STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 9, 2004

US Army Corps of Engineers
Regulatory Field Office
P.O. Box 1000
Washington, NC 27889-1000

ATTENTION: Mr. Mike Bell
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 23 Permit Application** for the replacement of Bridge No. 30 over Green Mill Run on SR 1703 in Pitt County, Division 2. Federal Project No. BRSTP-1703(1), State Project No. 8.2221601, T.I.P. No. B-3685.

Please find enclosed three copies of the project planning report for the above referenced project. Bridge No. 30 will be replaced at the existing location with a 100-foot cored slab structure. The roadway approach work will extend from approximately 723-feet west of the bridge to 214-feet east of the bridge, and will include the addition of a turn lane from the west approach of the proposed bridge to the intersection with SR 1707 (Charles Blvd.). Traffic will be maintained by a two-mile offsite detour route along Elm St., SR 1598 (Tenth St.), and SR 1707 (Charles Blvd.). No jurisdictional wetlands will be impacted by the construction of the bridge. There will be no surface water impacts or temporary fill associated with the construction of Bridge No. 30.

Tar-Pamlico Basin Buffer Rules

This project is located in the Tar-Pamlico River Basin (subbasin 03-03-05, TAR2 03020103), therefore the regulations pertaining to the Tar-Pamlico River Buffer Rules (15A NCAC 2B.0259) apply. Buffer impacts associated with this project total 6540.0 sq. ft (0.07 acre) for Zone 1 and 4360.0 sq. ft (0.08 acre) for Zone 2. All practicable measures to minimize impacts within buffer zones were followed. Measures used to minimize impacts to the buffer zone include using the current alignment. According to the buffer rules, bridges are allowable. 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. These uses require written authorization from the division or the delegated local authority. Therefore, NCDOT requests written authorization for a Buffer Certification from the Division of Water Quality.

Bridge Demolition

Bridge No. 30 is an 87-foot long, five-span structure, composed of a reinforced concrete floor on timber joists with a bridge deck width of 34-feet. The substructure is a timber abutment design, with interior bents composed of timber caps on timber piles. The bridge deck is 15-feet above Green Mill Run.

There is potential for components of Bridge No. 30 to be dropped into Waters of the United States. The potential temporary fill associated with the concrete deck is expected to be approximately 38-cubic yards. NCDOT's Best Management Practices for Bridge Demolition and Removal will be applied for the removal of this bridge.

As noted in the project's CE document, NCDOT will observe an in-stream and land disturbance moratorium from February 15 to June 30 to avoid impacts to anadromous fish migration, spawning, and larval recruitment into nursery areas. Therefore, the bridge demolition and removal will fall under Case 2, which does not allow in-water work during the moratorium period.

Federally Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), Proposed Threatened (PT), are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the United States Fish and Wildlife Service (USFWS) lists four federally protected species for Pitt County (Table 1). A description of each species and Biological Conclusions are provided in the referenced CE document. Surveys of the project area were completed on May 28, 2004 for the tar spinymussel and on May 27, 2004 for the bald eagle. As potential habitat does not exist in the project area, the Biological Conclusion for both the Tar spinymussel and bald eagle is "No Effect". Biological Conclusions for the West Indian Manatee and red-cockaded woodpecker remain "No Effect" due to lack of habitat in the project area.

Table 1. Federally-Protected Species for Pitt County

Common Name	Scientific Name	Federal Status	Biological Conclusion
Bald eagle	*Haliaeetus leucocephalus*	T (Proposed for delisting)	No Effect
West Indian Manatee	*Trichechus manatus*	E	No Effect
Red-cockaded woodpecker	*Picoides borealis*	E	No Effect
Tar spinymussel	*Elliptio steinstansana*	E	No Effect

"E" *denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).*
"T" *denotes Threatened (a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range).*

Regulatory Approvals

Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit 23 (67 FR 2020; January 15, 2002).

Section 401 Permit: We anticipate the 401 General Certification number 3403 will apply to this project. In accordance with 15A NCAC 2H, Section .0500(a) we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their review.

In accordance with 15A NCAC 2H .0501(a), NCDOT is providing two copies of this application to the NC Department of Environment and Natural Resources (NCDENR), Division of Water Quality (DWQ) for review and requests the issuance of a Tar-Pamlico Buffer Certification for impacts to Tar-Pamlico Buffers in compliance with the Tar-Pamlico Buffer Rules.

