STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 26, 2007

U.S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

ATTENTION: Mr. William Wescott
NCDOT Coordinator

Dear Sir,

Subject: **Application for Nationwide Permit 23, 401 Water Quality Certification, and Neuse Riparian Buffer Authorization** for the Replacement of Bridge No. 17 over Caraway Creek on SR 1918; Wayne County; TIP Project B-4321; Federal Aid Project No. BRSTP-1918(2); Debit $240.00 from WBS 33658.1.1.

Reference: NW 23 Permit, USACE Action ID 200610573, issued on March 7, 2006

Please find enclosed a debit ledger, site map, permit drawings, and half size plan sheets for the above mentioned project. A Categorical Exclusion (CE) was completed for this project on January 4, 2006, and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 17 over Caraway Creek on the existing alignment, while using an off-site detour to maintain traffic during construction. The proposed structure will be a 130-foot, 33-inch box beam bridge with 32 feet 10 inches of clear roadway width. The structure will provide two 12-foot travel lanes with 4.5-foot offsets. The roadway approaches will consist of two 12-foot travel lanes with 8-foot shoulders, 4 feet of which will be paved. Proposed permanent impacts include 0.20 acre of riverine wetland impacts.

Impacts to Waters of the United States

General Description: This project is located in the Neuse River Basin (Hydrologic Cataloging Unit 03020201) on Caraway Creek [DWQ Index # 27-61], which is a Division of Water Quality Class "C NSW" Water of the State. In addition to Caraway Creek, there is one unnamed, intermittent tributary (UT) to Caraway Creek within the project area, as well as four jurisdictional wetlands. The UT enters the creek north of the bridge, which has its headwaters in a wetland that parallels SR 1918. The remaining wetlands are associated with Caraway Creek.

Caraway Creek is not designated as a North Carolina Natural or Scenic River, or as a national Wild and Scenic River. No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 1.0 mile

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
SUITE 240
RALEIGH NC 27604

of the project study area. Additionally, Caraway Creek is not listed on the Final 2006 303(d) list of impaired waters due to sedimentation for the Neuse River Basin, nor does it drain into any Section 303(d) waters within 1.0 mile of the project study area.

Permanent Impacts: As stated above, there is 0.20 acre of permanent riverine wetland impacts on this project. These impacts include 0.05 acre of wetland fill, 0.08 acre of excavation in wetlands, and 0.07 acre of mechanized clearing in wetlands.

Temporary Impacts: There are no temporary impacts proposed for this project.

Utility Impacts: No impacts to jurisdictional resources will occur due to relocation of utilities in the project area.

Bridge Demolition: The superstructure for Bridge No. 17 is a reinforced concrete deck on timber I-beams, with a substructure composed of timber caps on timber piles. Best Management Practices for Bridge Demolition and Removal will be followed to prevent any temporary fill from entering Waters of the United States.

Neuse River Buffer Rules

This project is located in the Neuse River Basin; therefore, the regulations pertaining to the Neuse River Buffer Rules apply. There will be a total of 5,687 square feet (sqft) of impacts to riparian buffers. This includes 5,122 sqft (3,360 sqft in Zone 1 and 1,762 sqft in Zone 2) due to the bridge crossing. According to the buffer rules, bridges are allowable. In addition, 565 sqft of Zone 2 impacts will occur from approach fill due to road crossings. This road crossing activity is allowable because impacts are less than the 150-foot/0.3 acre threshold, for which mitigation is required. Uses designated as allowable may proceed within the riparian buffer provided that there are no practical alternatives to the requested use pursuant to Item (8) of this rule. There are no practicable alternatives to bridge replacement over Caraway Creek.

In-Stream Work Moratorium

According to the NC Wildlife Resources Commission, anadromous fish species are found in this portion of Caraway Creek; therefore, NCDOT will strictly adhere to all stream-crossing guidelines for anadromous fish passage, including an in-water work moratorium between February 15 and June 15.

Avoidance and Minimization

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". Due to the presence of surface waters and wetlands within the project study area, avoidance of all impacts is not possible. The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts. Minimization measures were incorporated as part of the project design. These included:

- NCDOT is replacing Bridge No. 17 in place and utilizing an off-site detour.
- The proposed bridge will be 77 feet longer than the existing bridge, increasing the floodplain under the bridge.
- Two preformed scour holes will be constructed to filter storm-water runoff.
- The roadway grade was kept as close as possible to the existing, minimizing fill height.
- 3:1 slopes were used in jurisdictional areas
- NCDOT will observe an in-stream construction moratorium from February 15 to June 15 and utilize Stream Crossing Guidelines for Anadromous Fish Passage.

Mitigation

Anticipated wetland impacts on this project exceed the threshold for mitigation, set at 0.10 acre. A NCDOT restoration site located in the same Hydrologic Cataloging Unit has enough riverine mitigation credit to cover the unavoidable impacts on this project (0.20 acre). Please see the attached debit ledger for more information.

Federally Protected Species

As of May 10, 2007, the US Fish and Wildlife Service (USFWS) lists one federally protected species for Wayne County: red-cockaded woodpecker (*Picoides borealis*). The red-cockaded woodpecker is listed as endangered. There is no potential habitat in the project area; therefore the biological conclusion is 'No Effect'.

Included on the May 2007 Johnston County list is the Bald Eagle, which was de-listed on August 8, 2007 and no longer requires a biological conclusion. However, the Bald Eagle is still protected under the Bald and Golden Eagle Protection Act as well as the Migratory Bird Treaty Act. Suitable habitat in the form of large, open water bodies that provide nesting and foraging habitat for the bald eagle is not found within 660 feet of the project area. In addition, a search of the NC Natural Heritage Program database (updated September 2007) did not reveal any records of the Bald Eagle within one mile of the project area.

Project Schedule

The project has a scheduled let of April 15, 2008 with a review date of February 26, 2008.

Regulatory Approvals

Section 404 Permit: All aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). A NWP 23 was issued for this project based on impacts calculated from the CE. However, impacts have changed from those cited in the CE and the permit will have expired by the time this project goes to construction. Therefore, the NCDOT requests that a new Nationwide Permit 23 authorize these activities.

Section 401 Permit: We anticipate 401 General Certification number 3632 will apply to this project. The NCDOT will adhere to all standard conditions of the aforementioned certification. However, Riparian Buffer Impacts require written concurrence from the North Carolina Department of Environmental and Natural Resources, Division of Water Quality. Therefore, in accordance with 15A NCAC 2H, Section .0500(a), we are providing five copies of this application to the NCDWQ for their review and approval. Authorization to debit the $240 Permit Application Fee from WBS Element 33658.1.1 is hereby given.

Neuse River Riparian Buffer Authorization: NCDOT requests that the NC Division of Water Quality review this application and issue a written approval for a Neuse Riparian Buffer Authorization.

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

If you have any questions or need additional information, please contact Amy James at (919) 715-7216.

Sincerely,

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

W/attachment
Mr. John Hennessy, NCDWQ (5 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Michael Street, NCDMF
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Richard E. Greene , P.E. Div. 4 Engineer
Mr. Jamie Guerrero, Div. 4 Environmental Officer

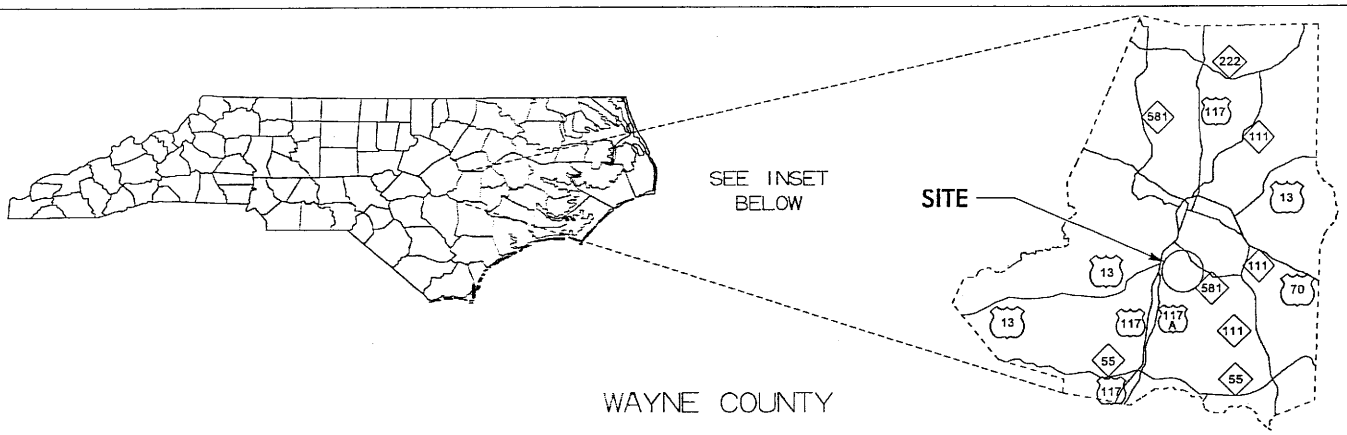
W/o attachment
Mr. Scott McLendon, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Wade Kirby, Project Planning Engineer
Mr. Carl Goode, PE, Human Environment Unit Head
Ms. LeiLani Paugh, NEU
Mr. Randy Griffin, NEU

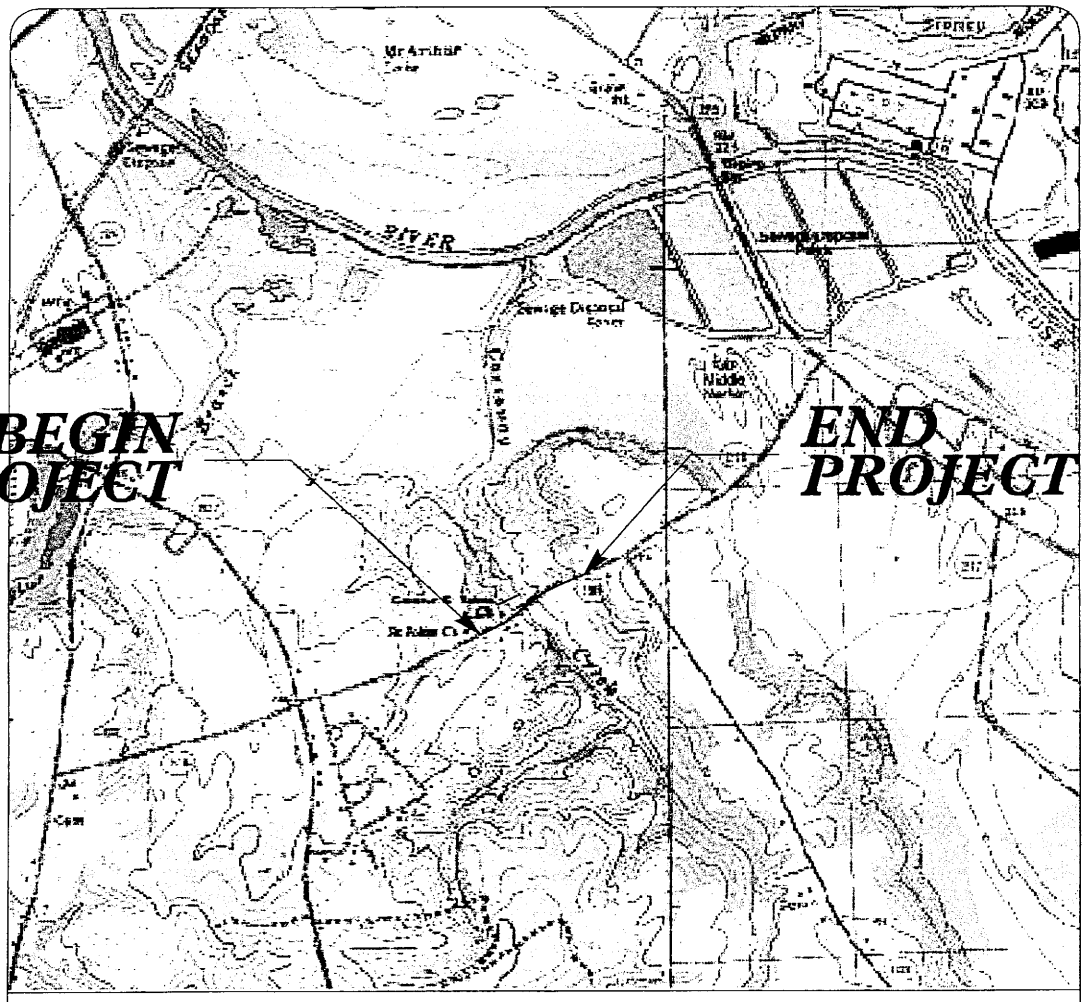
New Hope Creek Mitigation Site Debit Ledger

The B-2963 New Hope Creek Mitigation Site in Durham County consists of an abandoned portion of the roadbed for Old Farrington Road that was vacated when Jordan Lake was created. The mitigation project involved removal of the fill associated with the roadbed below the 240-foot contour. The 7,400 C.Y. of fill removal restored the natural grade and connectivity of 2.5 acres of surrounding wetlands associated with Morgan Creek. The site was originally debited 7,400 C.Y of flood storage capacity and 1.0 acre for wetland impacts associated with project B-2923 and is now being debited 0.2 acres for unavoidable impacts associated with B-4321. These debits are illustrated in the following table.

Site	**TIP**	**HUC**	**River Basin**	**Division**
New Hope Bridge	B-2963	3020201	Neuse	5

County	**Mitigation Type**	**Original**	**Available**	**Debit**	**Debit**
Durham				B-2963	B-4321
	Riverine Wetland	2.5	1.3	1.0	0.2
	Flood Storage	7400C.Y	0	7400C.Y.	





VICINITY MAP NTS

WETLAND IMPACTS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE COUNTY
PROJECT: (B-4321)
BRIDGE NO. 17 OVER
CARAWAY CREEK ON SR 1918

SHEET ____ OF ____ 1/15/07

Permit Drawing
Sheet 2 of 8

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	John L. Whitfield	1356 Old Mt. Olive HWY Dudley, NC 28333
4	Lucinda S. Pearsall, Heirs	535 Pecan Rd. Dudley, NC 28333
5	Mildred P. Bell C/O Lynda P. Bell	112 Brookside Dr. Jacksonville, NC 28540
6	Garry Van Orton, Heirs C/O Brenda Hancock	429 Pecan Rd. Dudley, NC 28333

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE COUNTY
PROJECT: (B-4321)
BRIDGE NO.17
OVER CARAWAY CREEK ON SR 1918

SHEET 1 OF 1

1/15/07

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	16+58/19+50 L	BRIDGE	0.05		0.02	0.05						
2	20+50/23+50 L LT	ROADWAY CUT			0.06	0.02						
TOTALS:			0.05		0.08	0.07						

REVISIONS:
Revised (from/to) station to end at 19+50 to include wetland impacts right of -L- 6/20/07
Revised Mechanized Clearing Impacts at Bridge 7/30/07

ATN Revised 3/31/05

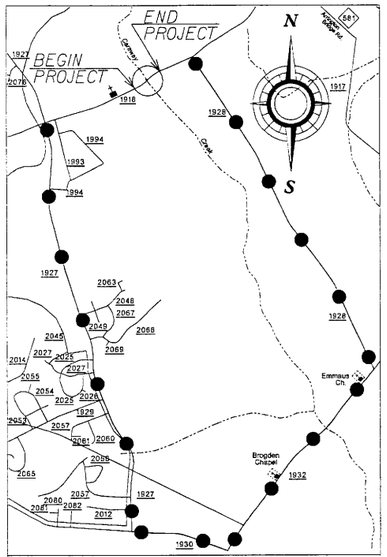
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE COUNTY
PROJECT: 33658.1.1 (B-4321)

SHEET REV 7/30/07

CONTRACT: TIP PROJECT: B-4321

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

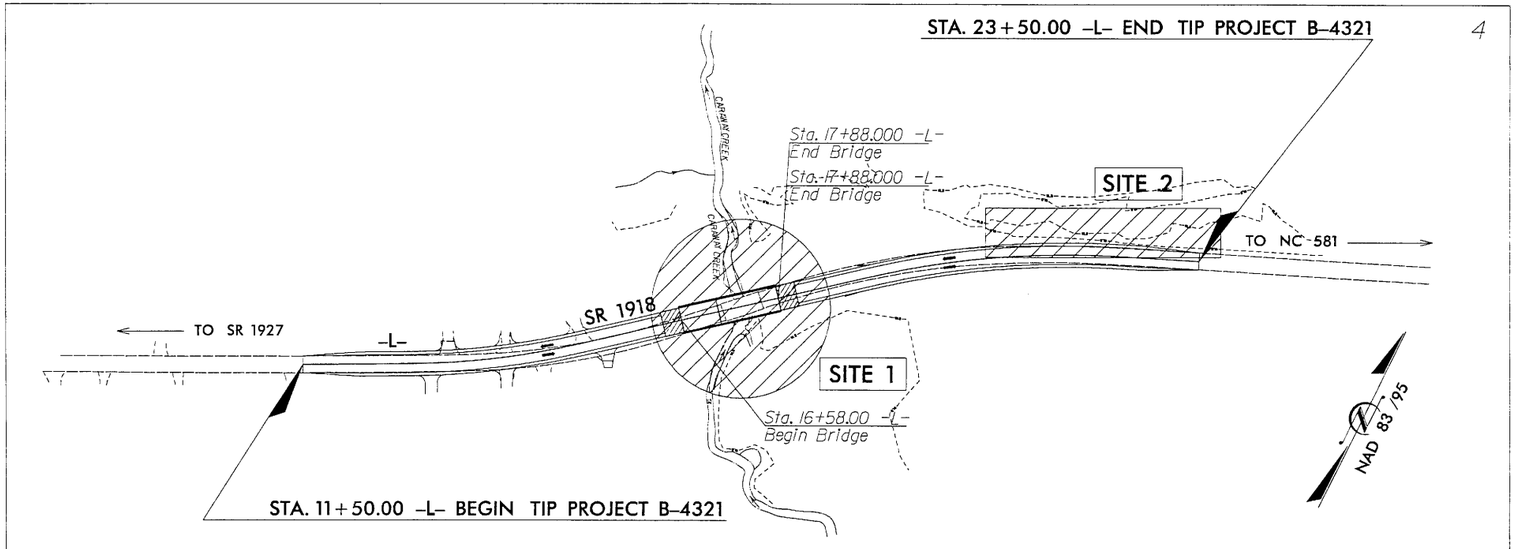
LOCATION: BRIDGE NO. 17 OVER CARAWAY CREEK ON SR 1918 IN GOLDSBORO

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

Permit Drawing Sheet 4 of 8

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4321	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33658.1.1	BRSTP-1918(2)	P.E.
33658.2.1	BRSTP-1918(2)	R/W



THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES.

NCDOT CONTACT: CATHY HOUSER, P.E., PROJECT ENGINEER - ROADWAY DESIGN

"CLEARING ON THIS PROJECT SHALL BE ESTABLISHED BY METHOD III"

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2007 = 6200
ADT 2030 = 10800
DHV = 60 %
D = 10 %
T = 5 % *
V = 50 MPH
FUNC. CLASS = URBAN COLLECTOR
* TTST 3 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4321 = 0.203 mi.

LENGTH STRUCTURE TIP PROJECT B-4321 = 0.025 mi.

TOTAL LENGTH TIP PROJECT B-4321 = 0.228 mi.

