL. 892.11

900 900

G.P. = 891.82

890 890

BEGIN 2' LATERAL BASE DITCH STA. 18+00 LT.

STA. 18+00
EL. 891.80

900 900

G.P. = 891.77

890 890

STA. 17+50
EL. 891.67

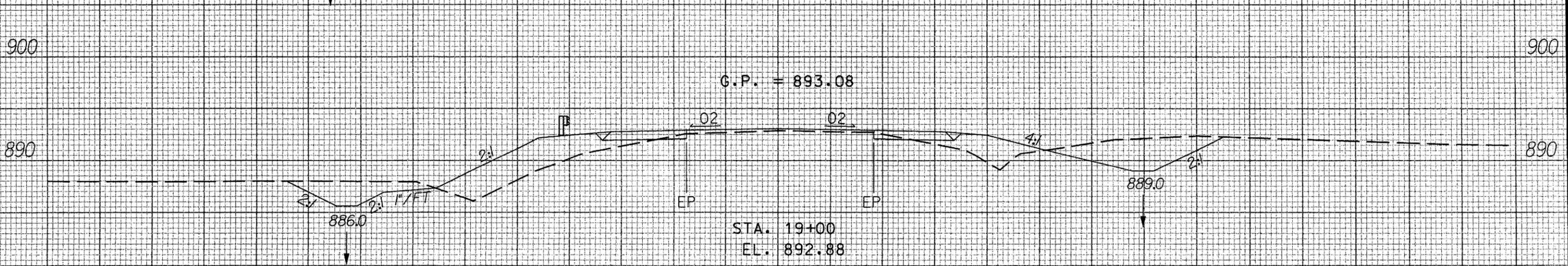
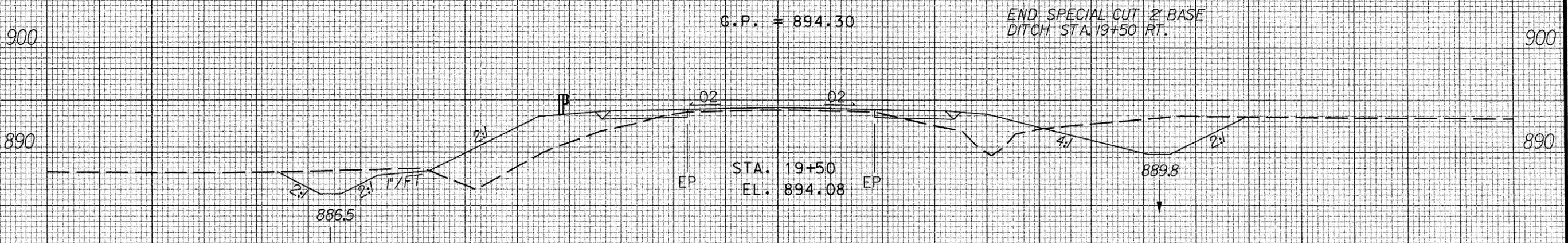
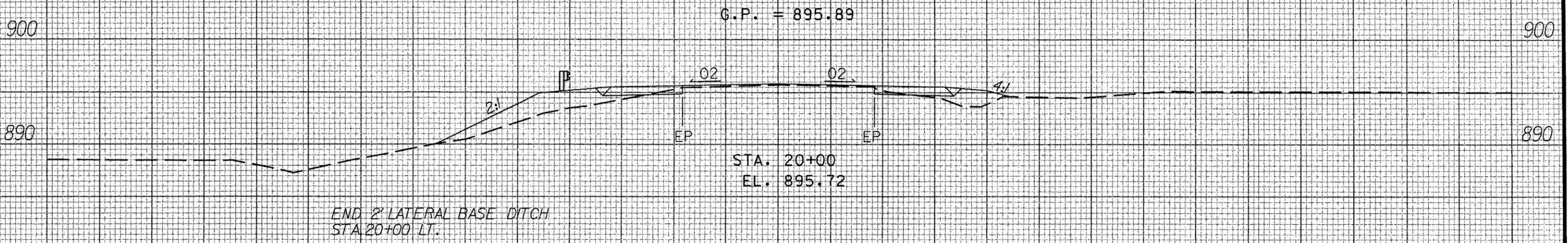
70 60 50 40 30 20 10 Q-L- 10 20 30 40 50 60 70

Vertical text on the left margin, likely a scale or reference note.

Vertical text on the right margin, likely a scale or reference note.



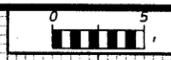
70 60 50 40 30 20 10 0 -L- 10 20 30 40 50 60 70



70 60 50 40 30 20 10 0 -L- 10 20 30 40 50 60 70

DATE: 11/15/55

SCALE: 1" = 10'



70 60 50 40 30 20 10 0 -L- 10 20 30 40 50 60 70

END PROJECT -L- STA. 21+25.00

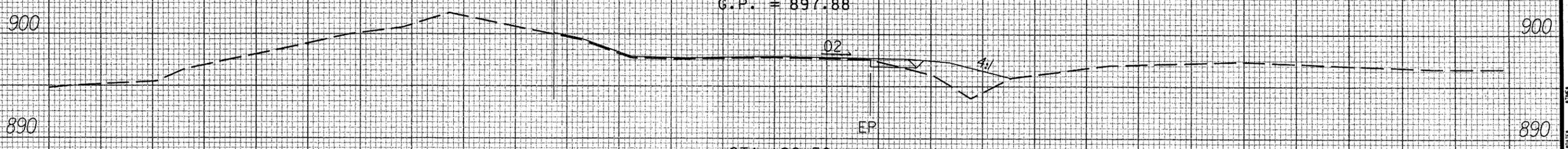
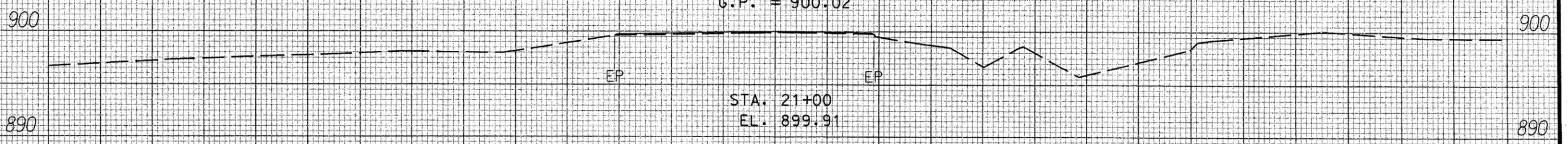
G.P. = 900.02

STA. 21+00
EL. 899.91

SHEAR TO
DRIVE

G.P. = 897.88

STA. 20+50
EL. 897.75



70 60 50 40 30 20 10 0 -L- 10 20 30 40 50 60 70