A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/planning/pe/naturalunit/Permit.html.

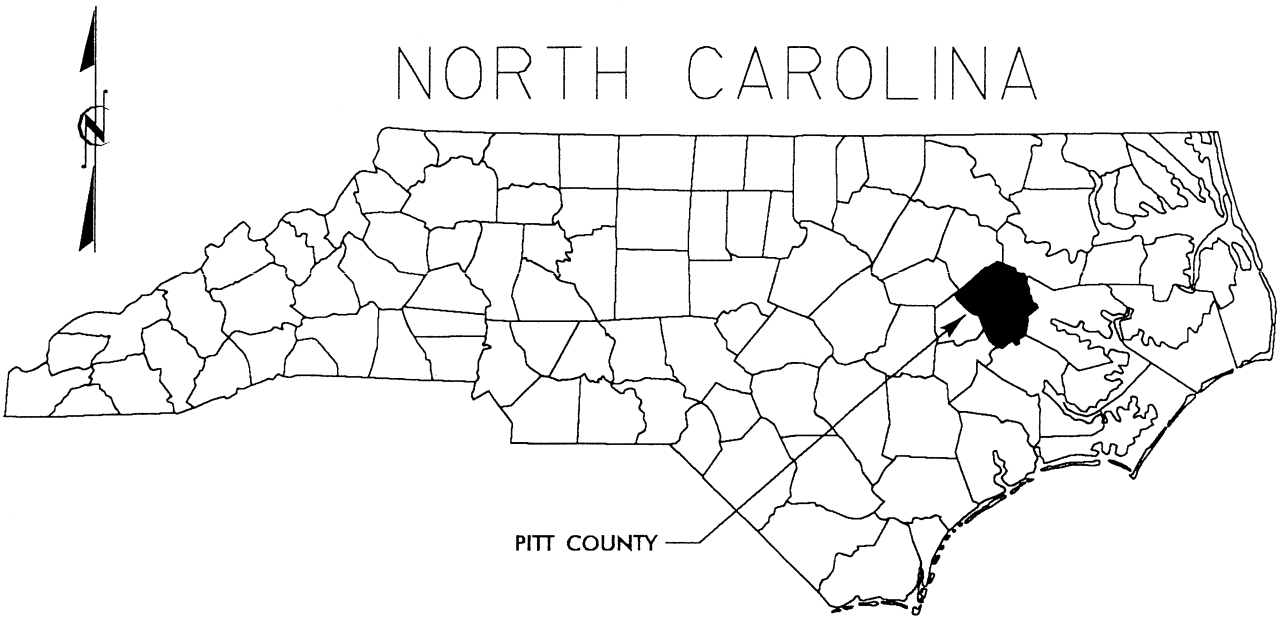
If you have any questions or need additional information, please contact Mr. Michael Turchy at maturchy@dot.state.nc.us or (919) 715-1468.