Prepared in the Office of:
WANG ENGINEERING COMPANY, INC. CARY, N.C.
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 21, 2006

LETTING DATE: April 17, 2007

GREG S. PURVIS, P. E.
PROJECT ENGINEER

SCOTT L. KENNEDY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

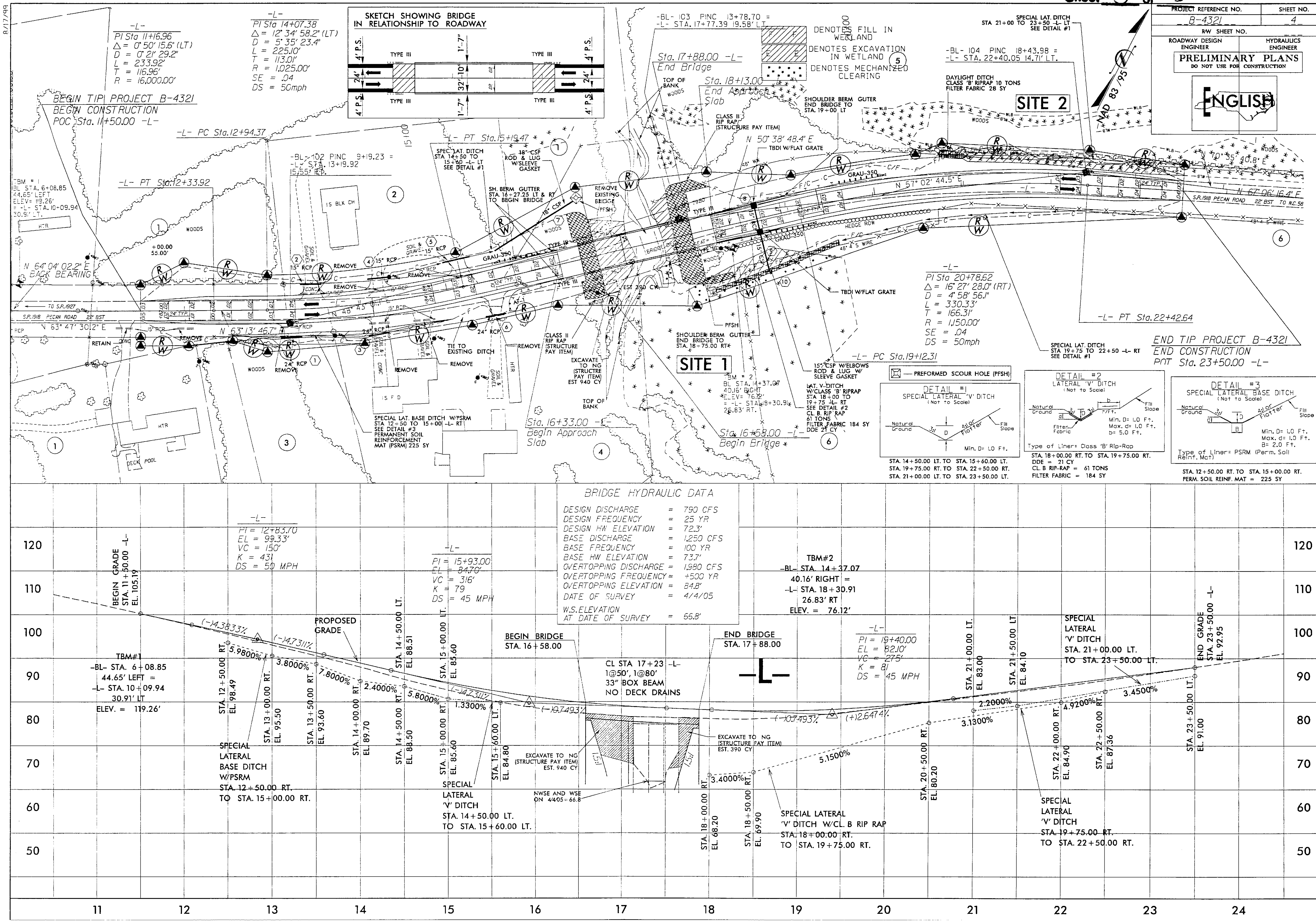
SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

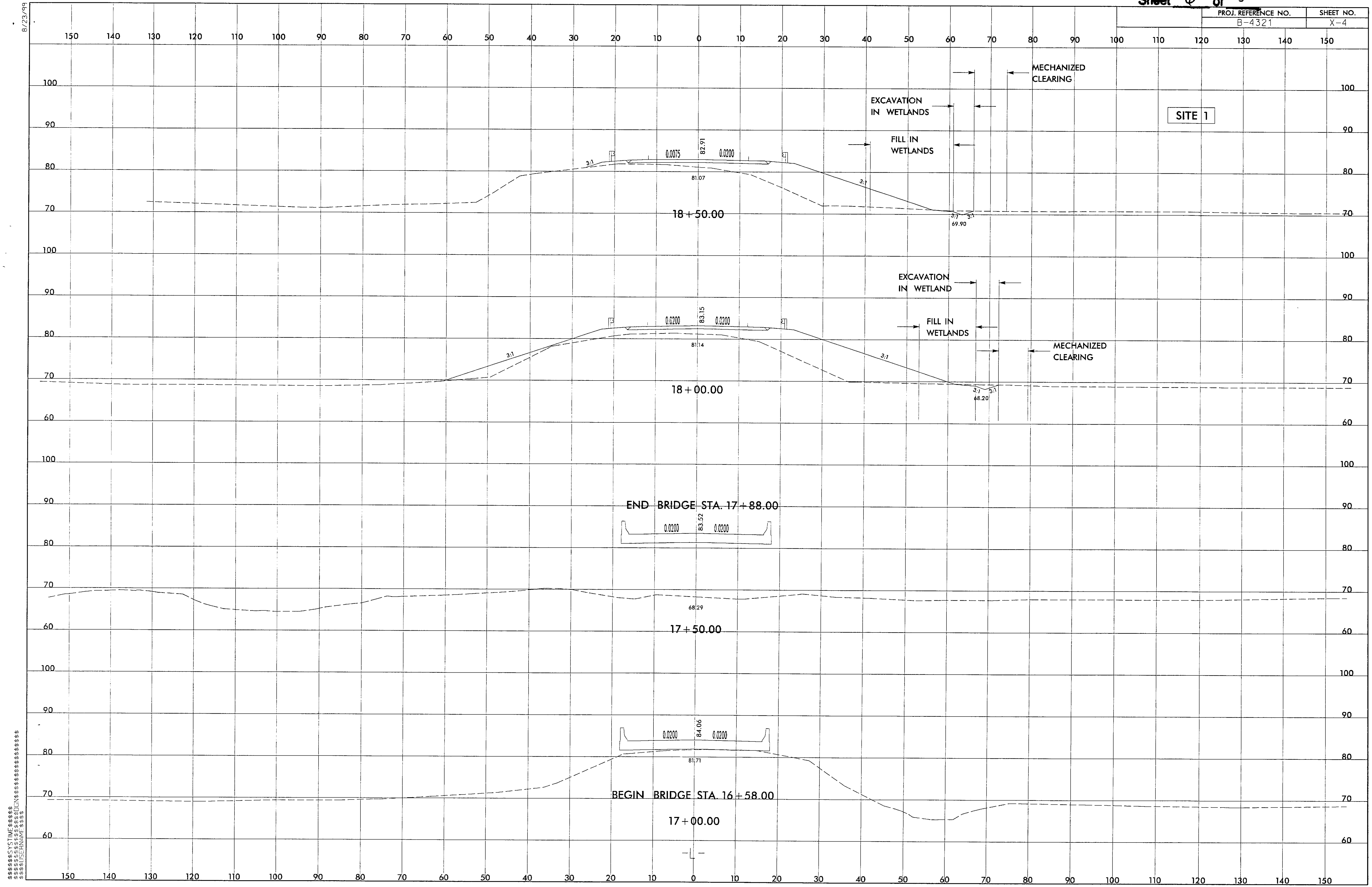
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE


PROJECT REFERENCE NO. B-4321
SHEET NO. 4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
NAD 83/95
SKETCH SHOWING BRIDGE IN RELATIONSHIP TO ROADWAY
4' P.S.
24'
1'-7"
10'
32'
TYPE III
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
-L-
PI Sta 11+16.96
△ = 0° 50' 15.6" (LT)
D = 0° 21' 29.2"
L = 233.92'
T = 116.96'
R = 16,000.00'
-L-
PI Sta 14+07.38
△ = 12° 34' 58.2" (LT)
D = 5° 35' 23.4"
L = 225.10'
T = 113.01'
R = 1,025.00'
SE = .04
DS = 50mph
BEGIN TIP PROJECT B-4321
BEGIN CONSTRUCTION
POC Sta. 11+50.00 -L-
-L- PC Sta.12+94.37
-L- PT Sta.12+33.92
-BL- 102 PINC 9+19.23 = -L- STA. 13+19.92 15.55' RT.
-L- PT Sta.15+19.47
-BL- 103 PINC 13+78.70 = -L- STA. 17+77.39 19.58' LT.
Sta. 17+88.00 -L- End Bridge
Sta. 18+13.00 -L- End Approach Slab
-BL- 104 PINC 18+43.98 = -L- STA. 22+40.05 14.71' LT.
SPECIAL LAT. DITCH STA 21+00 TO 23+50 -L- LT SEE DETAIL #1
DAYLIGHT DITCH CLASS 'B' RIPRAP 10 TONS FILTER FABRIC 28 SY
SITE 2
SITE 1
TBM # 1 BL STA. 6+08.85 44.65' LEFT ELEV= 119.26' = -L- STA. 10+09.94 30.91' LT.
N 64° 04' 02.2" E BACK BEARING
N 63° 47' 30.2" E
N 63° 13' 46.7" E
N 50° 38' 48.4" E
N 57° 02' 44.5" E
N 67° 06' 16.4" E
N 70° 35' 40.8" E
S.R.1918 PECAN ROAD 22' BST
TO S.R.1927
TO N.C.58
SPEC. LAT. DITCH STA 14+50 TO 15+60 -L- LT SEE DETAIL #1
18" CSP ROD & LUG W/SLEEVE GASKET
SH. BERM GUTTER STA. 16+27.25 LT & RT TO BEGIN BRIDGE
REMOVE EXISTING BRIDGE
CLASS II RIP RAP (STRUCTURE PAY ITEM)
TBDI W/FLAT GRATE
SHOULDER BERM GUTER END BRIDGE TO STA. 19+00 LT
SHOULDER BERM GUTTER END BRIDGE TO STA. 18+75.00 RT
EXCAVATE TO NG (STRUCTRE PAY ITEM) EST 940 CY
EST 390 CY
TIE TO EXISTING DITCH
SPECIAL LAT. BASE DITCH W/PSRM STA 12+50 TO 15+00 -L- RT SEE DETAIL #3 PERMANENT SOIL REINFORCEMENT MAT (PSRM) 225 SY
TBM # 2 BL STA. 14+37.07 40.16' RIGHT ELEV= 76.12' = -L- STA 18+30.91 26.83' RT.
15" CSP W/ELBOWS ROD & LUG W/ SLEEVE GASKET
LAT. V-DITCH W/CLASS 'B' RIPRAP STA 18+00 TO 19+75 -L- RT SEE DETAIL #2 CL. B. RIP RAP 61 TONS FILTER FABRIC 184 SY DDE 21 CY
Sta. 16+33.00 -L- Begin Approach Slab
Sta. 16+58.00 -L- Begin Bridge
-L- PC Sta.19+12.31
-L-
PI Sta 20+78.62
△ = 16° 27' 28.0" (RT)
D = 4° 58' 56.1"
L = 330.33'
T = 166.31'
R = 1,150.00'
SE = .04
DS = 50mph
-L- PT Sta.22+42.64
SPECIAL LAT. DITCH STA 19+75 TO 22+50 -L- RT SEE DETAIL #1
END TIP PROJECT B-4321
END CONSTRUCTION
POT Sta. 23+50.00 -L-
PREFORMED SCOUR HOLE (PFSH)
DETAIL #1 SPECIAL LATERAL 'V' DITCH (Not to Scale)
Natural Ground 3:1 D 4:1 or Flatter Fill Slope Min. D= 1.0 Ft.
STA. 14+50.00 LT. TO STA. 15+60.00 LT.
STA. 19+75.00 RT. TO STA. 22+50.00 RT.
STA. 21+00.00 LT. TO STA. 23+50.00 LT.
DETAIL #2 LATERAL 'V' DITCH (Not to Scale)
Natural Ground Filter Fabric Fill Slope Min. D= 1.0 Ft. Max. d= 1.0 Ft. b= 5.0 Ft.
Type of Liner= Class 'B' Rip-Rap
STA. 18+00.00 RT. TO STA. 19+75.00 RT.
DDE = 21 CY
CL. B RIP-RAP = 61 TONS
FILTER FABRIC = 184 SY
DETAIL #3 SPECIAL LATERAL BASE DITCH (Not to Scale)
Natural Ground 3:1 D B 4:1 or Flatter Fill Slope Min. D= 1.0 Ft. Max. d= 1.0 Ft. B= 2.0 Ft.
Type of Liner= PSRM (Perm. Soil Reinf. Mat)
STA. 12+50.00 RT. TO STA. 15+00.00 RT.
PERM. SOIL REINF. MAT = 225 SY
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 790 CFS
DESIGN FREQUENCY = 25 YR
DESIGN HW ELEVATION = 72.3'
BASE DISCHARGE = 1,250 CFS
BASE FREQUENCY = 100 YR
BASE HW ELEVATION = 73.7'
OVERTOPPING DISCHARGE = 1,980 CFS
OVERTOPPING FREQUENCY = +500 YR
OVERTOPPING ELEVATION = 84.8'
DATE OF SURVEY = 4/4/05
W.S.ELEVATION AT DATE OF SURVEY = 66.8'
-L- PI = 12+83.70 EL = 99.33' VC = 150' K = 431 DS = 50 MPH
-L- PI = 15+93.00 EL = 84.70' VC = 316' K = 79 DS = 45 MPH
-L- PI = 19+40.00 EL = 82.10' VC = 275' K = 81 DS = 45 MPH
BEGIN GRADE STA. 11+50.00 -L- EL. 105.19
END GRADE STA. 23+50.00 -L- EL. 92.95
TBM#1 -BL- STA. 6+08.85 44.65' LEFT = -L- STA. 10+09.94 30.91' LT ELEV. = 119.26'
TBM#2 -BL- STA. 14+37.07 40.16' RIGHT = -L- STA. 18+30.91 26.83' RT ELEV. = 76.12'
PROPOSED GRADE
(-)4.3833%
(-)4.7311%
(-)0.7493%
(+)2.6474%
BEGIN BRIDGE STA. 16+58.00
END BRIDGE STA. 17+88.00
CL STA 17+23 -L- 1@50', 1@80' 33" BOX BEAM NO DECK DRAINS
EXCAVATE TO NG (STRUCTURE PAY ITEM) EST. 940 CY
EXCAVATE TO NG (STRUCTURE PAY ITEM) EST. 390 CY
NWSE AND WSE ON 4/4/05 = 66.8
SPECIAL LATERAL BASE DITCH W/PSRM STA. 12+50.00 RT. TO STA. 15+00.00 RT.
SPECIAL LATERAL 'V' DITCH STA. 14+50.00 LT. TO STA. 15+60.00 LT.
SPECIAL LATERAL 'V' DITCH W/CL. B RIP RAP STA. 18+00.00 RT. TO STA. 19+75.00 RT.
SPECIAL LATERAL 'V' DITCH STA. 19+75.00 RT. TO STA. 22+50.00 RT.
SPECIAL LATERAL 'V' DITCH STA. 21+00.00 LT. TO STA. 23+50.00 LT.
5.9800% 3.8000% 7.8000% 2.4000% 5.8000% 1.3300% 3.4000% 5.1500% 3.1300% 2.2000% 4.9200% 3.4500%
STA. 12+50.00 RT. EL. 98.49
STA. 13+00.00 RT. EL. 95.50
STA. 13+50.00 RT. EL. 93.60
STA. 14+00.00 RT. EL. 89.70
STA. 14+50.00 LT. EL. 88.51
STA. 14+50.00 RT. EL. 88.50
STA. 15+00.00 LT. EL. 85.60
STA. 15+00.00 RT. EL. 85.60
STA. 15+60.00 LT. EL. 84.80
STA. 18+00.00 RT. EL. 68.20
STA. 18+50.00 RT. EL. 69.90
STA. 20+50.00 RT. EL. 80.20
STA. 21+00.00 LT. EL. 83.00
STA. 21+50.00 LT EL. 84.10
STA. 22+00.00 RT. EL. 84.90
STA. 22+50.00 RT. EL. 87.36
STA. 23+50.00 LT. EL. 91.00
120 110 100 90 80 70 60 50
11 12 13 14 15 16 17 18 19 20 21 22 23 24

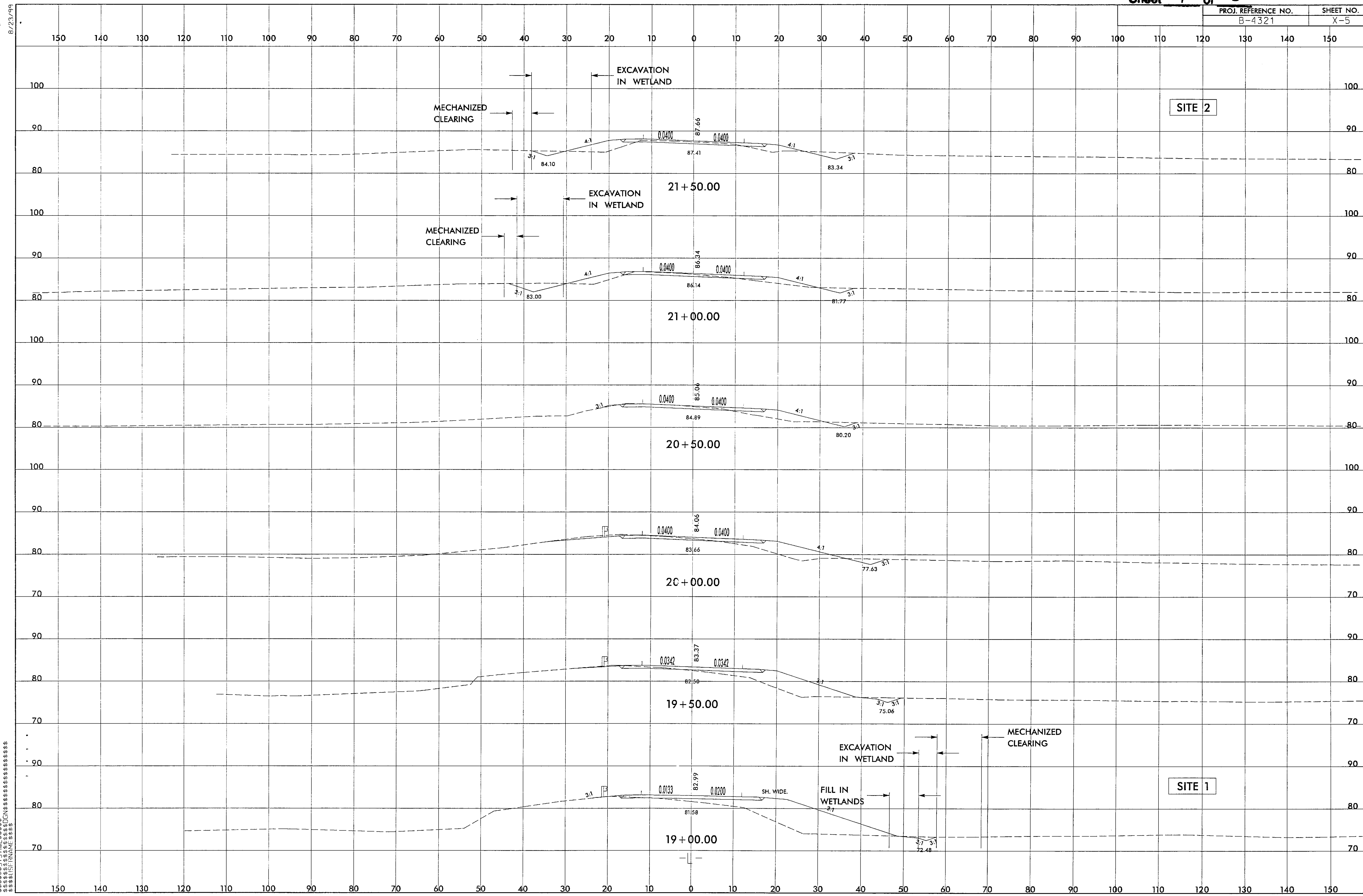
Permit Drawing
Sheet 6 of 8

PROJ. REFERENCE NO.	SHEET NO.
B-4321	X-4



Permit Drawing
Sheet 7 of 8

PROJ. REFERENCE NO.	SHEET NO.
B-4321	X-5



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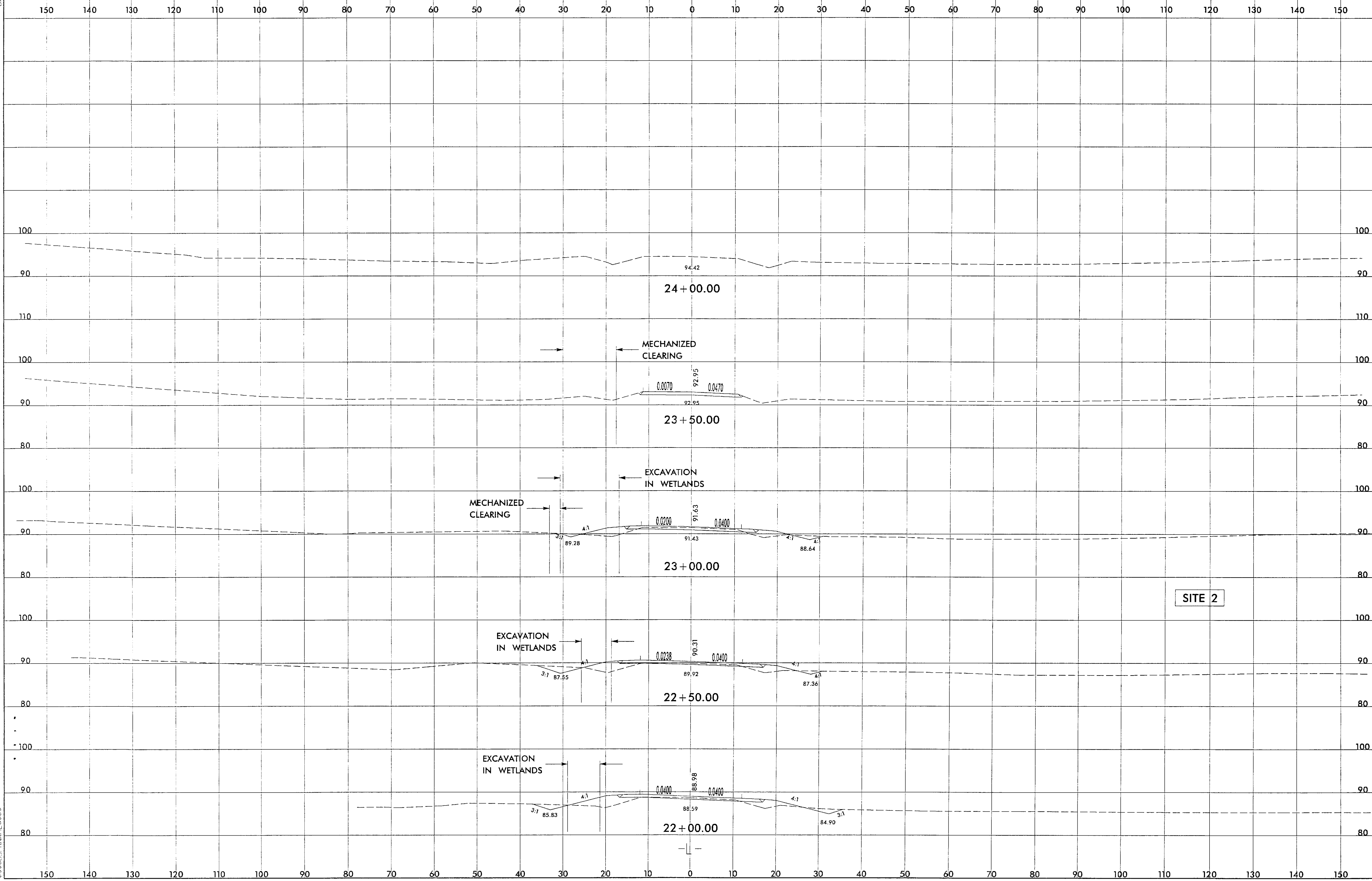
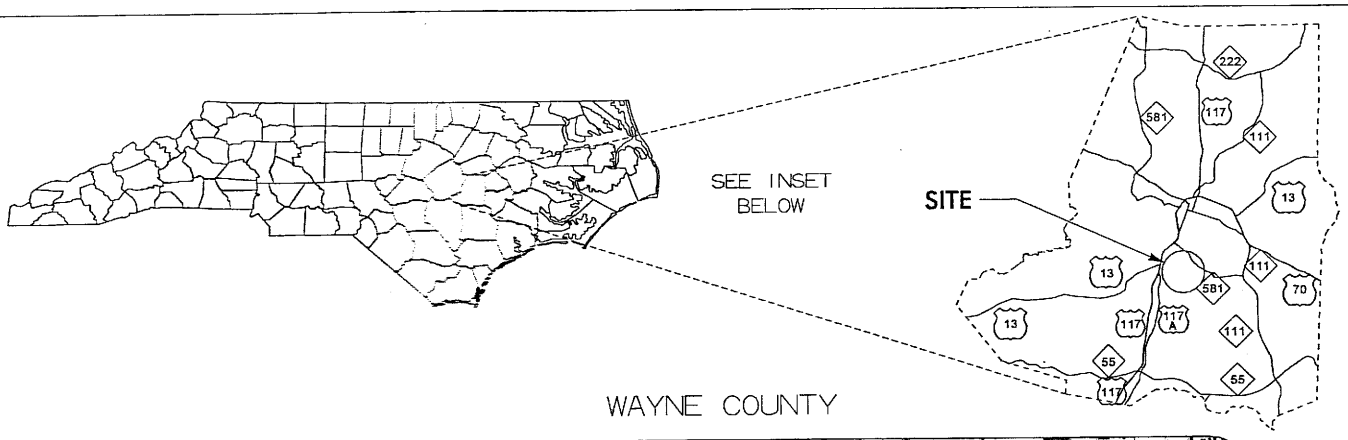
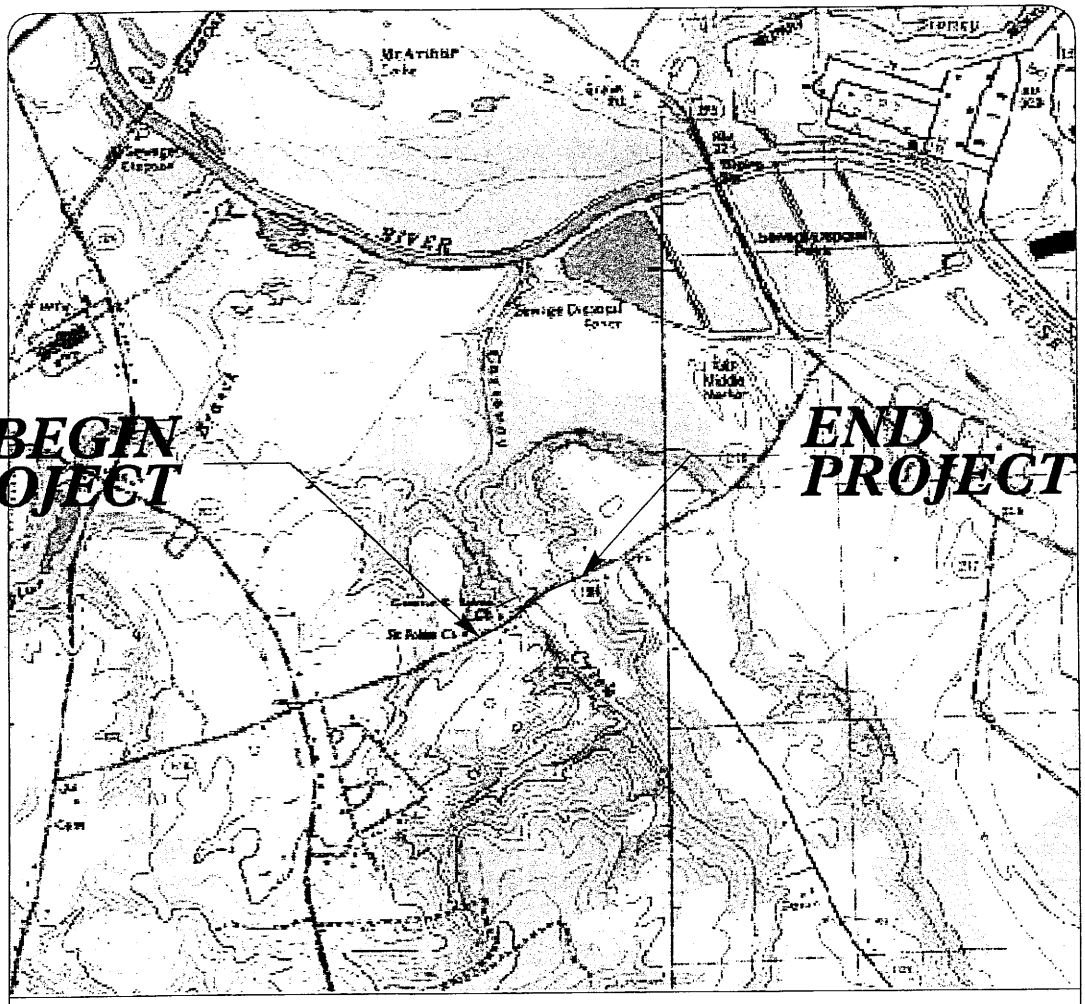
B-4321	X-6



8/23/99
$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$USERNAME$$$$





VICINITY MAP NTS

BUFFER IMPACTS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE COUNTY
PROJECT: (B-4321)
BRIDGE NO. 17 OVER
CARAWAY CREEK ON SR 1918

SHEET ____ OF ____ 1/15/07

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	2 Span Bridge	-L- 16+58-17+88		X		3360	1762	5122					
1	Roadway Fill	-L- 16+30-16+58 -L- 17+88-18+10	X			0	565	565					
TOTAL:						3360	2327	5687					

REVISIONS:
Revised Buffer Impacts at Bridge 7/30/07
Buffer impacts upstream and downstream are 90 feet

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE COUNTY
PROJECT: 33658.1.1 (B-4321)

REV 7/30/07
SHEET OF

BUFFER IMPACTS SUMMARY

		WETLANDS IN BUFFER	
Site	Station	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	16+58/17+88 -L-	307	0
	TOTAL	307	0

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

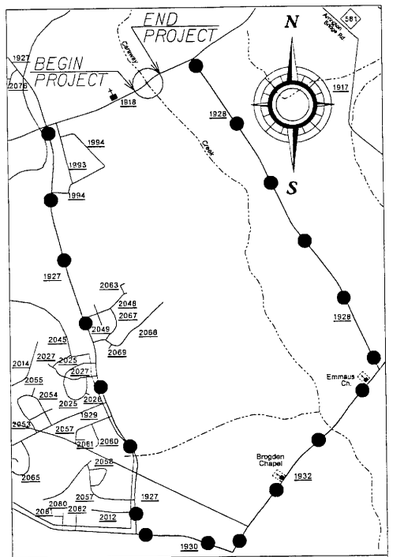
WAYNE COUNTY

PROJECT:33658.1.1 (B-4321)

REV 7/30/07

CONTRACT: TIP PROJECT: B-4321

See Sheet 1-A For Index of Sheets



VICINITY MAP

LEGEND ●—●—● *Studied Detour Route*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

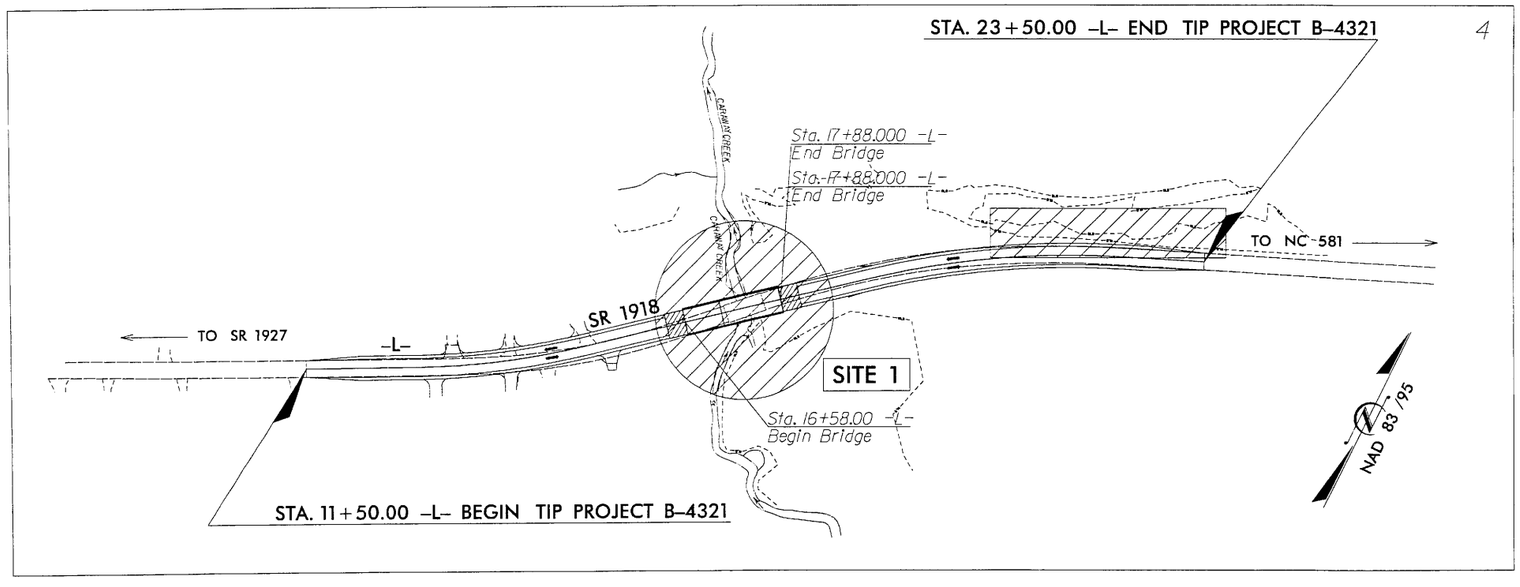
Buffer Drawing Sheet 4 of 5

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4321	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33658.1.1	BRSTP-1918(2)	P.E.
33658.2.1	BRSTP-1918(2)	R/W

LOCATION: BRIDGE NO. 17 OVER CARAWAY CREEK ON SR 1918 IN GOLDSBORO

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES.

NCDOT CONTACT: CATHY HOUSER, P.E., PROJECT ENGINEER - ROADWAY DESIGN

"CLEARING ON THIS PROJECT SHALL BE ESTABLISHED BY METHOD III"

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2007 = 6200
ADT 2030 = 10800
DHV = 60 %
D = 10 %
T = 5 % *
V = 50 MPH
FUNC. CLASS = URBAN COLLECTOR
* TTST 3 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4321 = 0.203 mi.

LENGTH STRUCTURE TIP PROJECT B-4321 = 0.025 mi.

TOTAL LENGTH TIP PROJECT B-4321 = 0.228 mi.

Prepared In the Office of:
WANG ENGINEERING COMPANY, INC.
CARY, N.C.
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 21, 2006

LETTING DATE: April 17, 2007

GREG S. PURVIS, P. E.
PROJECT ENGINEER

SCOTT L. KENNEDY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

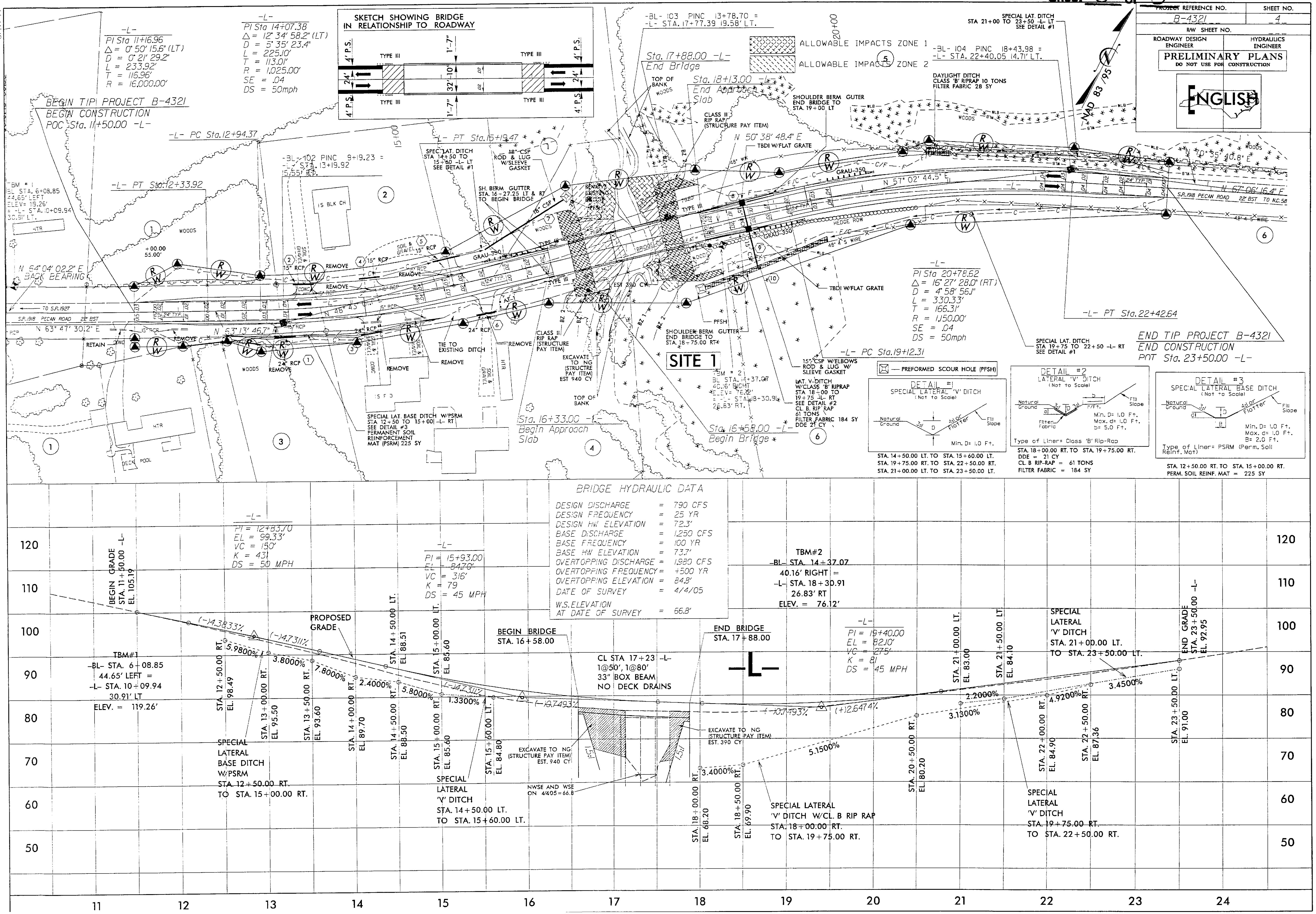
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

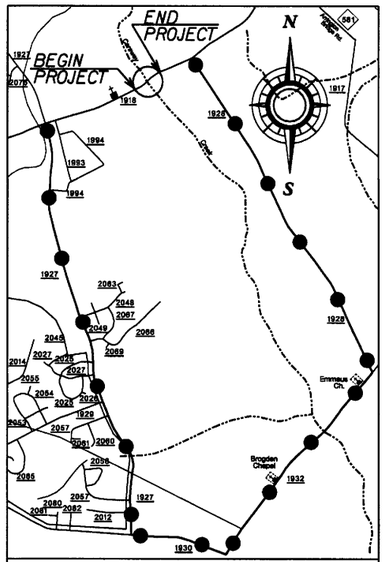
APPROVED
DIVISION ADMINISTRATOR *DATE*

Buffer Drawing
Sheet 5 of 5



CONTRACT: TIP PROJECT: B-4321

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4321	1	

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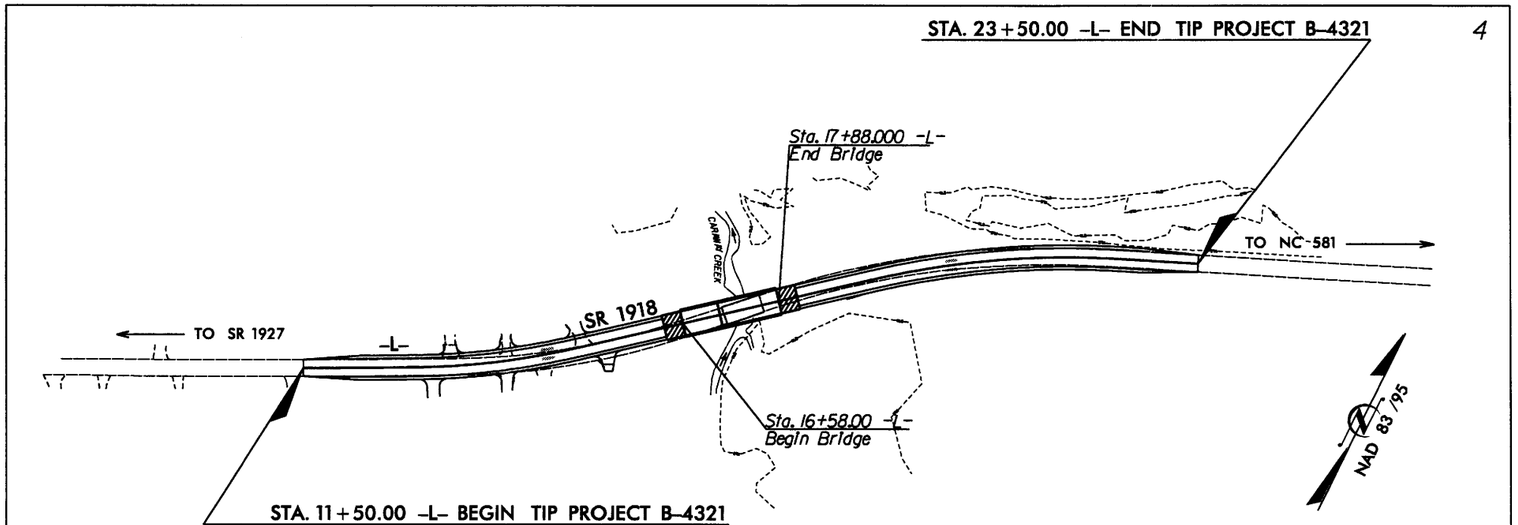

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DO NOT USE FOR CONSTRUCTION

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HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
B-4321	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FWF
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

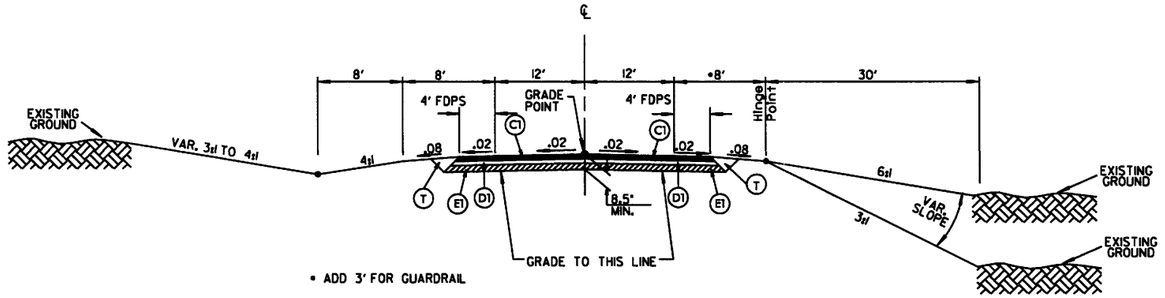
MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-4321	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WANG ENGINEERING

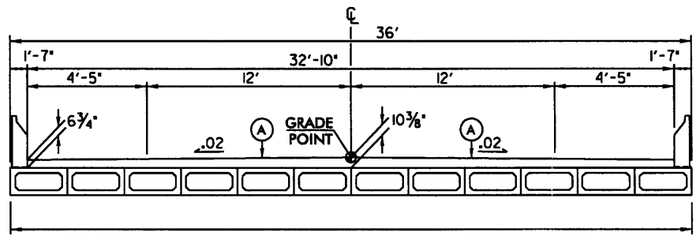


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS

-L- Sta. 11+50.00 to Sta. 16+58.00 (BEGIN BRIDGE)

-L- Sta. 17+88.00 (END BRIDGE) to Sta. 23+50.00



12 BOX BEAM UNITS = 36'

TYPICAL BRIDGE SECTION

-L- Sta. 16+58.00 to Sta. 17+88.00

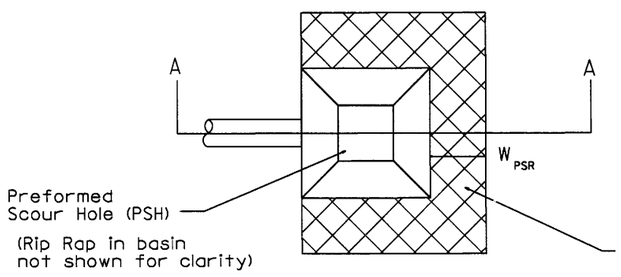
PAVEMENT SCHEDULE

A	PROP. PORTLAND CEMENT CONCRETE PAVEMENT
C1	PROP. APPROX. 2" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS PER SQ. YD.
D1	PROP. APPROX. 2.5" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
T	EARTH MATERIAL

NOTE: ALL SLOPES 1:1 UNLESS OTHERWISE SPECIFIED

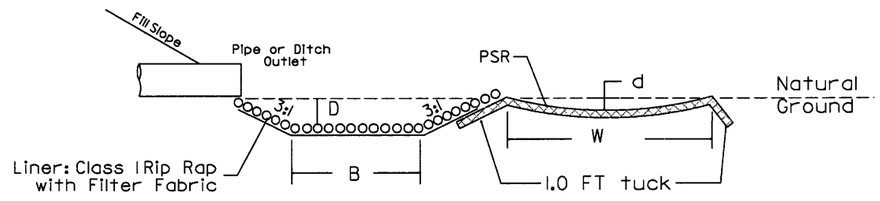
PREFORMED SCOUR HOLE

(Not to scale)



3.0 ft. to 10.0 ft. of Permanent Soil Reinforcement matting (PSR) to be prescribed around perimeter of scour hole (see plan views); Shall be graded level.