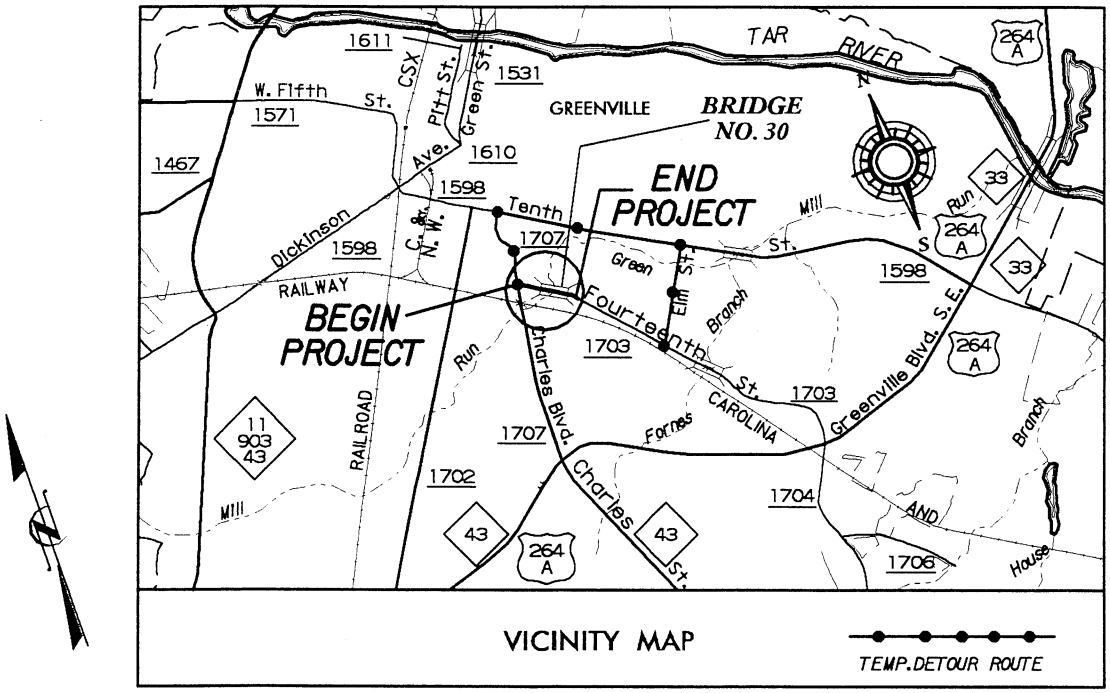
Sincerely,

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

cc:

Mr. John Hennessy, Division of Water Quality (7 copies)
Mr. Travis Wilson, NCWRC
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. C. E. Lassiter, P.E., Division Engineer
Mr. Jay Johnson, DEO
Mr. David Franklin, USACE, Wilmington (Cover Letter Only)