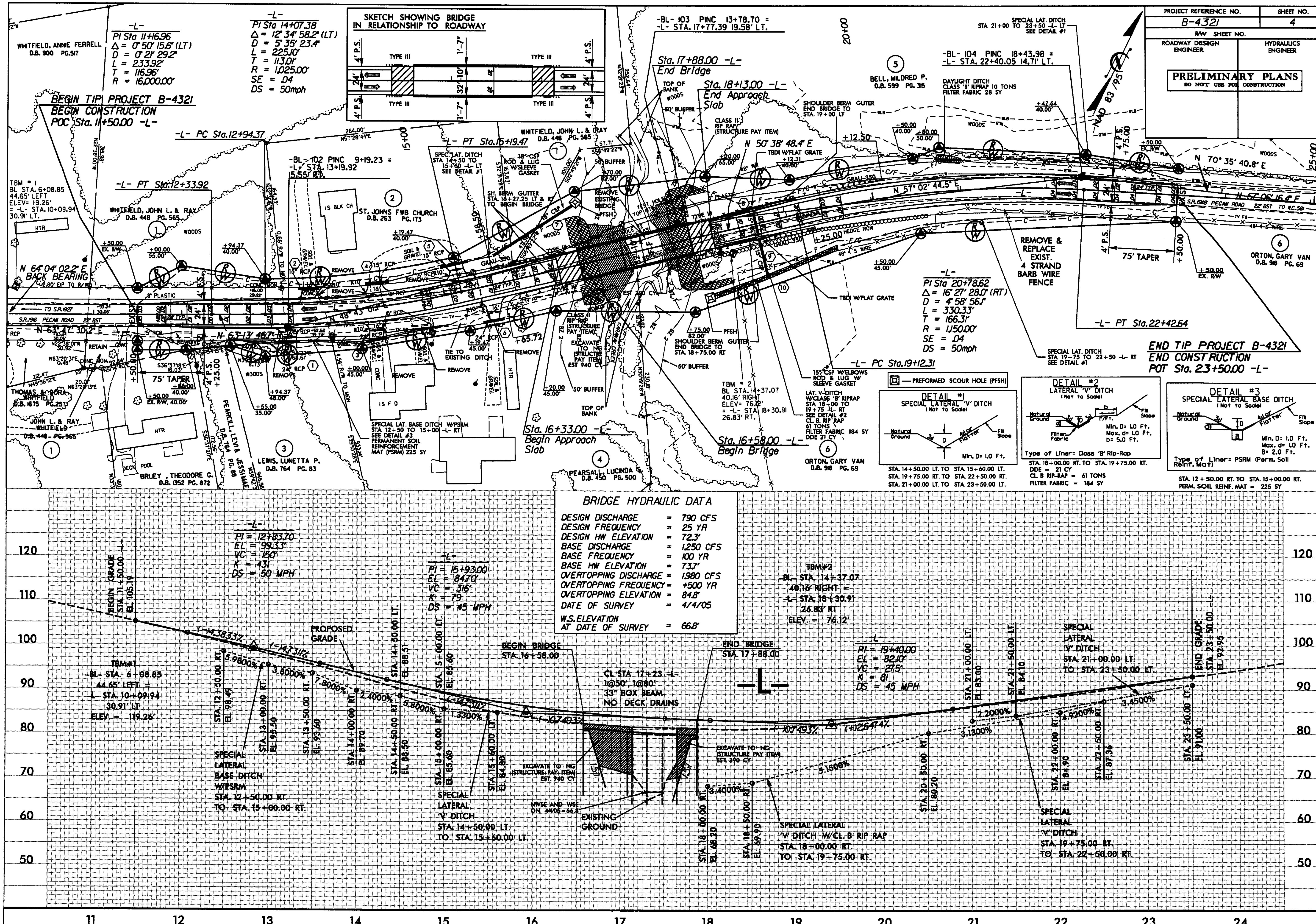
Section A-A



NOTE: "B" denotes size of basin; For example: 5.0ft.x 5.0ft. PSH, B=5.0

NOTE: The Permanent Soil Reinforcement matting (PSR) shall be seeded with native grasses at installation.

STATION	B FT.	D FT.	W_{PSR} FT.	d FT.	CLASS I RIP RAP TONS	DDE (CU YD)	FILTER FABRIC (SQ YD)
16+68 -L-	5	1.5	5	0.5	11	22	15
17+92 -L-	5	1.5	5	0.5	11	22	15


PROJECT REFERENCE NO. B-4321
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SKETCH SHOWING BRIDGE IN RELATIONSHIP TO ROADWAY
BEGIN TIP PROJECT B-4321
BEGIN CONSTRUCTION
POC Sta. 11+50.00 -L-
END TIP PROJECT B-4321
END CONSTRUCTION
POT Sta. 23+50.00 -L-
-L- PI Sta 11+16.96 Δ = 0°50' 15.6" (LT) D = 0°21' 29.2" L = 233.92' T = 116.96' R = 16,000.00'
-L- PI Sta 14+07.38 Δ = 12°34' 58.2" (LT) D = 5°35' 23.4" L = 225.10' T = 113.01' R = 1,025.00' SE = .04 DS = 50mph
-L- PI Sta 20+78.62 Δ = 16°27' 28.0" (RT) D = 4°58' 56.1" L = 330.33' T = 166.31' R = 1,150.00' SE = .04 DS = 50mph
-L- PC Sta.12+94.37
-L- PT Sta.12+33.92
-L- PT Sta.15+19.47
-L- PC Sta.19+12.31
-L- PT Sta.22+42.64
Sta. 16+33.00 -L- Begin Approach Slab
Sta. 16+58.00 -L- Begin Bridge
Sta. 17+88.00 -L- End Bridge
Sta. 18+13.00 -L- End Approach Slab
-BL- 102 PINC 9+19.23 = -L- STA. 13+19.92 15.55' RT.
-BL- 103 PINC 13+78.70 = -L- STA. 17+77.39 19.58' LT.
-BL- 104 PINC 18+43.98 = -L- STA. 22+40.05 14.71' LT.
TBM #1 BL STA. 6+08.85 44.65' LEFT ELEV= 119.26' = -L- STA. 10+09.94 30.91' LT.
TBM #2 BL STA. 14+37.07 40.16' RIGHT ELEV= 76.12' = -L- STA. 18+30.91 26.83' RT.
N 64°04' 02.2" E BACK BEARING
N 50°38' 48.4" E
N 57°02' 44.5" E
N 70°35' 40.8" E
NAD 83/95
S.R.1916 PECAN ROAD 22' BST
WHITFIELD, ANNIE FERRELL D.B. 900 PG.517
WHITFIELD, JOHN L. & RAY D.B. 448 PG. 565
ST. JOHNS FWB CHURCH D.B. 263 PG. 173
LEWIS, LUNETTA P. D.B. 764 PG. 83
PEARSALL, LUCINDA D.B. 450 PG. 500
ORTON, GARY VAN D.B. 918 PG. 69
BELL, MILDRED P. D.B. 599 PG. 315
BRUEY, THEODORE G. D.B. 1352 PG. 872
THOMAS & DORA WHITFIELD D.B. 1675 PG.257
REMOVE & REPLACE EXIST. 4 STRAND BARB WIRE FENCE
75' TAPER
PREFORMED SCOUR HOLE (PFSH)
DETAIL #1 SPECIAL LATERAL 'V' DITCH (Not to Scale)
STA. 14+50.00 LT. TO STA. 15+60.00 LT.
STA. 19+75.00 RT. TO STA. 22+50.00 RT.
STA. 21+00.00 LT. TO STA. 23+50.00 LT.
DETAIL #2 LATERAL 'V' DITCH (Not to Scale)
Type of Liner= Class 'B' Rip-Rap
STA. 18+00.00 RT. TO STA. 19+75.00 RT.
DDE = 21 CY
CL. B RIP-RAP = 61 TONS
FILTER FABRIC = 184 SY
DETAIL #3 SPECIAL LATERAL BASE DITCH (Not to Scale)
Type of Liner= PSRM (Perm. Soil Reinf. Mat)
STA. 12+50.00 RT. TO STA. 15+00.00 RT.
PERM. SOIL REINF. MAT = 225 SY
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 790 CFS
DESIGN FREQUENCY = 25 YR
DESIGN HW ELEVATION = 72.3'
BASE DISCHARGE = 1,250 CFS
BASE FREQUENCY = 100 YR
BASE HW ELEVATION = 73.7'
OVERTOPPING DISCHARGE = 1,980 CFS
OVERTOPPING FREQUENCY = +500 YR
OVERTOPPING ELEVATION = 84.8'
DATE OF SURVEY = 4/4/05
W.S. ELEVATION AT DATE OF SURVEY = 66.8'
-L- PI = 12+83.70 EL = 99.33' VC = 150' K = 43 DS = 50 MPH
-L- PI = 15+93.00 EL = 84.70' VC = 316' K = 79 DS = 45 MPH
-L- PI = 19+40.00 EL = 82.10' VC = 275' K = 81 DS = 45 MPH
BEGIN GRADE STA. 11+50.00 -L- EL. 105.19
END GRADE STA. 23+50.00 -L- EL. 92.95
BEGIN BRIDGE STA. 16+58.00
END BRIDGE STA. 17+88.00
CL STA 17+23 -L- 1@50', 1@80' 33" BOX BEAM NO DECK DRAINS
PROPOSED GRADE
EXISTING GROUND
(-)4.3833%
(-)4.7311%
(-)0.7493%
(+)1.2647%
EXCAVATE TO NG (STRUCTURE PAY ITEM) EST. 940 CY
EXCAVATE TO NG (STRUCTURE PAY ITEM) EST. 390 CY
NWSE AND WSE ON 4/4/05 = 66.8
SPECIAL LATERAL BASE DITCH W/PSRM STA. 12+50.00 RT. TO STA. 15+00.00 RT.
SPECIAL LATERAL 'V' DITCH STA. 14+50.00 LT. TO STA. 15+60.00 LT.
SPECIAL LATERAL 'V' DITCH W/CL. B RIP RAP STA. 18+00.00 RT. TO STA. 19+75.00 RT.
SPECIAL LATERAL 'V' DITCH STA. 19+75.00 RT. TO STA. 22+50.00 RT.
SPECIAL LATERAL 'V' DITCH STA. 21+00.00 LT. TO STA. 23+50.00 LT.
-L-
11 12 13 14 15 16 17 18 19 20 21 22 23 24
120 110 100 90 80 70 60 50

Wayne County

Bridge No. 17 on SR 1918 Over Caraway Creek

Federal-Aid Project No. BRSTP-1918(2)

State Project No. 33658.1.1

T.I.P. Project No. B-4321

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROVED:

1-4-06
DATE

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

1-04-06
DATE

for _____
John F. Sullivan, III, P. E.
Division Administrator, FHWA

Wayne County

Bridge No. 17 on SR 1918 Over Caraway Creek

Federal-Aid Project No. BRSTP-1918(2)

State Project No. 33658.1.1

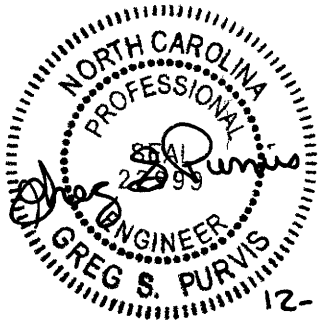
T.I.P. No. B-4321

CATEGORICAL EXCLUSION

December 2005

Document Prepared by:
Wang Engineering Company, Inc.

Greg S. Purvis, P. E.
Project Manager



12-15-05

James Wang, Ph.D., P. E.
Principal

For the North Carolina Department of Transportation

Wade Kirby, P. E., P. G.
Project Development Engineer
Project Development and Environmental Analysis Branch

PROJECT COMMITMENTS

Wayne County
Bridge No. 17 on SR 1918 Over Caraway Creek
Federal-Aid Project No. BRSTP-1918(2)
State Project No. 33658.1.1
T.I.P. Project No. B-4321

In addition to the standard Nationwide Permit No. 23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for Construction and Maintenance Activities, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Division Four

The Stream Crossing Guidelines for Anadromous Fish Passage will be implemented, as applicable.

A moratorium for in-stream activities will be in place from February 15 to June 15 due to Anadromous Fish in the project area.

Road closure will be coordinated with the Wayne County Schools and Wayne County Office of Emergency Services prior to construction.

Project Services/Traffic Control

Due to concern for the length of road closure with a proposed detour route, accelerated construction methods will be taken into account during the final design phase of the project. Consideration should be given to moving the letting date from February to April of the same year, so that the date of availability is June.

Wayne County
Bridge No. 17 on SR 1918 Over Caraway Creek
Federal-Aid Project No. BRSTP-1918(2)
State Project No. 33658.1.1
T.I.P. Project No. B-4321

INTRODUCTION: The replacement of Bridge No. 17 is included in the 2006-2012 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion."

I. PURPOSE AND NEED

Bridge Maintenance Unit records indicated the bridge has a sufficiency rating of 11.2 out of a possible 100 for a new structure. The bridge is considered functionally obsolete and structurally deficient. The existing bridge does not meet NCDOT Bridge Policy standards for clear deck width. The replacement of an inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

SR 1918 is classified as an urban collector. Land use in the project area is predominantly woodlands, light residential and farmland. Undeveloped woodlands are adjacent on the north and south sides of the study area. There is farmland to the east of the existing bridge.

Bridge No. 17 was constructed in 1953. The existing structure is 53 feet in length, consisting of three spans with the maximum span at approximately 18 feet. The clear roadway width is 24.0 feet, providing two ten-foot travel lanes with two-foot gutters. The superstructure consists of a reinforced concrete floor on timber joists. The substructure consists of timber caps on timber piles. The bed to crown height is 16.3 feet and the normal depth of flow is 1.7 feet. The posted weight limit is 17 tons for single vehicles (SV) and 25 tons for truck-tractors semi-trailers (TTST).

The existing bridge and approaches on SR 1918 is tangent. There is an approximate 980-foot radius curve located approximately 70 feet southwest of the existing structure and a 1,140-foot radius curve located approximately 20 feet northeast of the existing structure. SR 1918 consists of two 9.5-foot lanes with nine-foot shoulders.

The estimated 2004 average daily traffic volume is 5,600 vehicles per day (vpd). The projected traffic volume is expected to increase to 10,800 vpd by the design year 2030. The volumes include three percent TTST and two percent dual tired vehicles.

The speed limit in the vicinity of the bridge is posted at 45 mph. There are 35 mph advisory signs for the existing horizontal curves on the east and west sides of the existing bridge.

There are aerial power and telephone lines crossing on the southeast side of the existing bridge. Utility impacts are anticipated to be low.

There were seven accidents reported for the three-year period of May 1, 2001 to April 30, 2004.

Ten school buses cross this bridge twice daily.

III. ALTERNATIVES

A. Project Description

The proposed structure for will provide a 32-foot 10 inch clear deck width providing two 12-foot travel lanes with four feet five inches between the edge of travelway and the face of the bridge rail. The existing bridge navigational clearance will be maintained.

The proposed approach roadway will consist of a 24-foot travel way providing for two 12-foot travel lanes with eight-foot shoulders including four foot paved shoulders. The design speed will be 50 mph.

Based on a preliminary hydraulic analysis, Bridge No. 17 will be replaced with an approximate 130-foot bridge. The grade of the roadway will match the elevation of the existing roadway since lowering the grade could cause the road to be flooded by Caraway Creek. The minimum deck grade will be 0.3%. The opening size of the proposed structure may increase or decrease as necessary to accommodate peak flows as determined from a more detailed hydraulic analysis to be performed during the final design phase of the project.

B. Build Alternatives

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

Alternate A (Preferred) replaces the bridge at the existing location. During construction, traffic will be maintained by an off-site detour route along SR 1928 (Mitchell Road), SR 1932 (Emmaus Church Road), SR 1930 (Outlaw Road), and SR 1927 (Genoa Road) approximately 6.6 miles in length. The length of approach work will be approximately 508 feet on the southwest side of the bridge and approximately 562 feet on the northeast side of the bridge.

Alternate B replaces the bridge on new alignment south of the existing bridge. During construction traffic will be maintained on the existing bridge. During the construction of the tie-ins traffic will be maintained on the off-site detour. The length of approach work will be approximately 418 feet on the southwest side of the bridge and approximately 787 feet on the northeast side of the bridge. Alternate B was not chosen because it has comparatively higher natural environment impacts and construction cost.

C. Alternatives Eliminated From Further Study

The "Do-Nothing" Alternative will eventually necessitate removal of the bridge and closing of the road. This is not desirable due to the traffic service provided by SR 1918.

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

D. Preferred Alternative

Alternate A, replacing the existing bridge at the existing location, while maintaining traffic by an off-site detour route is the preferred alternate. Alternate A was selected because of the comparatively lower construction cost, lower environmental impacts, and lesser construction time associated with it.

The Division Engineer concurs with Alternate A as the preferred alternative.

Alternate A is estimated to cost $1,416,000. A breakdown of the estimated cost is shown in Item V (Table 1).

IV. DESIGN EXCEPTIONS ANTICIPATED

No design exceptions will be required.

V. ESTIMATED COSTS

The estimated costs, based on current 2005 prices, are as follows:

Table 1. – Estimated Costs

	Alternate A (Preferred)	Alternate B
Structure Removal (existing)	$ 19,000	$ 19,000
Structure (proposed)	468,000	468,000
Roadway Approaches	404,000	465,500
Miscellaneous and Mobilization	255,000	282,500
Engineering and Contingencies	204,000	215,000
ROW/Const. Easements/Utilities:	66,000	101,000
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TOTAL	**$ 1,416,000**	**$ 1,551,000**

The estimated cost of the project, as shown in the 2006-2012 Transportation Improvement Program, is $1,400,000 including $100,000 for right-of-way, $1,150,000 for construction, and $150,000 for prior year costs.

VI. NATURAL RESOURCES

A. Methodology

Materials and literature supporting this investigation have been derived from a number of sources including U.S. Geological Survey (USGS) topographic mapping (SW Goldsboro, NC 7.5 minute quadrangle), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping (SW Goldsboro, NC 7.5 minute quadrangle), Natural Resources Conservation Service (NRCS; formerly the Soils Conservation Service) soils mapping (SCS 1974), N.C. Wildlife Resources Commission (WRC) proposed Significant Aquatic Endangered Species Habitats, and recent aerial photography furnished by NCDOT.

Plant community descriptions are based on a classification system utilized by the N.C. Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968) with adjustments for updated nomenclature (Kartesz 1998). Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (USACE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979) and/or the N.C. Division of Environmental Management (DEM) *Field Guide to North Carolina Wetlands* (1996). Aquatic and terrestrial wildlife habitat requirements and distributions were determined by supportive literature (Martof *et al.* 1980, Potter *et al.* 1980, Webster *et al.* 1985, Menhinick 1991, Palmer and Braswell 1995, and Rohde *et al.* 1994). Water quality information for area streams and tributaries was derived from available sources (DWQ 2002, DWQ 2001). Quantitative sampling was not undertaken to support existing data.

The most current USFWS listing of federally protected species with ranges extending into Wayne County (February 25, 2003 USFWS list) is considered in this report. In addition, NHP records documenting the presence of federally or state listed species were consulted before commencing field investigations. Significant Aquatic Endangered Species Habitats proposed by the WRC (December 11, 1998 listing) were consulted to determine the presence of Proposed Critical Habitats for aquatic species.

The project area was walked and visually surveyed for significant features. Special concerns evaluated in the field include 1) potential protected species habitat and 2) wetlands and water quality protection of Caraway Creek.

B. Physiography and Soils

The project area is located within the Rolling Coastal Plain (Level III) ecoregion of North Carolina. The dissected Rolling Coastal Plain extends south from Virginia and covers much of the northern upper coastal plain of North Carolina. Relief, elevation, dissection, and stream gradients are generally greater than in the adjacent ecoregion to the east, and soils tend to be better drained. It also has a slightly cooler and shorter growing season, but is a productive agricultural region with typical crops of corn, soybeans, tobacco, cotton, sweet potatoes, peanuts, and wheat. The region appears to be biologically less diverse than the coastal plain regions to the south.

Elevations within the project area range from a high of approximately 130 feet National Geodetic Vertical Datum (NGVD) to a low of approximately 70 feet NGVD within the stream channel. Land uses within the project vicinity consist of woodlands, agriculture, and residential lots.

Based on soil mapping for Wayne County (SCS 1974), the project area is underlain by five soil series including Kinston loam (*Typic Fluvaquent*), Lucy loamy sand (*Arenic Paleudults*), Norfolk sandy loam (*Typic Paleudults*), Troup sand (*Grossarenic Kandiudults*), and Wagram loamy sand (*Arenic Kandiudults*). Within the project area, Kinston and Wagram soils occur along the stream and adjacent wetlands, and Troup, Lucy, and Norfolk soils are found on higher elevations at the northeastern and southwestern ends of the project area. Kinston is considered hydric in Wayne County by the Natural Resource Conservation Service (NRCS) (1997) and underlies approximately 3.5 acres or 23 percent of the project area.

The Kinston series consists of very deep, poorly drained, moderately permeable soils that formed in stratified loamy and sandy recent alluvium. These soils are found on floodplains with slopes ranging from 0 to 2 percent. The seasonal high water table is at the surface.

The Lucy series consists of very deep, well-drained, moderately permeable soils on uplands. They formed in sandy and loamy marine and fluvial sediments of the Coastal Plain. Slopes range from 0 to 45 percent. The depth to the seasonal water table is greater than 5 feet.

The Norfolk series consists of well-drained, nearly level to sloping soils on broad, smooth, slightly convex divides. These soils formed in Coastal Plain sediments. Slopes range from 0 to 2 percent. The depth to the seasonal water table is greater than 5 feet.

The Troup series consists of deep, somewhat excessively drained, moderately permeable soils with thick sandy surface and subsurface layers and loamy subsoils. They formed in unconsolidated sandy and loamy marine sediments on Coastal Plain uplands. Slopes range from 0 to 40 percent. The depth to the seasonal water table is greater than 5 feet.

The Wagram series consists of well-drained, nearly level to strongly sloping soils on smooth, slightly convex and rounded sides of broad divides. These soils formed in Coastal Plain sediments. Slopes range from 0 to 15 percent. The depth to the seasonal water table is greater than 5 feet.

C. Water Resources

1. Waters Impacted

The project area is located within sub-basin 03-04-12 of the Neuse River Basin (DWQ 2001). This area is part of USGS Hydrologic Unit 03020201 of the South Atlantic/Gulf Region. The structure targeted for replacement spans Caraway Creek and the adjacent floodplain. The portion of Caraway Creek that lies within the project area has been assigned Stream Index Number 27-61 by DWQ (2002). Also included within the project area is a UT to Caraway Creek.

2. Water Resource Characteristics

Caraway Creek enters the project area from the southeast as a well-defined, third-order, perennial stream with moderate flow over a sand and silt substrate. At Bridge No. 17, Caraway Creek is approximately 8 feet wide. The banks of Caraway Creek are approximately 2 feet high and are moderately sloping. During field investigations, the water level was approximately 8-12 inches deep. Water clarity was moderate to poor, with some visibility to the substrate, and flow velocity was moderate. No persistent emergent aquatic vegetation was observed within the stream. Opportunities for habitat within Caraway Creek include overhanging trees, undercut banks, fallen logs, and leaf packs.

The UT to Caraway Creek is located in the north quadrant of the project area north of SR 1918. The UT to Caraway Creek is a barely defined, first-order, brief reach of intermittent stream with low flow over a sand and silt substrate. The UT to Caraway Creek flows from northeast to southwest. The upper extent of the stream is forked with the northern fork measuring 14 linear feet and the southern fork measuring 16 linear feet. Below the confluence of the two forks, the stream measures 64 linear feet before losing stream characteristics for a total of 94 linear feet. Above the stream is a wide, flat, two-pronged wetland that narrows due to topography and cuts down through the soil to form the beginning of the two forks of the stream. At the bottom of the stream, the land surface levels out and the water is dispersed into a wide wetland with no defined stream-like channels. The UT to Caraway Creek is approximately 2 feet wide. The banks of the UT to Caraway Creek are approximately 1 foot high. During field investigations, the water level was approximately 1 inch deep. Water clarity was good, and flow velocity was slow. No

persistent emergent aquatic vegetation was observed within the stream. There are not many opportunities for habitat within the UT Caraway Creek except some leaf packs and dead branches.

The North Carolina Division of Water Quality (DWQ) has assembled a draft list of impaired waterbodies according to the Clean Water Act Section 303(d) and 40 CFR 130.7, hereafter referred to as the N.C. 2004 Section 303(d) draft list. The list is a comprehensive public accounting of all impaired waterbodies. An impaired waterbody is one that does not meet water quality standards including designated uses, numeric and narrative criteria, and anti-degradation requirements defined in 40 CFR 131. The standards violation may be due to an individual pollutant, multiple pollutants, pollution, or an unknown cause of impairment. The impairment could be from point sources, nonpoint sources, and/or atmospheric deposition. Some sources of impairment exist across state lines. North Carolina's methodology is strongly based on the aquatic life use support guidelines available in the Section 305(b) guidelines (EPA-841-B-97-002A and -002B). Those streams attaining only Partially Supporting (PS) or Not Supporting (NS) status are listed on the N.C. 2004 Section 303(d) draft list. Streams are further categorized into one of six parts within the N.C. 2004 Section 303(d) draft list, according to source of impairment and degree of rehabilitation required for the stream to adequately support aquatic life. Within Parts 1, 4, 5, and 6 of the list, North Carolina has developed a priority ranking scheme (low, medium, high) that reflects the relative value and benefits those waterbodies provide to the State. Caraway Creek is not listed on any section of the N.C. 2004 Section 303(d) draft list.

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. A Best Usage Classification of **C NSW** has been assigned to this reach of Caraway Creek. Class **C** waters are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation includes wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. Nutrient Sensitive Waters (**NSW**) are areas with water quality problems associated with excessive plant growth resulting from nutrient enrichment. No designated High Quality Waters (**HQW**), Outstanding Resource Waters (**ORW**), Water Supply I (**WS-I**) waters, Water Supply II (**WS-II**) waters, or watershed Critical Areas (**CA**) occur within 1.0 mile of the project area (DWQ 2002). The UT to Caraway Creek has not been assigned an individual water quality classification and is therefore considered to have the same classification as this reach of Caraway Creek.

The DWQ has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed project area is summarized in the *Neuse River Basinwide Water Quality Plan* (DWQ 2001). Caraway Creek is currently designated by DWQ as **Supporting** its designated uses. No benthic macroinvertebrate monitoring stations occur within 1.0 mile of the project area (DWQ 2001).

Sub-basin 03-04-12 of the Neuse River Basin supports 13 permitted, point source discharges with a total discharge of greater than 20 million gallons per day. No sources discharge into Caraway Creek. Major non-point sources of pollution within the Neuse River Basin include runoff from construction activities, agriculture, failing septic systems, straight pipes, roads, parking lots, and rooftops. Sedimentation and nutrient inputs are major problems associated with non-point source discharges (DWQ 2001).

The WRC has developed a Significant Aquatic Endangered Species Habitat database to enhance planning and impact analysis in areas proposed by WRC as being critical due to the presence of

Endangered or Threatened aquatic species. No Significant Aquatic Endangered Species Habitat occurs within the project area.

3. Anticipated Impacts

a) General Impacts

Impacts to water resources in the project area may result from activities associated with project construction. Activities that would result in impacts are clearing and grubbing on streambanks, riparian canopy removal, in-stream construction, fertilizers and pesticides used in revegetation, and pavement/culvert installation. The following impacts to surface water resources could result from the construction activities mentioned above.

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project area.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Changes in and destabilization of water temperature due to vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Increased nutrient loading during construction via runoff from exposed areas.
- Increased concentrations of toxic compounds in roadway runoff.
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.

Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule and the use of Best Management Practices (BMPs). The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled *Control of Erosion, Siltation, and Pollution* (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into streams by catch basins and roadside vegetation.

b) 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 potential 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 Waters of the United States", and "Best Management Practices for Bridge Demolition and Removal" (all documents dated 9/20/99). Guidelines followed for bridge demolition and removal are in addition to those implemented for Best Management Practices for the Protection of Surface Waters.

The proposed bridge replacement will allow for continuation of pre-project stream flows in Caraway Creek, thereby protecting the integrity of this waterway. The maximum potential of fill that may fall into Caraway Creek during demolition is approximately 10 cubic yards. Long-term impacts resulting from construction are expected to be negligible. In order to minimize impacts to water resources, NCDOT *Best Management Practices for the Protection of Surface Waters* will be strictly enforced during the entire life of the project.

The replacement of Bridge No. 17 can be classified as Case 2 which allows no work at all in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas. Anadromous fish species are found in this portion of Caraway Creek; therefore, NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15. There may be additional restrictions beyond those outlined in *Best Management Practices for Protection of Surface Waters*.

D. Biotic Resources

1. Plant Communities

Two distinct plant communities were identified within the project area: hardwood forest, and disturbed/maintained land, (Figure 6). Plant communities are listed in order of their predominance within the project area.

a) Disturbed/Maintained land

Disturbed/maintained land includes roadside shoulders, pastures, and residential yards. This community predominantly supports a herb/grass assemblage along with some shrubs and trees. Most of this area is maintained by mowing or agricultural activities. Groundcover includes seeded and native grasses and weedy forbs including fescue (*Festuca* sp.), dog-fennel (*Eupatorium capillifolium*), goldenrod (*Solidago* sp.), pokeweed (*Phytolacca americana*), wild onion (*Allium canadense*), vetch (*Vicia* sp.), kudzu (*Pueraria lobata*), henbit (*Lamium amplexicaule*), soft rush (*Juncus effusus*) and jewelweed (*Impatiens capensis*). Trees and shrubs include a single row of sweetgum (*Liquidambar styraciflua*) located in between the pasture and SR 1918 in the eastern quadrant of the project area. There are also loblolly pine (*Pinus taeda*), redbud (*Cercis canadensis*), and red maple (*Acer rubrum*) located in residential yards. This community occupies approximately 10 acres of the project area.

Terrestrial mammal species adapted to maintained/disturbed areas such as those found in the project area include Virginia opossum (*Didelphis virginiana*), least shrew (*Cryptotis parva*), eastern mole (*Scalopus aquaticus*), hispid cotton rat (*Sigmodon hispidus*), house mouse (*Mus musculus*), and red fox (*Vulpes vulpes*).

Birds observed within open and/or disturbed areas include American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), northern cardinal (*Cardinalis cardinalis*), red-tailed hawk (*Buteo jamaicensis*), field sparrow (*Spizella pusilla*) and blue grosbeak (*Guiraca caerulea*). Other avian species which might frequent this community include, eastern kingbird (*Tyrannus tyrannus*), blue jay (*Cyanocitta cristata*), common grackle (*Quiscalus quiscula*), house finch (*Carpodacus mexicanus*), and European starling (*Sturnus vulgaris*).

No terrestrial reptile or amphibian species were observed during the site visit. Terrestrial reptile and amphibian species that might find habitat in disturbed parts of the project area include eastern fence lizard (*Sceloporus undulatus*), five-lined skink (*Eumeces fasciatus*), worm snake (*Carphophis amoenus*), brown snake (*Storeria dekayi*), and redbelly snake (*Storeria occipitomaculata*).

b) Hardwood Forest

This community includes all of the wooded areas contained within the project area. This community resembles a Mesic Mixed Hardwood Forest (Coastal Plain Subtype) as described by Schafale and Weakley. One area has been recently cleared and contains large stumps and exposed soil. This cleared area is located in the northeast quadrant. The cleared area starts at the northeastern boundary of the project area and runs southwest between wetland Site 1 and the southwestern boundary of the project area for approximately 600 feet (Figure 6). The cleared area is approximately 0.3 acre. Other than the cleared area, this community is well-developed with a broken canopy consisting of some large, mature trees along with a sparse understory. A dense herbaceous/vine layer is present due to penetration of sunlight through the canopy. Four wet areas are found within this community.

In the mesic portions of this community, the canopy is vegetated by tulip poplar (*Liriodendron tulipifera*), sycamore (*Platanus occidentalis*), water oak (*Quercus nigra*), red maple, willow oak (*Quercus phellos*), and American elm (*Ulmus americana*). The sapling/shrub layer includes those species within the canopy layer as well as American holly (*Ilex opaca*), ironwood (*Carpinus caroliniana*), white oak (*Quercus alba*), Chinese privet (*Ligustrum sinense*), and sugarberry (*Celtis laevigata*). Vines include greenbrier (*Smilax* rotundifolia), Virginia creeper (*Parthenocissus quinquefolia*) and Japanese honeysuckle (*Lonicera japonica*).

Wet areas exist along the floodplain of Caraway Creek as well as within linear depressions found in the north quadrant. These linear depressions are parallel to the north side of SR 1918 and run from the northeast boundary of the project area to the floodplain of Caraway Creek (Figure 6). Trees in wet areas consist of green ash (*Fraxinus pennsylvanica*), black willow (*Salix nigra*), river birch (*Betula nigra*), and sycamore. The herbaceous layer includes soft rush, jewelweed, sedge (*Carex* sp.), netted-chain fern (*Woodwardia areolata*), and lizard's tail (*Saururus cernuus*). This community occupies approximately 5 acres of the project area.

No terrestrial mammals were observed during the site visit. Tracks from raccoon (*Procyon lotor*) were noted. Some mammal species which may inhabit hardwood forests within the project region include gray squirrel (*Sciurus carolinensis*), red bat (*Lasiurus borealis*), eastern cottontail (*Sylvilagus floridanus*), eastern chipmunk (*Tamias striatus*), white-footed mouse (*Peromyscus leucopus*), woodland vole (*Microtus pinetorum*), silver-haired bat (*Lasionycteris noctivagans*), long-tailed weasel (*Mustela frenata*), striped skunk (*Mephitis mephitis*), and bobcat (*Felis rufus*).

Observed bird species in these forested areas include Carolina wren (*Thryothorus ludovicianus*), red-bellied woodpecker (*Melanerpes carolinus*), great crested flycatcher (*Myiarchus crinitus*), barn swallow (*Hirundo rustica*), and yellow-breasted chat (*Icteria virens*). Forest-dwelling birds of the project region include northern cardinal, blue gray gnatcatcher (*Polioptila caerulea*), tufted titmouse (*Baeolophus bicolor*), eastern towhee

(*Pipilo erythrophthalmus*), Cooper's hawk (*Accipiter cooperii*), Carolina chickadee (*Poecile carolinensis*), and brown thrasher (*Toxostoma rufum*).

One terrestrial reptile, American toad (*Bufo americanus*), was observed. Terrestrial reptiles and amphibians within this forested community might include eastern garter snake (*Thamnophis sirtalis*), spring peeper (*Pseudacris crucifer*), broadhead skink (*Eumeces laticeps*), ground skink (*Scincella lateralis*), black racer (*Coluber constrictor*), and rat snake (*Elaphe obsoleta*).

Many of these wildlife species are very adaptable and can eat a wide variety of plant and animal material when the preferred food is absent. Many of these species can be found within disturbed areas, brushy edges of the forest, within heavy underbrush, or amongst shrubby plants. Migration between communities of the project area may be frequent based on the needs of each species for food, cover, protection from predators, and nesting.

2. Aquatic Communities

Limited investigations resulted in no observations of aquatic or semi-aquatic species. Species expected to occur within the project area vicinity include green frog (*Rana clamitans*), pickerel frog (*Rana palustris*), snapping turtle (*Chelydra serpentina*), eastern musk turtle (*Sternotherus odoratus*), painted turtle (*Chrysemys picta*), northern water snake (*Nerodia sipedon*), and eastern ribbon snake (*Thamnophis sauritus*).

No sampling was undertaken in Caraway Creek to determine fishery potential and no fish species were observed during the field survey. Fish species that may be present in this reach of Caraway Creek include alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*), both of which are anadromous, redfin pickerel (*Esox americanus*), golden shiner (*Notemigonus crysoleucas*), comely shiner (*Notropis amoenus*), and bluegill (*Lepomis macrochirus*).

3. Summary of Anticipated Impacts

Plant communities were delineated to determine the approximate area and location of each within the project area (Figure 6). Plant community impacts are based on cut-and-fill areas for each alternative. A summary of permanent plant community impacts is presented in Table 2.

Table 2: Plant Community Impacts for Each Alternative

Plant Community	Alternate A* (Preferred)	Alternate B*
Maintained/Disturbed	1.85	1.93
Hardwood Forest	0.34	0.15
TOTAL	**2.19**	**2.08**

*Areas are given in acres

The majority of impacts associated with both alternatives will occur within disturbed/maintained land. Alternate A will impact approximately two times the area of relatively undisturbed community. Most of this difference between alternatives will occur within hardwood forest. With respect to Alternate B, losses to plant communities may be offset by the rehabilitation of the old roadway once construction of the new road and bridge is complete. For either alternate, no significant habitat fragmentation is expected as a result of project activities since potential

improvements will be restricted to adjoining roadside margins. Construction noise and associated disturbances are anticipated to have short-term impacts on avifauna and migratory wildlife movement patterns.

No Significant Aquatic Endangered Species Habitat exists within or near the project area. Impacts associated with turbidity and suspended sediments resulting from bridge replacement will be minimized through the use of silt curtains and the implementation of stringent erosion control measures. The replacement of Bridge No. 17 can be classified as Case 2, which allows no work at all in the water during moratorium periods, associated with fish migration, spawning, and larval recruitment into nursery areas. Anadromous fish species are found in this portion of Caraway Creek; therefore, NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15.

Potential downstream impacts to aquatic habitat are anticipated to be avoided by bridging the stream system to maintain regular flow and stream integrity. Short-term impacts associated with turbidity and suspended sediments may affect benthic populations. Temporary impacts to downstream habitat from increased sediment during construction will be minimized by the implementation of stringent erosion control measures.

E. Special Topics

1. Waters of the United States

Surface waters within the embankments of Caraway Creek and the UT to Caraway Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR Section 328.3). Caraway Creek exhibits characteristics of a well-defined, third-order, perennial stream with moderate flow over a sand and silt substrate. Caraway Creek can be classified as riverine, lower perennial with an unconsolidated bottom composed primarily of sand (R2UB2) (Figure 6). The UT to Caraway Creek exhibits characteristics of a defined, first-order, intermittent stream with low flow over a sand and silt substrate. The UT to Caraway Creek can be classified as riverine, lower perennial with an unconsolidated bottom comprised mostly of sand (R2UB2) (Figure 6).

Vegetated wetlands are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). The project area contains four vegetated wetland areas (Figure 6, Sites 1-4). These four wetland areas are in the process of being confirmed as jurisdictional by USACE.

NWI mapping indicates that all wetlands within the project area are characterized as palustrine, forested with broad-leaved deciduous trees, and temporarily flooded (PFO1A). Two wet areas within the project area can be can be characterized as PFO1A, while the remaining wet areas are characterized as palustrine, forested with broad-leaved deciduous trees, and saturated (PFO1B), and palustrine, emergent, persistent, and saturated (PEM1B).

A forested wetland occurs in the north quadrant of the project area (Figure 6, Site 1). The wetland occurs in the form of multiple linear depressions that are parallel to the northside of SR 1918. The linear depressions run from the northeast boundary of the project area southwesterly and then westerly until exiting the project boundary. Linking the upper and lower portions of this wet area is the UT to Caraway Creek (Figure 6). Water creating this wet area comes from springs at the northeastern boundary of the project area. This wetland may be characterized as palustrine,

forested with broad-leaved deciduous trees, and saturated (PFO1B). Soils exhibit hydric chromas, while hydrology indicators are saturation and oxidized rhizospheres.

Another forested wetland occurs within the north quadrant of the project area (Figure 6, Site 2). One section of this wetland occurs within the floodplain of Caraway Creek on the north side of the stream while the other section occurs on the slope adjacent to the floodplain. It is very similar to the forested linear wetlands located in the north quadrant except that due to its location in the floodplain, it is subject to irregular overbank flows. Sources of water for this wet area also include upslope springs and water draining from the adjacent roadway. The floodplain portion of this wetland may be characterized as palustrine, forested with broad-leaved deciduous trees, and temporarily flooded (PFO1A). The portion located on the adjacent slope can be characterized as palustrine, forested with broad-leaved deciduous trees, and saturated (PFO1B). Soils exhibit hydric chromas, while hydrology indicators are inundation and oxidized rhizospheres.

A third forested wetland occurs in the west quadrant of the project area (Figure 6, Site 3) on the south side of Caraway Creek with one section located in the floodplain and the other section located on the adjacent slope. The source of water for the sloped portion comes from a pipe at the southwest boundary of the wetland, which drains a large church yard and parking lot, as well as some seepage from springs. The wetland located in the floodplain is subject to irregular overbank flows. The floodplain portion of this wetland may be characterized as palustrine, forested with broad-leaved deciduous trees, and temporarily flooded (PFO1A). The portion located on the adjacent slope can be characterized as palustrine, forested with broad-leaved deciduous trees, and saturated (PFO1B). Soils exhibit hydric chromas, while hydrology indicators are saturation and oxidized rhizospheres.

A fourth wetland occurs in the east quadrant of the project area (Figure 6, Site 4). The wetland extends from the north side of Caraway Creek to the lower portion of the pasture. The portion within the floodplain is subject to irregular overbank flows. The source of water for the portion located within the sloped pasture is groundwater seepage. The portion near the stream can be defined as palustrine, forested with broad-leaved deciduous trees, and temporarily flooded (PFO1A) while the portion that extends into the pasture can be defined as palustrine, emergent, persistent, and saturated (PEM1B). Soils exhibit hydric chromas, while hydrology indicators are saturation and oxidized rhizospheres.

Jurisdictional areas located within alternative cut-fill limits are summarized in Table 3.

Table 3: Jurisdictional Area Impacts for Alternatives

Jurisdictional Areas	Cowardin Classification	Alternate A* (Preferred)	Alternate B*
Site 1	PFO1B	0.03	0.03
Site 2	PFO1B	------	------
Site 2	PFO1A	------	------
Site 3	PFO1B	------	------
Site 3	PFO1A	------	------
Site 4	PFO1B	0.04	0.24
Site 4	PFO1A	------	0.05
Total		**0.07**	**0.32**

*Areas are given in acres.

Alternate B impacts approximately four times the area of wetlands when compared to Alternate A. The majority of these impacts occur within Site 4 (Figure 6) in the east quadrant of the project area.

Bridge No. 17 was built in 1953 with a superstructure composed of reinforced concrete deck and railings on timber joists. The substructure consists of timber caps on timber piles. The maximum potential fill that may be deposited into Caraway Creek during bridge demolition is approximately 10 cubic yards. The replacement of Bridge No. 17 can be classified as Case 2, which allows no work at all in the water during moratorium periods, associated with fish migration, spawning, and larval recruitment into nursery areas. Anadromous fish species are found in this portion of Caraway Creek; therefore, NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15.