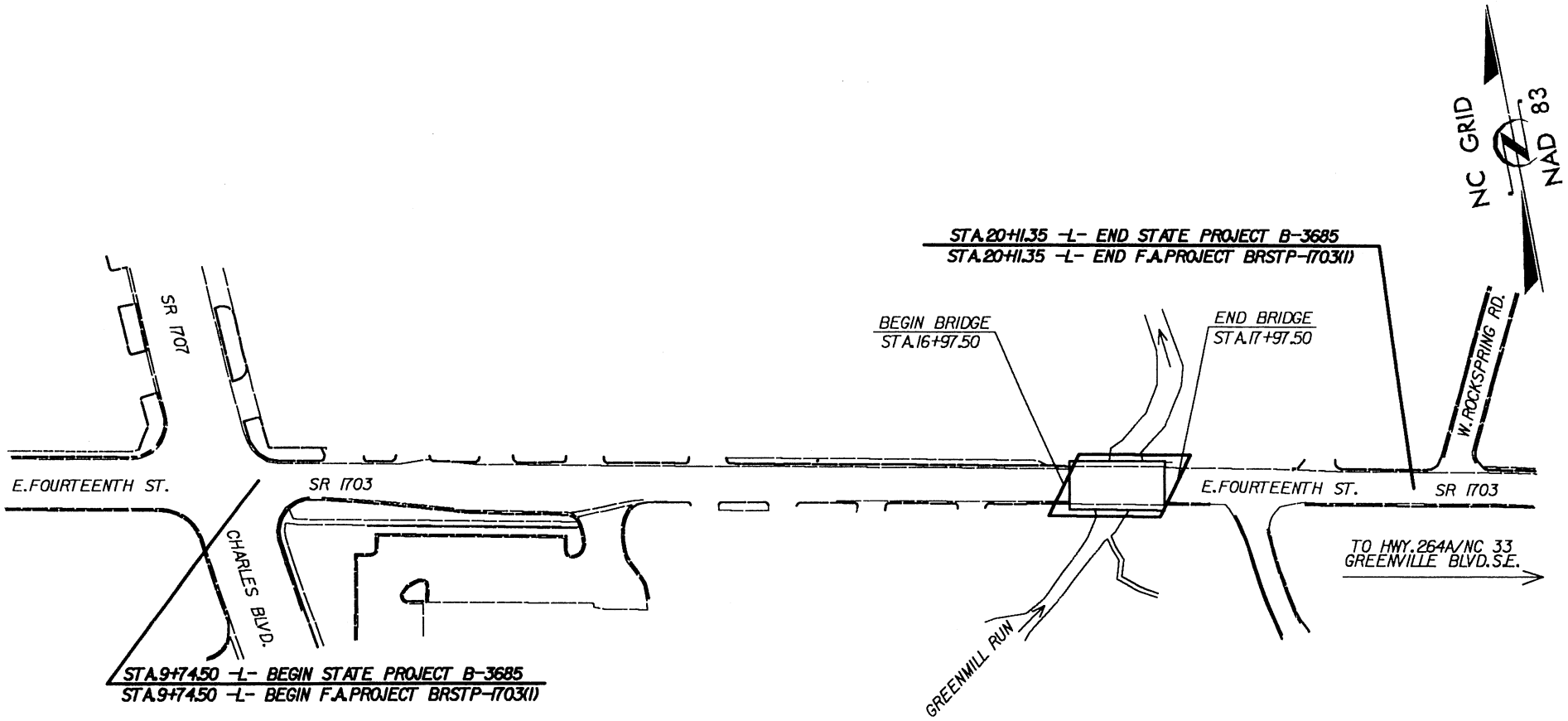


VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
PITT COUNTY
PROJECT: 8.2221601 (B-3685)
BRIDGE NO. 30
OVER GREEN MILL RUN
ON SR 1703

SHEET 1 OF 7



SITE MAP

NCDOT

DIVISION OF HIGHWAYS

PITT COUNTY

PROJECT: 8.2221601 (B-3685)

BRIDGE NO. 30

OVER GREEN MILL RUN

ON SR 1703

SHEET 2 **OF** 7

WETLAND LEGEND

WLB — WETLAND BOUNDARY

WLB / WLB — WETLAND

F F — DENOTES FILL IN WETLAND

S S — DENOTES FILL IN SURFACE WATER

P P — DENOTES FILL IN SURFACE WATER (POND)

T T — DENOTES TEMPORARY FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT
12"-48" PIPES
54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER (IF AVAILABLE)

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

PROJECT REFERENCE NO.	SHEET NO.
B-3685	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

THE OUTLET OF THE EXISTING 42" RCP IS CURRENTLY WITHIN THE BANKS OF GREENMILL RUN AT AN ELEVATION BELOW THE NORMAL WATER SURFACE. THE EXISTING PIPE IS APPROXIMATELY 10 FEET DEEP AND IS LAID ON A FLAT SLOPE. THE PROPOSED SECTION OF 42" RCP IS NECESSARY TO MOVE THE PIPE FROM UNDER THE PROPOSED BRIDGE ABUTMENT. DUE TO THE SLOPE AND DEPTH OF THE EXISTING PIPE, IT IS NECESSARY FOR THE PROPOSED OUTLET OF THE 42" TO BE WITHIN BUFFER ZONE.

THE EXISTING 18" RCP OUTLETS TO THE TOP OF BANK. THE PROPOSED 18" CMP ALSO OUTLETS TO THE TOP OF BANK DUE TO THE EXISTING GROUND SLOPE.

END STATE PROJECT B-3685 ENGLISH
STA. 20+11.35 -L-

BEGIN STATE PROJECT B-3685
STA. 9+74.50 -L-

NC GRID NAD 83

REMOVE +/- 60' OF 42" RCP

BEGIN BRIDGE STA. 16+97.50

BEGIN APPROACH SLAB STA. 16+87.30

END BRIDGE STA. 17+97.50

END APPROACH SLAB STA. 18+30.00

CONVERT JB TO CB

CONVERT TO TBJB W/ MH

RETAIN 42" RCP

REMOVE EXISTING BRIDGE

CLASS 1 RIPRAP TO STA. 18+35 RT -L- 651.75 TONS

PROPOSED 2 @ 50' 21' CORED SLAB BRIDGE

PC Sta. 20+92.90

PI Sta 22+25.45
Δ = 17° 43' 30.98" (RT)
D = 6° 44' 26.4"
L = 262.96'
T = 132.54'
R = 850.00'
Se = SEE PLANS

7 DENOTES IMPACTS TO BUFFER ZONE 1

DENOTES IMPACTS TO BUFFER ZONE 2

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "FICKLEN" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 676571.1734 FT EASTING: 2486874.4617 FT