2. Permits

a). Section 404 of the Clean Water Act

This project may be processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The USACE has made available Nationwide Permit (NWP) 23 (67 FR 2020, 2082; January 15, 2002) for CEs due to minimal impacts to waters of the U.S. expected with bridge construction. Activities under this permit are categorically excluded from environmental documentation because they are included within a category of activities that neither individually nor cumulatively have a significant effect on the human and natural environment. Activities authorized under nationwide permits must satisfy all terms and conditions of the particular permit.

b). Section 401 Water Quality Certification

DWQ has made available a General 401 Water Quality Certification for NWP 23 (GC 3403). If temporary structures are necessary for construction activities, access fills, or dewatering of the site, then a NWP 33 (67 FR 2020, 2087; January 15, 2002) permit and the associated General 401 Water Quality Certification (GC 3366) will be required. Impacts to vegetated wetlands may be authorized under NWP 3 (67 FR 2020, 2078) and the associated General 401 Water Quality Certification (GC 3376). In the event that NWPs 23, 33, and 3 will not suffice, impacts attributed to bridge replacement and associated approach improvements may qualify under General Bridge Permit (GP) 031 issued by the Wilmington USACE District. DWQ has made available a General 401 Water Quality Certification for GP 031 (GC 3404). Notification to the Wilmington USACE District office is required if this general permit is utilized. Since the bridge replacement proposes to undertake uses designated as Allowable under the Neuse River Basin Rule, a request for a "no practicable alternatives" determination will be made to DWQ.

c). Bridge Demolition and Removal

If no practical alternative exists to remove the current bridge other than to drop it into the water, prior to removal of debris off-site, fill related to demolition procedures will need to be considered during the permitting process. A worst-case scenario will be assumed with the understanding that if there is any other practical method available, the bridge will not be dropped into the water. The worst-case scenario associated with the bridge removal is expected to be 10 cubic yards of temporary fill. Permitting will be coordinated such that any permit needed for bridge construction will also address issues related to bridge demolition.

3. Riparian Buffer Protection Rules for the Neuse River Basin

The Nutrient Sensitive Waters Management Strategy for the Protection and Maintenance of Riparian Buffers for the Neuse River Basin (15A NCAC 02B .0259) provides a designation for uses that cause impacts to riparian buffers within the Neuse River Basin. The Neuse River Basin Rule applies to 50-foot wide riparian buffers (measured perpendicular to the stream) directly adjacent to surface waters in the Neuse River Basin. Designated surface waters are indicated on USGS 7.5-minute topographic maps and county soil surveys. Within the project area, Caraway Creek and the UT to Caraway Creek are the only features subject to the riparian buffer rule (Figure 6).

Changes in land use within the buffer area are considered to be buffer impacts. Land use changes within the riparian buffer are defined as being Exempt, Allowable, Allowable with Mitigation, or Prohibited. The Exempt designation refers to uses allowed within the buffer. The Allowable designation refers to uses that may proceed within the riparian buffer provided there are no practical alternatives, and that written authorization from the DWQ is obtained prior to project development. The Allowable with Mitigation designation refers to uses that are allowed, given there are no practical alternatives, and appropriate mitigation plans have been approved. The Prohibited designation refers to uses that are prohibited without a variance. Exemptions to the riparian buffer rule include the footprint of existing uses that are present and ongoing. Both alternatives for the replacement of Bridge No. 17 impact less than 150 feet of riparian buffer and are therefore Allowable under the Neuse River Basin Rules.

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 waters of the United States, and specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the USACE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology and logistics in light of overall project purposes.

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, right-of-way widths, fill slopes, and/or road shoulder widths. All efforts will be made to decrease impacts to surface waters. The proposed project will replace the bridge in the existing location and utilize 3:1 fill slopes in wetland areas to minimize impacts.

Compensatory mitigation is not normally considered until anticipated impacts to waters of the United States have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. In accordance with 15A NCAC 2H .0506(h), DWQ may require compensatory mitigation for projects with greater to or equal than 1.0 acre of impacts to jurisdictional wetlands or greater than or equal to 150 linear feet of total perennial stream impacts. Furthermore, in accordance with 67 FR 2020, 2092; January 15, 2002, the USACE requires compensatory mitigation when necessary to ensure that adverse effects to the aquatic environment are minimal. The size and type of the proposed project impact and the function and value of the impacted aquatic resource are factors considered in determining acceptability of appropriate and practicable compensatory mitigation. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, preservation and enhancement, and creation of waters of the United States. Such actions should be undertaken first in areas adjacent to or contiguous to the discharge site.

Mitigation for Section 404 jurisdictional areas may not need to be proposed for this project due to the potentially limited nature of the project impacts. However, utilization of BMPs is recommended in an effort to minimize impacts. Temporary impacts to floodplains associated with construction activities could be mitigated by replanting disturbed areas with native riparian species and removal of temporary fill material upon project completion. A final determination regarding mitigation rests with the USACE and DWQ.

F. Rare and Protected Species

1. Federally Protected Species

Species with the federal classification of Endangered (E), Threatened (T), or officially Proposed (P) for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered Species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range," and the term "Threatened Species" is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532).

One federally protected species is listed for Wayne County (February 25, 2003 USFWS list): red-cockaded woodpecker (*Picoides borealis*). This species is federally listed as Endangered.

Red-cockaded woodpecker (*Picoides borealis)* **Endangered**
Animal Family: Picidae
Date Listed: October 13, 1970

The red-cockaded woodpecker (7 to 8.5 inches long) has a black head, prominent white cheek patches, and a black-and-white barred back. Males often have red markings (cockades) behind the eye, but the cockades may be absent or difficult to see (Potter *et al.* 1980). Primary habitat consists of mature to over-mature southern pine forests dominated by loblolly, long-leaf (*P. palustris*), slash (*P. elliottii*), and pond (*P. serotina*) pines (Thompson and Baker 1971). Nest cavities are constructed in the heartwood of living pines, generally older than 70 years that have been infected with red-heart disease. Nest cavity trees tend to occur in clusters, which are referred to as colonies (USFWS 1985). The woodpecker drills holes into the bark around the cavity entrance, resulting in a shiny, resinous buildup around the entrance that allows for easy detection of active nest trees. Pine flatwoods or pine-dominated savannas that have been maintained by frequent natural fires serve as ideal nesting and foraging sites for this woodpecker. Development of a dense understory may result in abandonment of cavity trees.

Biological Conclusion: **NO EFFECT**

The project area supports no suitable mature pine trees; therefore, no suitable habitat for red-cockaded woodpecker occurs within the project area. NHP has no record of occurrences of red-cockaded woodpecker within a 2.0-mile radius of the project area. Consequently, the proposed bridge replacement will have "No Effect" on red-cockaded woodpeckers.

2. Federal Species of Concern

The February 25, 2003 USFWS list also includes a category of species designated as "Federal species of concern" (FSC). A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). The FSC designation provides no federal protection under the ESA for the species listed. FSC species listed for Wayne County are presented in Table 4. NHP files list no documentation for FSC species within 2.0 miles of the project area, and no FSC species were observed during field investigations.

Table 4: Federal Species of Concern

Common Name	Scientific Name	Potential Habitat	State Status**
Neuse madtom	*Noturus furiosus*	Yes	SC
Pinewoods shiner	Lythrurus matutinus	Yes	SR
Rafinesque's big-	Corynorhinus rafinesquii	Yes	T
Southern hognose	Heterodon simus	Yes	SC
Atlantic pigtoe	Fusconaia masoni	No	E
Pondspice	Litsea aestivalis	No	SR-T

*Historic record--the species was last observed in the county more than 50 years ago
**State Status: E = Endangered; T = Threatened; SR = Significantly Rare; SR-T = Significantly Rare Throughout their ranges (fewer than 100 populations total) (Amoroso 2002; LeGrand and Hall 2001).

VII. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified as 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted projects) 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.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on July 30, 2003. All structures within the APE were photographed, and later an NCDOT staff architectural historian reviewed these photographs. There were 17 structures within the APE over fifty years of age, and all were determined to be ineligible for the National Register of Historic Places by the NCDOT staff architectural historian. The photographs were shown to the State Historic Preservation Office (HPO) in a meeting on September 30, 2003. At that meeting HPO staff concurred that none of the 17 structures were eligible for the National Register and a form was signed that reflects these findings. Therefore there are no National Register listed or National Register eligible properties within the APE for this project. Copies of all correspondence and the concurrence form are included in Appendix A.

C. Archaeology

The State Historic Preservation Office (SHPO) reviewed the subject project. There are no known archaeological sites within the proposed project area, and no archaeological investigation needed to be conducted (see letter dated May 6, 2005 in Appendix A).

VIII. ENVIRONMENTAL EFFECTS

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

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

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of current NCDOT standards and specifications.

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

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

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

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

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 (49 U.S.C. 303).

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

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

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

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

The traffic volumes will not increase or decrease because of this project. Therefore, the project's impact on noise and air quality will not be substantial.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise (23 CFR Part 772) and for air quality (1990 CAAA and NEPA) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no hazardous waste sites in the project area. No facility with Underground Storage Tanks (UST) was identified in the project vicinity.

Wayne County is a participant in the Federal Flood Insurance Program. The existing bridge is not located within a study area, but is affected by flooding from backwaters of the Neuse River. The new structure should be designed to match or lower the existing 100-year storm elevation upstream of the roadway. Since the proposed replacement for Bridge No. 17 would be a structure similar in waterway opening size, it is not anticipated that it will have any significant adverse impact on the existing floodplain. The proposed alternatives will not modify flow characteristics and will have a minimal impact on floodplains due to roadway encroachment. The existing drainage patterns and groundwater will not be affected.

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

IX. PUBLIC INVOLVEMENT

A mailing list was developed based upon property owners located near the bridge. Approximately eighteen names are included on the list. Newsletters were mailed early in the planning process to the nearby property owners and local officials. A copy of the newsletter is attached in Appendix D. A Citizen's Informational Workshop was held on February 28, 2005 at Southern Wayne High School in Dudley. There were no attendees to the workshop and no comments were received.

X. UNRESOLVED ISSUES AND AREAS OF CONTROVERSY

No unresolved issues or areas of controversy have been identified during the planning process and none are anticipated.

XI. AGENCY COMMENTS

Scoping letters were sent to the following agencies listed below. Agencies that responded are marked with an asterisk (*). Comment letters are included in Appendix A.

Federal Agencies

US Fish and Wildlife Service – Raleigh*
US Army Corps of Engineers – Washington
US Army Corps of Engineers – Wilmington
Environmental Protection Agency – Raleigh
National Marine Fisheries – Beaufort
US Geological Survey - Raleigh

State Agencies

NC Wildlife Resources Commission*
NC Department of Environment and Natural Resources
NC Division of Water Quality
NC Department of Cultural Resources*
NC Division of Marine Fisheries

Regional and Local Agencies

Wayne County Schools
Wayne County Schools –Transportation Department
Wayne County
Wayne County EMS*
Down East & Eastern Carolina RPO

The following are comments received during the scoping process:

1. United States Department of the Interior - Fish and Wildlife Service

Comment: "Wetland, forest and designated riparian buffer impacts should be avoided and minimized to the maximum extent practical."

Response: The preferred alternate, Alternative A, replaces the existing bridge in the existing location and minimizes natural environment impacts.

Comment: "Off-site detours should be used rather than construction of temporary, on-site bridges."

Response: An off-site detour will be utilized for this project.

Comment: "Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons. ....The general moratorium period for anadromous fish is February 15- June 30."

Response: An in-water work moratorium will be in effect from February 15 to June 15 due to Anadromous Fish in the project area.

Comment: "The bridge design should not alter the natural stream and stream-bank morphology or impede fish passage."

Response: The bridge will be replaced in the existing location and the final bridge length will be determined during final design.

Comment: "Bridges and approaches should be designed to avoid any fill that will result in damming or constriction of the channel or flood plain."

Response: The bridge will be replaced in the existing location and the final bridge length will be determined during final design

2. North Carolina Wildlife Resources Commission

Comment: "We recommend replacing this bridge with a bridge. Anadromous species are found in this portion of Carraway Creek, including alewife and blueback herring. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15."

Response: The bridge will be replaced in the existing location and an in-water work moratorium will be in effect from February 15 to June 15 due to Anadromous Fish in the project area.

3. Wayne County Schools

Comment: "...we can use an alternate route to make the necessary stops."

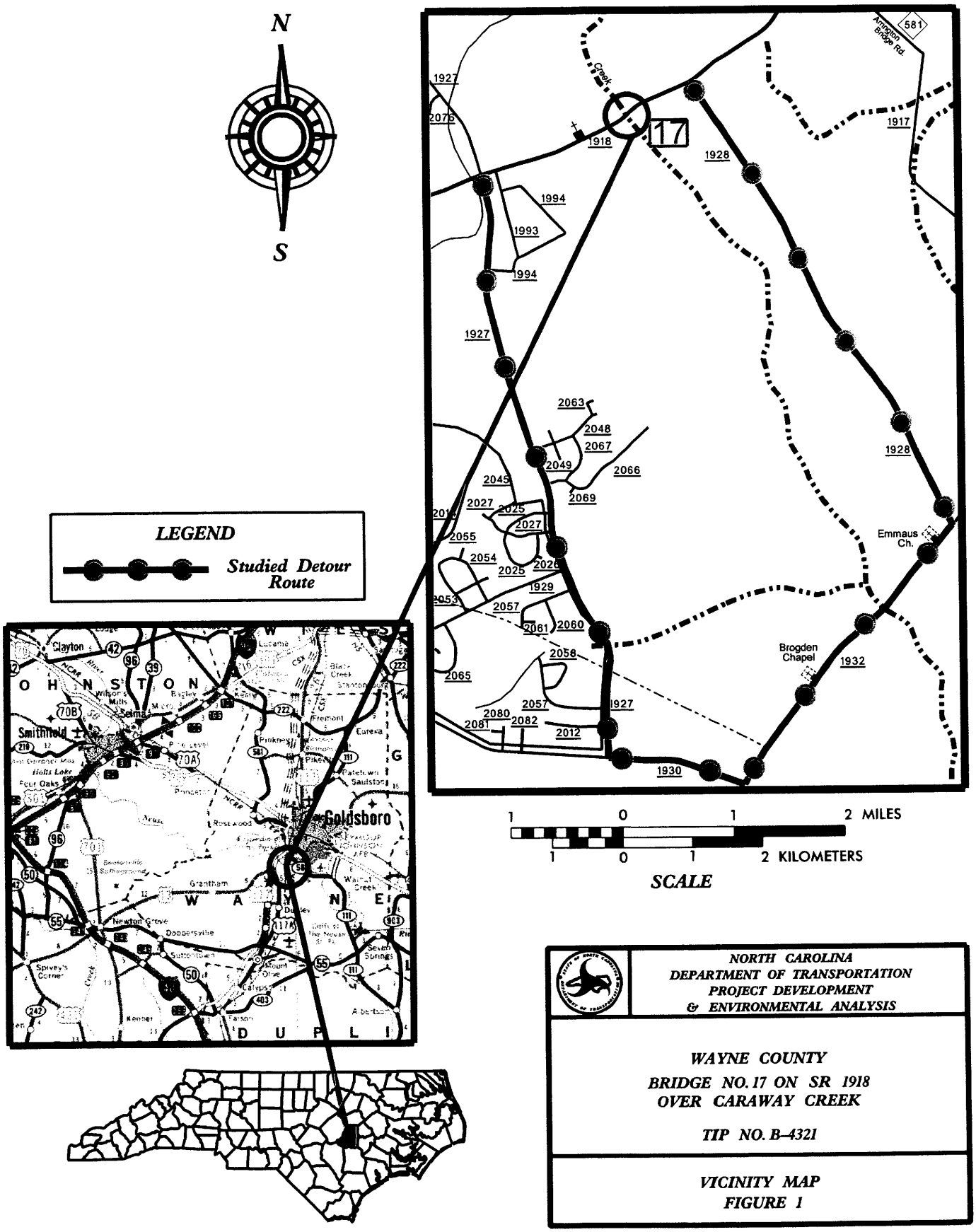
Response: An off-site detour will be utilized for this project.

4. Wayne County Office of Emergency Services

Comment: "We have no issues with the proposed bridge replacement. We do ask to be notified prior to the bridge being closed in order to notify appropriate responders."

Response: The project commitments include notifying the Office of Emergency Services prior to construction.

FIGURES



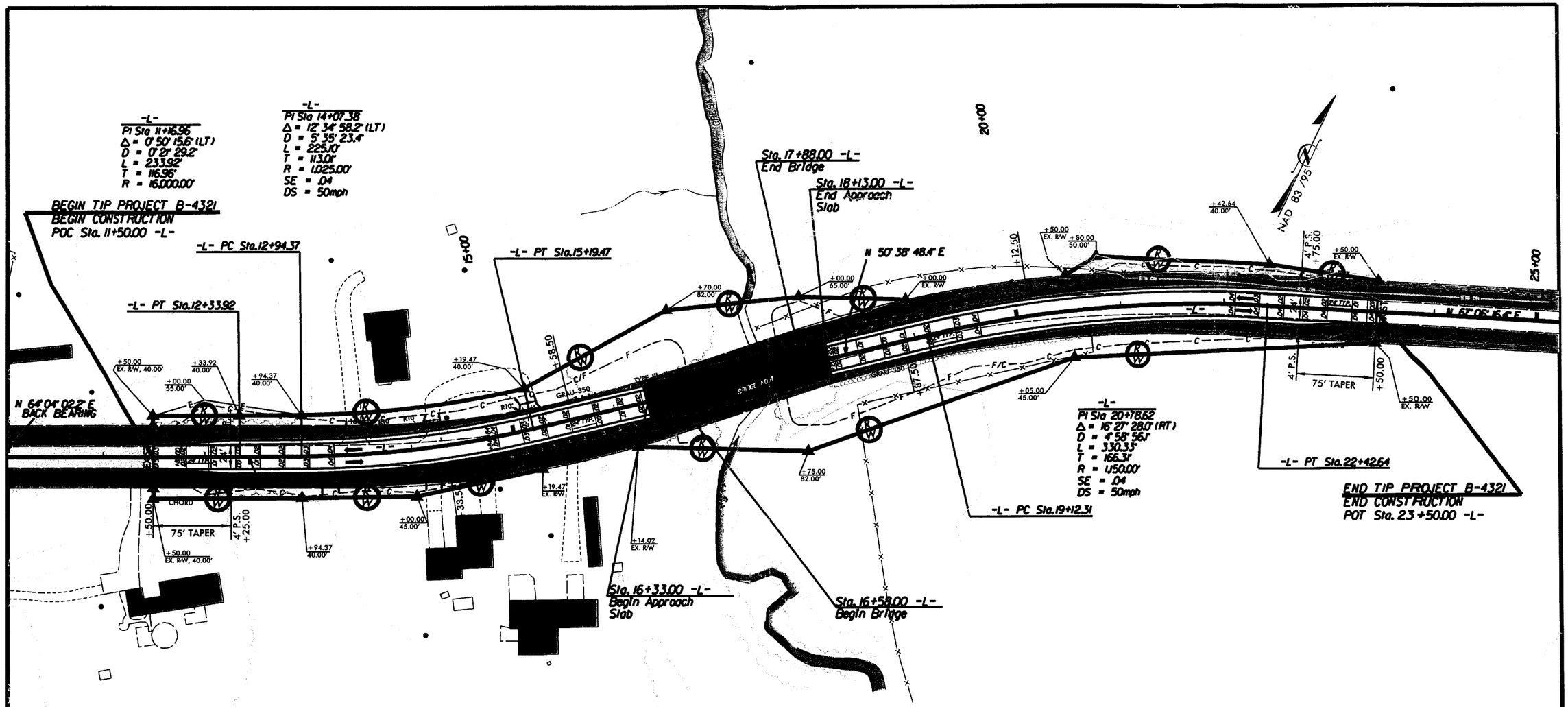
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT
& ENVIRONMENTAL ANALYSIS

WAYNE COUNTY

BRIDGE NO. 17 ON SR 1918
OVER CARAWAY CREEK

TIP NO. B-4321

VICINITY MAP
FIGURE 1



LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ALL EASEMENTS
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
- LAKES, RIVER, STREAMS, AND PONDS
- TEMPORARY DETOUR
- TEMPORARY DETOUR STRUCTURE
- 100/200 PRESENT ADT (2001) / FUTURE ADT (2025)

100 0 50 100 FEET
15 0 15 30 METERS
SCALE

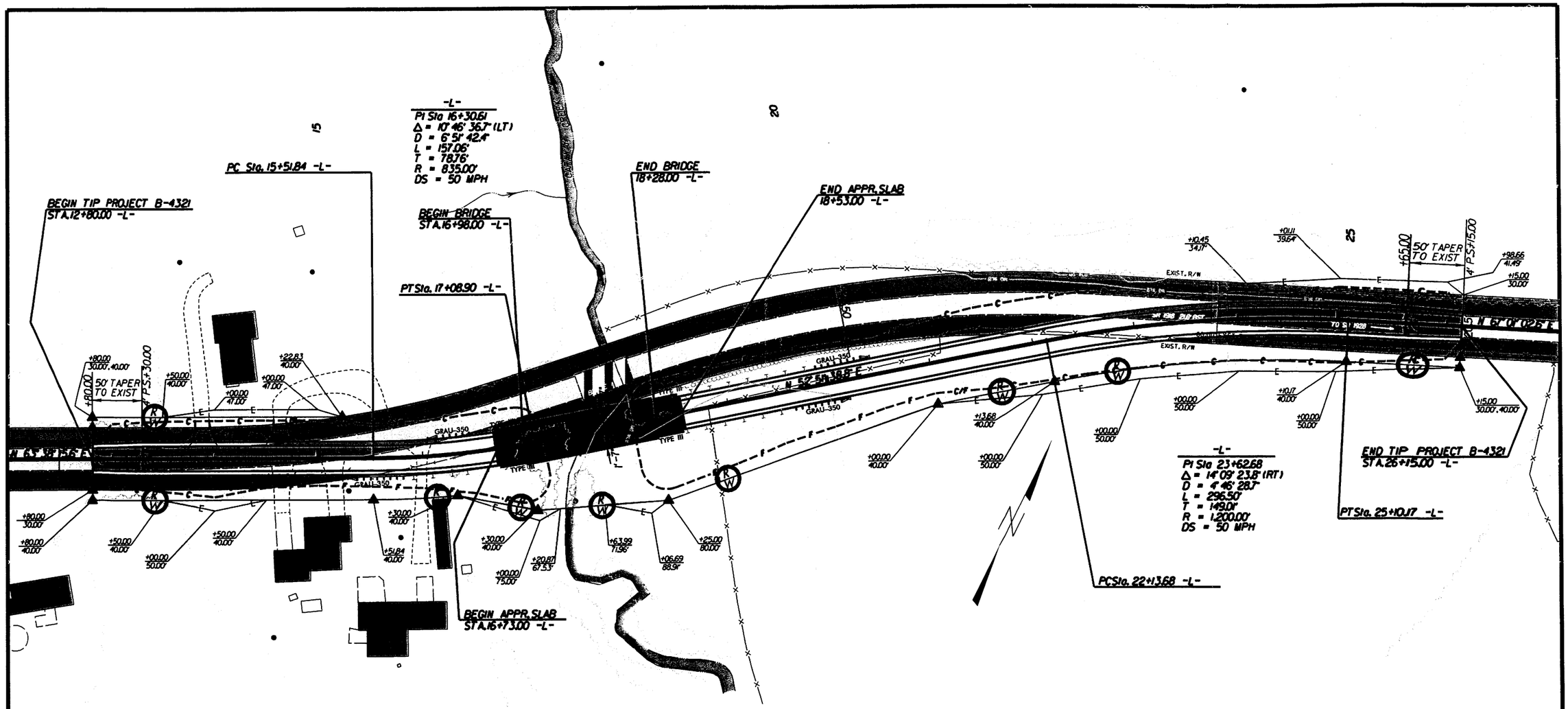
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

WAYNE COUNTY
BRIDGE NO. 17 ON SR 1918
OVER CARAWAY CREEK
TIP NO. B-4321

1 " = 50'
1 cm = 6 m

ALTERNATE A
(PREFERRED)
FIGURE 2A



LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- ALL EASEMENTS
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
- LAKES, RIVER, STREAMS, AND PONDS
- TEMPORARY DETOUR
- TEMPORARY DETOUR STRUCTURE
- 100/200 PRESENT ADT (2001) / FUTURE ADT (2025)

100 0 50 100 FEET
15 0 15 30 METERS
SCALE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

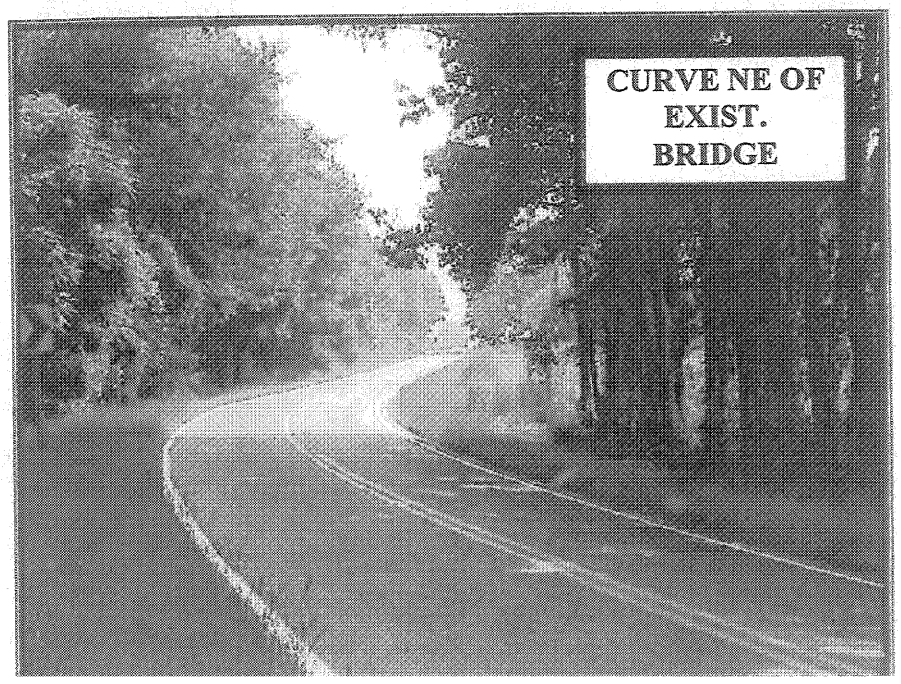
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

WAYNE COUNTY
BRIDGE NO. 17 ON SR 1918 OVER CARAWAY CREEK
TIP NO. B-4321

1 " = 50'
1 cm = 6 m

ALTERNATE B

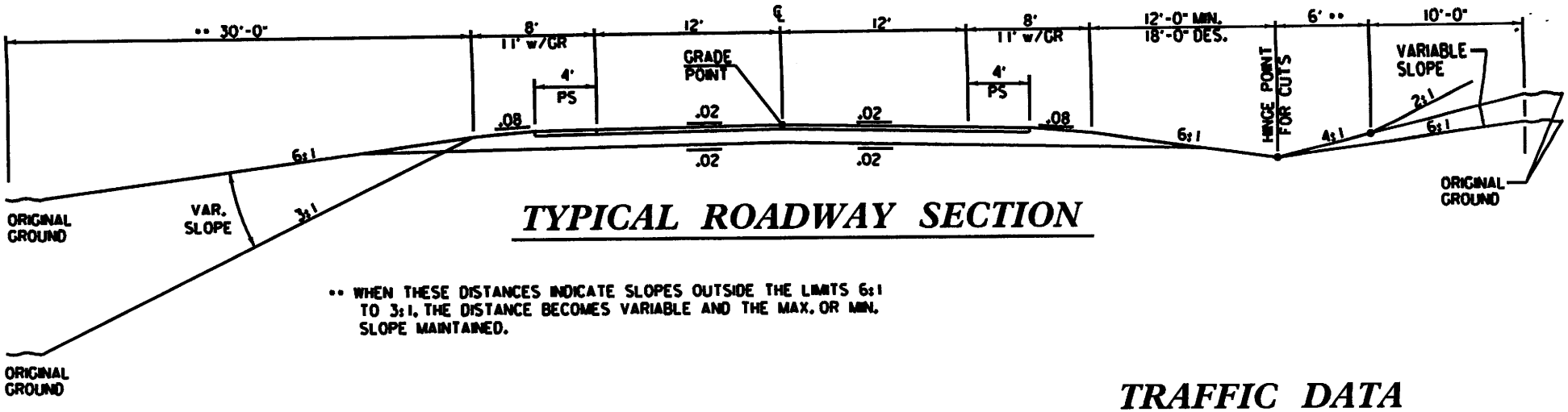
FIGURE 2B



B-4321
Replacement of Bridge No. 17 on SR 1918 Over Caraway Creek
Wayne County

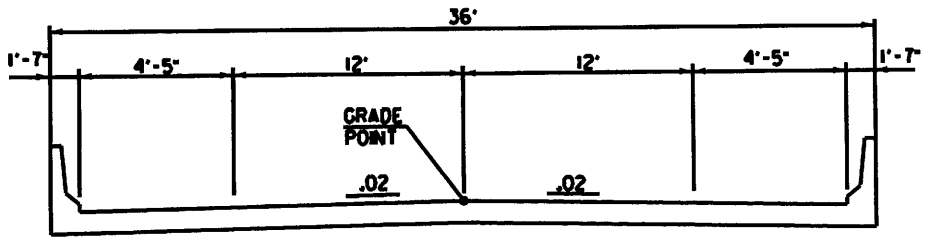
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

FIGURE 3



TYPICAL ROADWAY SECTION

•• WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS 6:1 TO 3:1, THE DISTANCE BECOMES VARIABLE AND THE MAX. OR MIN. SLOPE MAINTAINED.



TYPICAL BRIDGE SECTION

EXISTING BRIDGE LENGTH IS 53 FT.

TRAFFIC DATA

ADT 2002	5,200 LOS B
ADT 2004	5,600 LOS C
ADT 2030	10,800 LOS C
DUAL	2%
TTST	3%

FUNCTIONAL CLASSIFICATION:
URBAN COLLECTOR

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPEMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

WAYNE COUNTY

BRIDGE NO. 17 ON SR 1918
OVER CARAWAY CREEK

B-4321

FIGURE 4

KEY TO MAP

500-Year Flood Boundary
100-Year Flood Boundary
FLOODWAY FRINGE
FLOODWAY
100-Year Flood Boundary
500-Year Flood Boundary

Approximate 100-Year Flood Boundary

Cross Section Line — A — A

Elevation Reference Mark — RM7 ×

River Mile — • M1.5

NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

This map was prepared to facilitate floodplain management activities only; it may not show all special flood hazard areas in the community or all planimetric features outside of the floodplain. Refer to the latest official Flood Insurance Rate Map for any additional areas of special flood hazard.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

For adjoining map panels, see separately printed Index to Map Panels.

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT
& ENVIRONMENTAL ANALYSIS

WAYNE COUNTY

BRIDGE NO. 17 ON SR 1918
OVER CARAWAY CREEK

TIP NO. B-4321

FEMA FLOODPLAIN MAP
FIGURE 5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT
& ENVIRONMENTAL ANALYSIS

WAYNE COUNTY

BRIDGE NO. 17 ON SR 1918
OVER CARAWAY CREEK

TIP NO. B-4321

NATURAL COMMUNITIES MAP
FIGURE 6

APPENDIX A

Comments received from Federal, State, and Local Agencies

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

January 13, 2004

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

This letter is in response to your request for comments from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of the proposed replacement of the following nine bridges:

- B-4018, Beaufort County, Bridge No. 104 on NC 32 over Broad Creek
- B-4019, Beaufort County, Bridge No. 103 on NC 32 over Runyon Creek
- B-4020, Beaufort/Pitt County, Bridge No. 8 on SR 1403 over Tranters Creek
- B-4055, Carteret County, Bridge No. 22 on SR 1124 over Branch of Newport River
- B-4132, Halifax County, Bridge No. 97 on NC 561 over Looking Glass Swamp
- B-4172, Lenoir County, Bridge No. 9 on NC 55 over Jericho Run
- B-4212, Northampton County, Bridge No. 77 on NC 35 over Kirby's Creek
- B-4321, Wayne County, Bridge No. 17 on SR 1918 over Carraway Creek
- B-4326, Wilson County, Bridge No. 79 on SR 1001 over Bloomery Swamp

These comments provide scoping information in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

For bridge replacement projects, the Service recommends the following general conservation measures to avoid or minimize environmental impacts to fish and wildlife resources:

1. Wetland, forest and designated riparian buffer impacts should be avoided and minimized to the maximum extent practical;

2. If unavoidable wetland impacts are proposed, every effort should be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity via conservation easements, land trusts or by

other means should be explored at the outset;

3. Off-site detours should be used rather than construction of temporary, on-site bridges. For projects requiring an on-site detour in wetlands or open water, such detours should be aligned along the side of the existing structure which has the least and/or least quality of fish and wildlife habitat. At the completion of construction, the detour area should be entirely removed and the impacted areas be planted with appropriate vegetation, including trees if necessary;

4. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons. In waterways that may serve as travel corridors for fish, in-water work should be avoided during moratorium periods associated with migration, spawning and sensitive pre-adult life stages. The general moratorium period for anadromous fish is February 15 - June 30;

5. New bridges should be long enough to allow for sufficient wildlife passage along stream corridors;

6. Best Management Practices (BMP) for Protection of Surface Waters should be implemented;

7. Bridge designs should include provisions for roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream. This buffer should be large enough to alleviate any potential effects from run-off of storm water and pollutants;

8. The bridge designs should not alter the natural stream and stream-bank morphology or impede fish passage. To the extent possible, piers and bents should be placed outside the bank-full width of the stream;

9. Bridges and approaches should be designed to avoid any fill that will result in damming or constriction of the channel or flood plain. If spanning the flood plain is not feasible, culverts should be installed in the flood plain portion of the approach to restore some of the hydrological functions of the flood plain and reduce high velocities of flood waters within the affected area.

A list of federally protected species for each county in North Carolina can be found at http://nc-es.fws.gov/es/countyfr.html . Additional information about the habitats in which each species is often found can also be found at http://endangered.fws.gov . Please note, the use of the North Carolina Natural Heritage Program data should not be substituted for actual field surveys if suitable habitat occurs near the project site. If suitable habitat exists in the project area, we recommend that biological surveys for the listed species be conducted and submitted to us for review. All survey documentation must include survey methodologies and results.

We do not have any specific comments for the individual projects, with the exception of the following two:

B-4020, Beaufort/Pitt County - There is a past occurrence of the West Indian manatee (*Trichechus manatus*) less than one mile south of the project area. The Service's **Guidelines For Avoiding Impacts To The West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters** should be implemented to minimize impacts to this species. These guidelines can be found at http://nc-es.fws.gov/es/publications.html .

B-4055, Carteret County - There are known occurrences of red-cockaded woodpeckers (*Picoides borealis*) and rough-leaved loosestrife (*Lysimachia asperulaefolia*) within two and three miles, respectively, of the project area. If habitat for these or any other listed species occurs at the site, appropriate surveys should be conducted. In addition, this site occurs within the Croatan Game Lands area. Impacts to this protected area should be minimized to the maximum extent practical.

We reserve the right to review any federal permits that may be required for this project, at the public notice stage. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation. In addition to the above guidance, we recommend that the environmental documentation for this project include the following in sufficient detail to facilitate a thorough review of the action:

1. A clearly defined and detailed purpose and need for the proposed project;

2. A description of the proposed action with an analysis of all alternatives being considered, including the "no action" alternative;

3. A description of the fish and wildlife resources, and their habitats, within the project impact area that may be directly or indirectly affected;

4. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory (NWI). Wetland boundaries should be determined by using the 1987 Corps of Engineers Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers;

5. The anticipated environmental impacts, both temporary and permanent, that would be likely to occur as a direct result of the proposed project. The assessment should also include the extent to which the proposed project would result in secondary impacts to natural resources, and how this and similar projects contribute to cumulative adverse effects;

6. Design features and construction techniques which would be employed to avoid or minimize the fragmentation or direct loss of wildlife habitat and waters of the US;

7. If unavoidable wetland impacts are proposed, project planning should include a detailed compensatory mitigation plan for offsetting the unavoidable impacts.

The Service appreciates the opportunity to comment on this project. Please continue to advise us during the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,

Garland B. Pardue, Ph.D.
Ecological Services Supervisor

cc: Mike Bell, USACE, Washington, NC
Bill Biddlecome, USACE, Washington, NC
John Hennessy, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Elmo Vance
Project Development and Environmental Analysis Branch, NCDOT

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: February 5, 2004

SUBJECT: NCDOT Bridge Replacements in Beaufort, Carteret, Halifax, Lenoir, Northampton, Wayne, and Wilson counties. TIP Nos. B-4018, B-4019, B-4020, B-4055, B-4132, B-4172, B-4212, B-4321, and B-4326.

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.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the steam underneath the bridge.

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

8. In streams that contain threatened or endangered species, NCDOT biologist ~~Mr. Hal Bain~~ 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. NO LONGER WITH DOT

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. B-4018, Beaufort County, Bridge No. 104 over Broad Creek on NC 32. We recommend replacing this bridge with a bridge. Adult and juvenile anadromous species are found in this portion of Broad Creek, including striped bass, American shad, river herring, and hickory shad. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to September 30. Standard recommendations apply.

2. B-4019, Beaufort County, Bridge No. 103 over Runyon Creek on NC 32. We recommend replacing this bridge with a bridge. Adult and juvenile anadromous species are found in this portion of Runyon Creek, including striped bass, American shad, river herring, and hickory shad. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to September 30. Standard recommendations apply.

3. B-4020, Beaufort County, Bridge No. 8 over Tranter's Creek on SR 1403. We recommend replacing this bridge with a bridge. Adult and juvenile anadromous species are found in this portion of Tranter's Creek, including striped bass, American shad, river herring, and hickory shad. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to September 30. Standard recommendations apply.

4. B-4055, Carteret County, Bridge No. 22 over Branch of Newport River on SR 1124. We recommend replacing this bridge with a bridge. Adult and juvenile anadromous species are found in this area, including striped bass, American shad, blueback herring, and hickory shad. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to September 30. Standard recommendations apply.

5. B-4132, Halifax County, Bridge No. 97 over Looking Glass Swamp on NC 561. We recommend replacing this bridge with a bridge. Anadromous species are found in this portion of Looking Glass Swamp, including alewife and blueback herring. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15. Standard recommendations apply.

6. B-4172, Lenoir County, Bridge No. 9 over Jericho Run on NC 55. We recommend replacing this bridge with a bridge. Standard recommendations apply.

7. B-4212, Northampton County, Bridge No. 77 over Kirby's Creek on NC 35. We recommend replacing this bridge with a bridge. Anadromous species are found in this portion of Kirby's Creek, including alewife and blueback herring. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15. Standard recommendations apply.

8. B-4321, Wayne County, Bridge No. 17 over Caraway Creek on SR 1918. We recommend replacing this bridge with a bridge. Anadromous species are found in this portion of Caraway Creek, including alewife and blueback herring. NCDOT should follow all stream crossing guidelines for anadromous fish passage, including an in-water work moratorium from February 15 to June 15. Standard recommendations apply.

9. B-4326, Wilson County, Bridge No. 79 over Bloomery Swamp on SR 1001. We recommend replacing this bridge with a bridge. Standard recommendations 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.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on these projects.

Cc: Gary Jordan, U.S. Fish and Wildlife Service, Raleigh

Federal Aid # BRSTP-1918(2) *TIP #* B-4321 *County*: Wayne

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

Project Description: Replace Bridge No. 17 on SR 1918 over creek

On 09/30/2003, representatives of the

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

Reviewed the subject project at

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

All parties present agreed

- [ ] There are no properties over fifty years old within the project's area of potential effects.
- [x] There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- [x] There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as Prop 1-11e 3 Bridge #17 is considered not eligible for the National Register and no further evaluation of this necessary.
- [x] There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- [x] All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- [x] There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

Mary Pope Furr — Sept. 30 2003
Representative, NCDOT — Date

FHWA — 9/30/03
FHWA, for the Division Administrator, or other Federal Agency — Date

Claudia R Brown — 9/30/03
Representative, HPO — Date

David Brook — 9/30/03
State Historic Preservation Officer — Date

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

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

May 6, 2005

MEMORANDUM

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

FROM: Peter Sandbeck PBS for Peter Sandbeck

SUBJECT: Federal Categorical Exclusion, Bridge 17 on SR 1918 over Caraway Creek, TIP B-4321, Wayne County, ER 04-0108

Thank you for your letter of March 22, 2005, transmitting the Categorical Exclusion (CE) for the above project. We believe the CE adequately addresses our concerns for historic resources.

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

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

cc: John F. Sullivan
NCDOT, Federal Highway Administration

North Carolina Department of Cultural Resources
State Historic Preservation Office

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

Division of Historical Resources
David L. S. Brook, Director

February 18, 2004

MEMORANDUM

TO: Stacey Baldwin — Elmo Vance
Project Development and Environmental Analysis
NCDOT Division of Highways

FROM: David Brook for David Brook

SUBJECT: Request for Comments for Group 50 Bridge Replacements:
Bridge No. 104 on NC 32 over Broad Creek, B-4018, Beaufort County, ER04-0102
Bridge No. 103 on NC 32 over Runyon Creek, B-4019, Beaufort County, ER04-0103
Bridge No. 8 on SR 1403 over Tranters Creek, B-4020, Beaufort/Pitt Counties, ER04-0104
Bridge No. 22 on SR 1124 over Branch of Newport River, B-4055, Carteret County, ER04-0105
Bridge No. 97 on NC 561 over Looking Glass Swamp, B-4132, Halifax County, ER04-0106
Bridge No. 9 on NC 55 over Jericho Run, B-4172, Lenoir County, ER04-0107
Bridge No. 77 on NC 35 over Kirby's Creek, B-4212, Northampton County, ER04-0078
Bridge No. 17 on SR 1918 over Creek, B-4321, Wayne County, ER04-0108
Bridge No. 79 on SR 1001 over Bloomery Swamp, B-4326, Wilson County, ER04-0109

Thank you for your letters of January 8, 2004, concerning the above projects.

We are unable to comment on the potential effect of these projects on cultural historic resources until we receive further information.

Please forward a labeled 7.5 minute USGS quadrangle map for each of the above projects clearly indicating the project vicinity, location, and termini. In addition, please include the name of the quadrangle map.

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

Two copies of the resulting archaeological survey report, as well as one copy of the appropriate site forms, should be forwarded to us for review and comment as soon as they are available and well in advance of any construction activities.

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

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

cc: Mary Pope Furr, NCDOT
Matt Wilkerson, NCDOT

OFFICE OF EMERGENCY SERVICES

COUNTY OF WAYNE

Fire Marshal/Emergency Management/911 Communications
134 N. John Street, P.O. Box 227
Goldsboro, NC 27533
(919) 705-6552 FAX: (919) 731-1420
E-mail: wces@esn.net

Joe Gurley, Director
Mel Powers, Deputy Director
Bryan Taylor, Fire Inspector
Delbert Edwards, Comm. Supervisor

Blair Tyndall, EMS Manager
Trey Rhodes, Training Officer
Nannette Sutton, Office Mgr
Janice White, Office Asst.

FASCIMILE

TO: Greg Parvis FAX NUMBER: 919677-~~5534~~ 9744

CC: _____

FROM: Delbert Edwards DATE: 3-31-05

Total of pages including cover sheet 3

MESSAGE:

We have no issues with the proposed bridge replacement. We do ask to be notified prior to the bridge being closed, in order to notify appropriate responders.

Delbert Edwards

MEMO

TO: William T. Goodwin, Jr. PE

FROM: Buddy Smith

RE: Bridge Replacements

DATE: April 2, 2003

In reference to your memo concerning the replacement of two bridges in Wayne County.

Bridge No 17 SR 1918 has twelve (12) school buses crossings each day. However, we can use an alternate route to make the necessary stops. B-4321

Bridge No 21 on NC 222 has eight (8) school bus crossings each day. We can use an alternate route to make the necessary stops. B-4319

If you need any additional information, please let me know.

APPENDIX B

Newsletter
Official Workshop Announcement
Workshop Handout

NEWSLETTER

Wayne County
For Replacement of Bridge No. 17
Over Caraway Creek On SR 1918

TIP Project No. B-4321

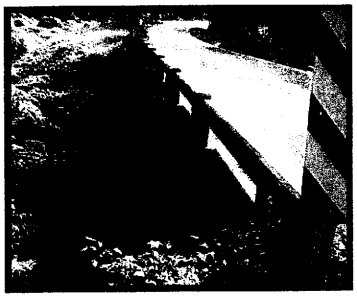
Citizens Informational Workshop

Monday February 28, 2005 from 4:30 PM to 7:30 PM, at Southern Wayne High School

This newsletter is published by the North Carolina Department of Transportation *(NCDOT)* to inform concerned citizens of an ***Informational Workshop*** concerning the proposed replacement and road closure of Bridge No. 17 on SR 1918 over Caraway Creek (TIP Project No. B-4321). This newsletter gives an overview of the steps in the project development process and presents the bridge replacement alternatives evaluated.