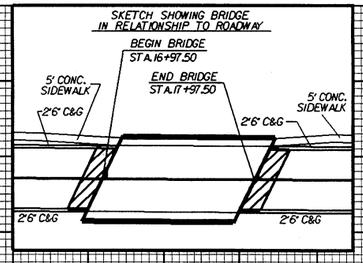
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999893267

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "FICKLEN" TO -L- STATION 9+74.50 IS

N 67° 53' 32.23" W 2781.9366 FT

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

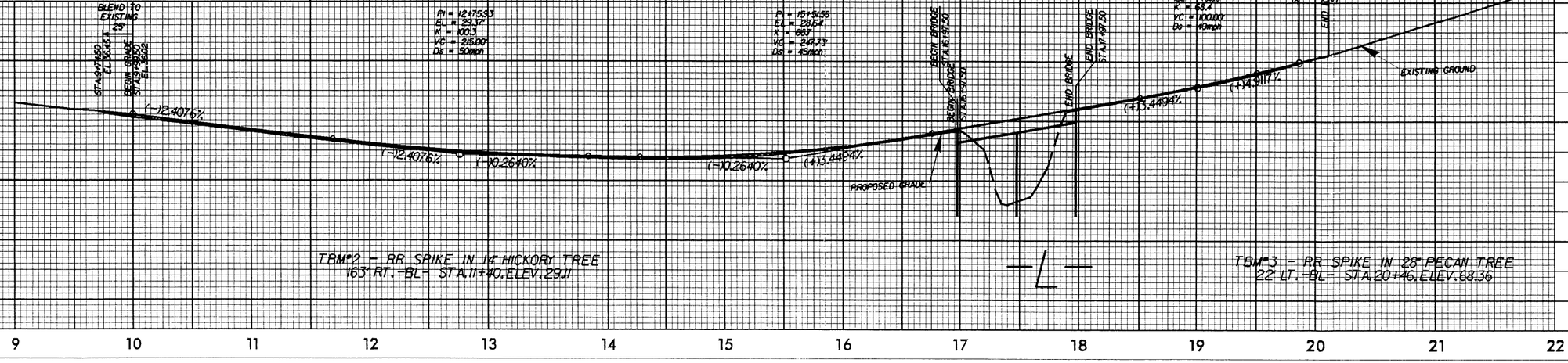
SKETCH SHOWING BRIDGE IN RELATIONSHIP TO ROADWAY



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4470 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 33.8 FT
BASE DISCHARGE	= 4930 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 34.3 FT
OVERTOPPING DISCHARGE	= +/- 650 CFS
OVERTOPPING FREQUENCY	= ~10 YRS
OVERTOPPING ELEVATION	= 28.9 FT
DATE OF SURVEY	= 10/19/01
W.S. ELEVATION AT DATE OF SURVEY	= 22.3 FT

2 @ 50' 21' CORED SLAB BRIDGE



TBM #2 - RR SPIKE IN 14" HICKORY TREE
163' RT. -BL- STA. 11+40, ELEV. 29.11

TBM #3 - RR SPIKE IN 28" PECAN TREE
22' LT. -BL- STA. 20+46, ELEV. 88.36

PROJECT REFERENCE NO.	SHEET NO.
B-3685	4 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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INCOMPLETE PLANS
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STA. 9+74.50 -L-

END STATE PROJECT B-3685
STA. 20+11.35 -L-

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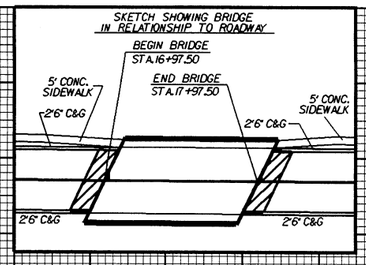