STEPS TO SUCCESS

Step 6 Environmental Document
Step 5 **Public Involvement**
Step 4 Selection of Preferred Alternative
Step 3 Environmental Studies
Step 2 Alternatives Development
Step 1 Project Initiation/Scoping



THE PROJECT DEVELOPMENT PROCESS

During **Step 1** of the project development process, information was collected on the existing human and natural environments. This information was used to identify preliminary alternatives for replacing Bridge No. 17. In **Step 2**, the preliminary alternatives were evaluated and two "build" alternatives were selected for detailed environmental studies. **Steps 3 and 4** involved conducting the detailed environmental studies for the "build" alternatives and selecting a preferred alternative. The build alternatives were:

Alternate A, replacing the existing bridge at the existing location, while maintaining traffic by an off-site detour route is the preferred alternate. Alternate A was selected because of the comparatively lower construction cost, lower environmental impacts, and lesser construction time associated with it. The off-site detour is along SR 1928 (Mitchell Road), SR 1932 (Emmaus Church Road), SR 1930 (Outlaw Road), and SR 1927 (Genoa Road) approximately 6.6 miles in length.

Alternate B replaces the bridge on new alignment south of the existing bridge. During construction traffic will be maintained on the existing bridge. Alternate B was not chosen because it has comparatively higher natural environment impacts and construction cost.

The NCDOT is aware that citizens living in the proposed project area want to know the potential effects of the project on their homes and businesses. However, exact information is not available at this stage in the planning process. Additional design work will be performed before the actual right-of-way limits can be established. This newsletter is to inform the public of the replacement of Bridge No. 17 and solicit your input on the project.

Planning and environmental studies for this project are in progress. The Federal Categorical Exclusion (CE) is scheduled for approval in February 2005. The CE will address the potential impacts of the proposed bridge replacement on the human and natural environments and will include recommended design criteria for the project. Input received from the public will be included in the decision making process.

A Citizens Informational Workshop will be held on Monday February 28, 2005 from 4:30 pm to 7:30 pm at Southern Wayne High School, 124 Southern Wayne Road. The preferred alternate will be displayed at the **Citizen Informational Workshop** for ***your*** review and comments. Following the informational workshop and evaluation of the comments, an environmental document will be published.

NEWSLETTER

Public involvement is an important part of the project planning process. The North Carolina Department of Transportation is committed to ensuring all issues of concern to the public are addressed and considered. We encourage you to attend the Citizens Informational Workshop and discuss your views with the Project study team. If you are unable to attend, you may send your comments to one of the addresses listed below. **Your comments are important to us!**

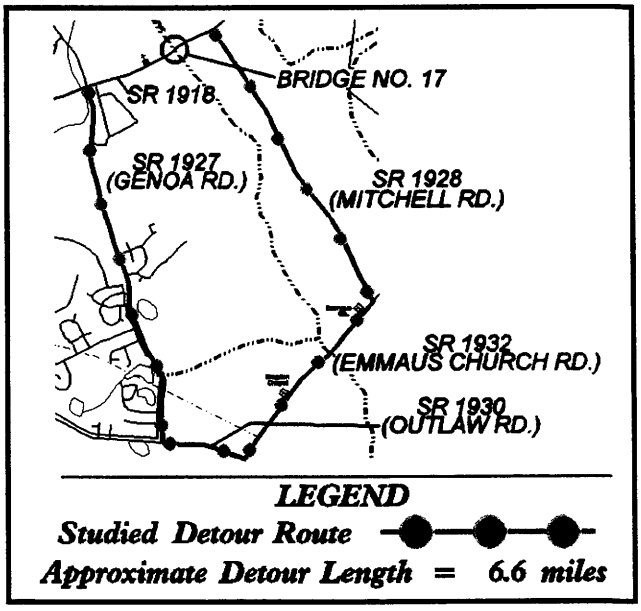
Ms. Karen B. Taylor, P.E.
NCDOT - PD&EA Branch
1548 Mail Service Center
Raleigh, North Carolina 27699-1548
(919) 733-7844, ext. 223
email:kbtaylor@dot.state.nc.us

or Mr. Greg Purvis, P.E.
Wang Engineering
15200 Weston Parkway, Suite 101
Cary, North Carolina 27513
(919) 677-9544
email:gpurvis@wang-engineering.com

If you have transportation questions on other projects, call the NCDOT Customer Service Office toll-free at 1-877-DOT-4YOU.

You are invited to a
Citizens Informational Workshop
Monday February 28, 2005
From 4:30 pm to 7:30 pm
At
Southern Wayne High School
124 Southern Wayne Road
Dudley

WAYNE COUNTY
Replacement of Bridge No. 17
Over Caraway Creek
On SR 1918
TIP PROJECT NO. B-4321



North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh NC 27699-1548

NOTICE OF A CITIZENS INFORMATIONAL WORKSHOP
FOR THE PROPOSED REPLACEMENT OF BRIDGE NO. 17 ON SR 1918
OVER CARAWAY CREEK

WBS No. 33658.1.1 B-4321 Wayne County

The North Carolina Department of Transportation (NCDOT) will hold the above Citizens Informational Workshop on Monday February 28, 2005 between the hours of 4:30 p.m. and 7:30 p.m. at Southern Wayne High School, located at 124 Southern Wayne Road in Dudley.

The purpose of this workshop is for NCDOT representatives to provide information, answer questions, and accept written comments regarding this project. NCDOT proposes replacing Bridge No. 17 over Caraway Creek on SR 1918 in Goldsboro.

Anyone desiring additional information may contact Karen Taylor, 1548 Mail Service Center, Raleigh, NC 27699-1548, by phone at (919) 733-7844 ext. 223, fax at (919) 733-9794, or E-mail at kbtaylor@dot.state.nc.us.

NCDOT will provide auxiliary aids and services for disabled persons who wish to participate in this workshop, to comply with the Americans with Disabilities Act. To request special assistance, please contact Ms. Taylor as early as possible so that arrangements can be made.

PUBLIC INVOLVEMENT AND THE PROJECT PLANNING PROCESS

ESTIMATED TRAFFIC VOLUMES

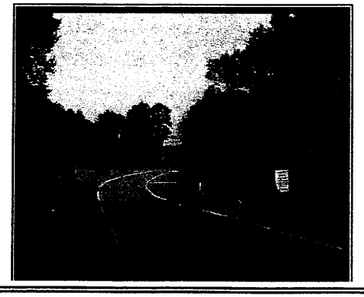
The estimated 2004 average daily traffic volume is 5,600 vehicles per day (vpd). The projected traffic volume is expected to increase to 10,800 vpd by the design year 2030.

PROJECT PLANNING

The planning and environmental studies for this highway project will comply with the National Environmental Policy Act (NEPA). The type of document published for this project will be a Federal Categorical Exclusion (CE). This document will fully discuss the purpose and need for the proposed improvements, evaluate alternatives, and analyze the project's impacts on both the human and natural environment.

Some topics that the document will address include:

- Neighborhood and community impacts
- Efficiency and safety of travel
- Relocation of homes and businesses
- Economy of project area
- Historic properties and sites
- Wetlands
- Endangered species
- Wildlife and plant communities
- Water quality
- Floodplains
- Farmland and land use plans of project area
- Hazardous materials involvement
- Traffic noise and air quality



CURRENT STATUS

Planning and environmental studies for this project are in progress. The Federal Categorical Exclusion (CE) is scheduled for approval in February 2005. The CE will address the potential impacts of the proposed bridge replacement on the human and natural environments and will include recommended design criteria for the project. Input received from the public will be included in the decision making process.

PUBLIC INVOLVEMENT IN PROJECT PLANNING

Public involvement is an integral part of NCDOT's project planning process. The concerns of citizens and interest groups are always considered during project planning studies. Often, additional project alternatives are studied, or existing alternatives changed, based on comments received from the public.

If you have comments concerning the NCDOT or questions regarding other projects, you may call the NCDOT Customer Service Department toll-free at **1-877-DOT-4YOU.**

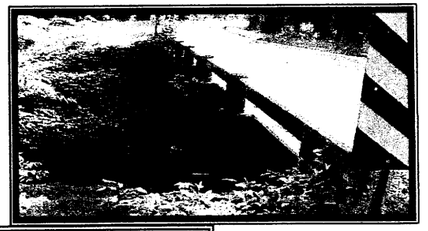
If additional information is needed or you would like to submit comments after the workshop, please address your requests and comments to:

Ms. Karen B. Taylor, P.E.
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548
EMAIL: kbtaylor@dot.state.nc.us
TELEPHONE: (919)733-7844, ext. 223

Mr. Greg Purvis, P.E.
Wang Engineering
15200 Weston Parkway Suite 101
Cary, NC 27513
EMAIL: gpurvis@wang-engineering.com
TELEPHONE: (919)677-9544

Monday February 28, 2005, from 4:30 PM to 7:30 PM, at Southern Wayne High School

Citizens Informational Workshop



Wayne County
For Replacement of Bridge No. 17
Over Caraway Creek On SR 1918

TIP Project No. B-4321

The North Carolina Department of Transportation (NCDOT) has begun the engineering and environmental studies for the replacement of Bridge No. 17 on SR 1918 over Caraway Creek. The studies consist of alternative evaluations, preliminary engineering, environmental analysis, and the preparation of an environmental document.

The purpose of this workshop is to review the reasonable and feasible alternates with interested citizens and to receive comments concerning the proposed project. Representatives of the NCDOT are available to answer your questions and discuss the project with you. If you have comments or suggestions about the proposed improvements described in this handout, please inform a representative of the North Carolina Department of Transportation.

The NCDOT is aware that citizens living in the proposed project area want to know the potential effects of the project on their homes and businesses. However, exact information is not available at this stage in the planning process. Additional design work will be performed before the actual right-of-way limits can be established. This workshop is to inform the public of the replacement of Bridge No. 17 and solicit your input on the project.

You are encouraged to view the project maps and displays. Please ask questions if you have any and complete the enclosed comment sheet. We will keep a record of your comments and consider your suggestions concerning the proposed replacement of Bridge No. 17.

PROJECT PURPOSE AND DESCRIPTION

NCDOT's 2004-2010 Transportation Improvement Program (TIP) proposes to replace Bridge No. 17 on SR 1918 over Caraway Creek (see vicinity map). Due to the deteriorated state of the existing structure, improvements are needed for Bridge No. 17 to meet the current NCDOT standards.

Two alternates evaluated for detailed environmental studies are described below.

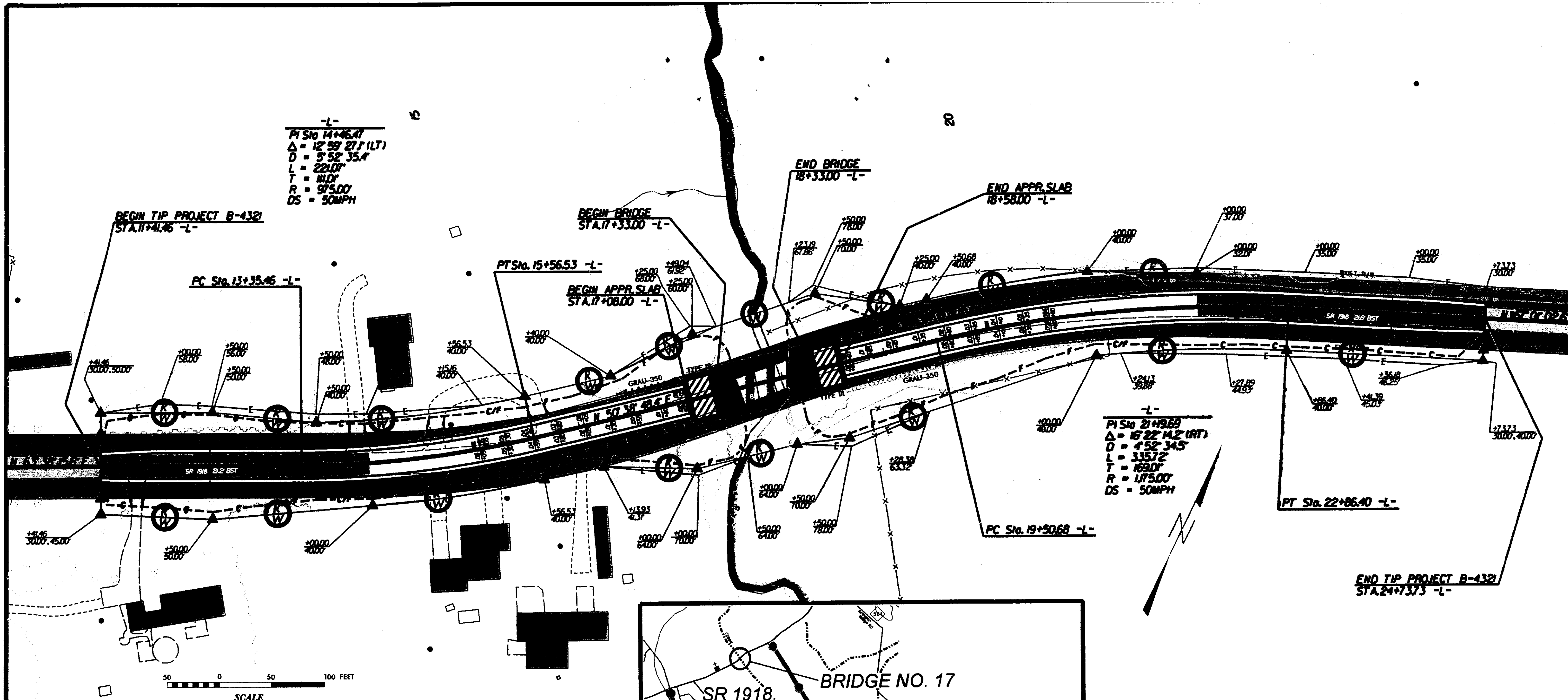
Alternate A (Preferred) replaces the bridge at the existing location. During construction, traffic will be maintained by an off-site detour route along SR 1928 (Mitchell Road), SR 1932 (Emmaus Church Road), SR 1930 (Outlaw Road), and SR 1927 (Genoa Road) approximately 6.6 miles in length. Alternate A was selected because of the comparatively lower construction cost, lower environmental impacts, and lesser construction time associated with it.

Alternate B replaces the bridge on new alignment south of the existing bridge. During construction traffic will be maintained on the existing bridge. During the construction of the tie-ins traffic will be maintained on the off-site detour. Alternate B was not chosen because it has comparatively higher natural environment impacts and construction cost.

PROJECT SCHEDULE AND COST ESTIMATE

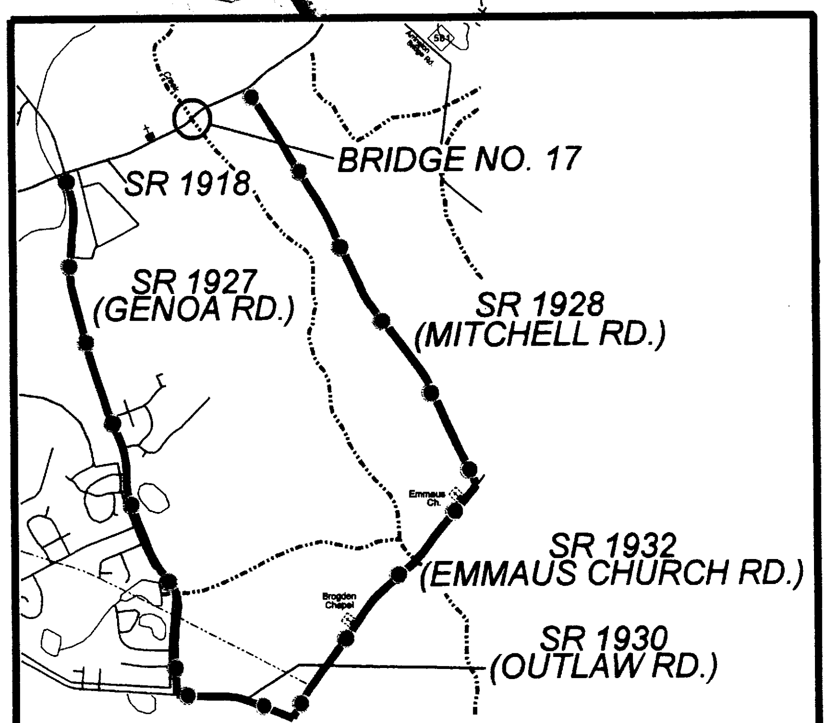
	TIP Schedule	Estimated Cost	
		Alternate A	Alternate B
Right of Way	February 2006	$ 66,000	$ 101,000
Construction	February 2007	$ 1,150,000	$ 1,175,000
Total Estimated Cost		$ 1,216,000	$ 1,276,000

NOTE: The schedule and cost estimates are preliminary and subject to change.



LEGEND

■	BUILDINGS
■	EXISTING RIGHT OF WAY
□	PROPOSED RIGHT OF WAY
□	ALL EASEMENTS
▨	EXISTING ROADWAY
■	EXISTING ROADWAY TO BE RESURFACED
□	PROPOSED ROADWAY
■	PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
▨	EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
■	LAKES, RIVER, STREAMS, AND PONDS
■	TEMPORARY DETOUR
▨	TEMPORARY DETOUR STRUCTURE
100/200	PRESENT ADT (2001) / FUTURE ADT (2025)



MAP LEGEND

1 0 1 2 MILES
SCALE

DETOUR ROUTE ●—●—●

Approximate Detour Length = 6.6 miles

ALTERNATE A ESTIMATED TOTAL COST

$1,216,000

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

WAYNE COUNTY
BRIDGE NO. 17 ON SR 1918
OVER CARAWAY CREEK
TIP NO. B-4321

1" = 50'

ALTERNATE A
(PREFERRED)
FIGURE 2

APPENDIX C

Routine Wetland Determination Data Forms

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

Project/Site:	B 4321 Wayne Co	Date:	4/21/04
Applicant/Owner:	NCDOT	County:	Wayne
Investigator:	Eco Science	State:	NC
Do Normal Circumstances exist on the site?	☒ Yes ☐ No	Community ID:	HW Forest
Is the site significantly disturbed (Atypical Situation)?	☐ Yes ☒ No	Transect ID:	Wet
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐ Yes ☒ No	Plot ID:	CBOS

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus caroliniana		FACW	9.		
2. River Birch		FACW	10.		
3. Lizards Tail		OBL	11.		
4. Green Ash		FACW	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: 6 (in.)

Depth to Saturated Soil: 0+ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Kinston

Drainage Class: Poorly drained

Taxonomy (Subgroup): Fluvaquentic Endoaquepts

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Profile Descriptions: Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4		10YR 3/1			Sandy loam
4+		2.5Y 6/2			loamy sand

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☒ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

		(Check)
Hydrophytic Vegetation Present?	☒ Yes ☐ No	
Wetland Hydrology Present?	☒ Yes ☐ No	
Hydric Soils Present?	☒ Yes ☐ No	
Is this Sampling Point Within a Wetland?	☒ Yes ☐ No	

Remarks

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

Project/Site: B4321 Wayne Co
Applicant/Owner: NCDOT
Investigator: Eco Science
Date: 4/21/04
County: Wayne
State: NC
Community ID: HW Forest
Transect ID: UP
Plot ID: CB08

Do Normal Circumstances exist on the site?	☒ Yes	☐ No
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐ Yes	☒ No

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Poison Ivy		FAC
2. Cottonwood Tree		FAC
3. Japanese Honeysuckle		FAC-
4. Multiflora Rose		UPL
5. Blackberry		FAC
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 60%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:

No hydrologic indicators

SOILS

Map Unit Name (Series and Phase): Linston

Drainage Class: Poorly drained

Taxonomy (Subgroup): Fluvaquentic Endoaquepts

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4		10YR 2/2			loamy Sand
4-10		10YR 4/3			Sand
10+		10YR 6/3			Sand

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:

No indicators

WETLAND DETERMINATION

		(Check)
Hydrophytic Vegetation Present?	☒ Yes ☐ No	
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☐ Yes ☒ No	
Is this Sampling Point Within a Wetland?	☐ Yes ☒ No	

Remarks

Site 1

Wetland Rating Worksheet

Project name TIP B-4321 Nearest road SR 1918
County Wayne Name of Evaluator EcoScience/C Terwilliger Date 4/21/04

Wetland location
- _ on pond or lake
- _ on perennial stream
- X on intermittent stream
- _ within interstream divide
- _ other

Adjacent land use (within 1/2 mile upstream)
- forested/natural vegetation 30 %
- agriculture, urban/suburban 60 %
- impervious surface 10 %

Soil Series Linston
- _ predominantly organic-humus, muck, or peat
- _ predominantly mineral- non-sandy
- X predominantly sandy

Dominant Vegetation
(1) River Birch
(2) Green Ash
(3) Impatiens Capensis

Hydraulic Factors
- _ steep topography
- _ ditched or channelized
- _ wetland width >/= 50 feet

Flooding and Wetness
- _ semipermanently to permanently flooded or inundated
- X seasonally flooded or inundated
- _ intermittently flooded or temporary surface water
- _ no evidence of flooding or surface water

Wetland Type (select one)
- _ Bottomland hardwood forest
- _ Headwater forest
- _ Swamp forest
- _ Wet flat
- _ Pocosin
- _ Pine savanna
- _ Freshwater marsh
- _ Bog/fen
- _ Ephemeral wetland
- X Other Hardwood forest

*The rating system cannot be applied to salt or brackish marshes

Water storage	2	*	4	=	8	
Bank/Shoreline stabilization	1	*	4	=	4	Total score
Pollutant removal	2	*	5	=	10	38
Wildlife habitat	2	*	2	=	4	
Aquatic life value	3	*	4	=	12	
Recreation/Education	0	*	1	=	0	

Add 1 point if in sensitive watershed and >10% nonpoint disturbance within 1/2 mile upstream