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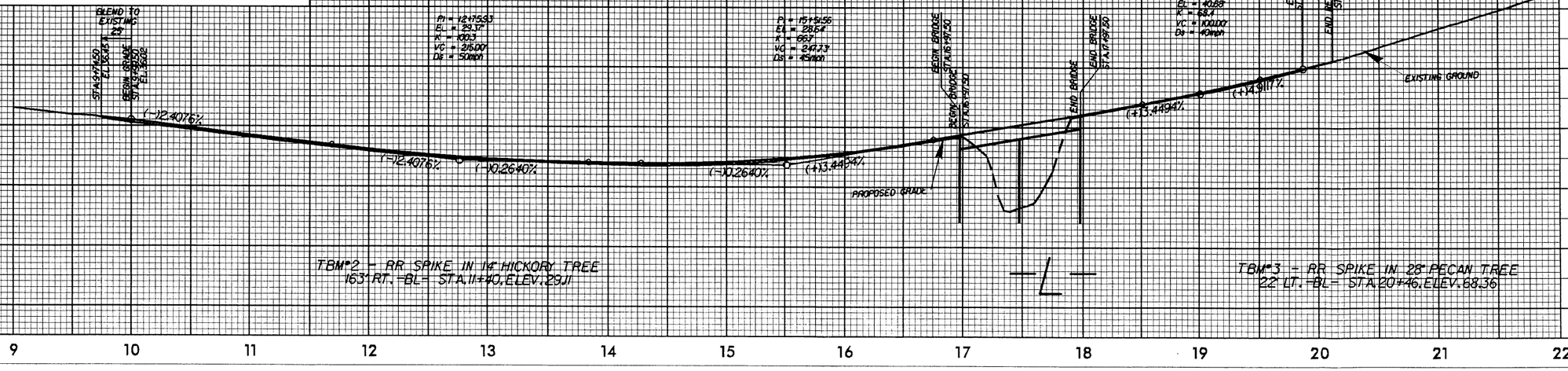

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16.3' RT. -BL- STA. 11+40, ELEV. 29.11

TBM #3 - RR SPIKE IN 28" PECAN TREE
2.2' LT. -BL- STA. 20+46, ELEV. 68.36

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
7	WILLIAM C. BOWEN	303 CLUB PINE DRIVE GREENVILLE, NC 27834
8	KINGS ARMS OF GREENVILLE, INC.	P.O. BOX 114 GREENVILLE, NC 27835
9	EASTERN REALTY CO.	P.O. BOX 834 GREENVILLE, NC 27835
11	EAST CAROLINA UNIVERSITY	UNKNOWN

NCDOT

DIVISION OF HIGHWAYS

PITT COUNTY

PROJECT: 8.2221601 (B-3685)

BRIDGE NO. 30

OVER GREEN MILL RUN

ON SR 1703

SHEET OF

BUFFER IMPACTS SUMMARY

			IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	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	Bridge	16+97.5 TO 17+97.5	X		6540.0	4360.0	10900.0					
TOTAL:					6540.0	4360.0	10900.0	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

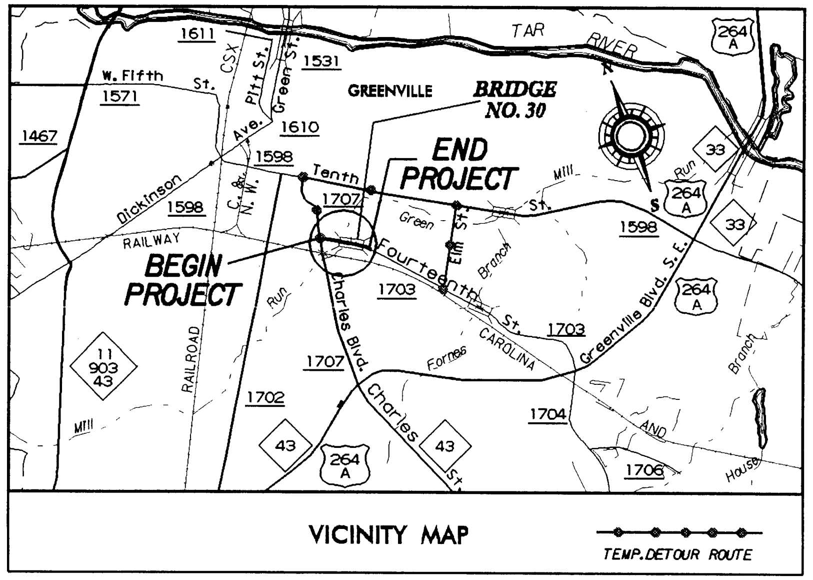
PITT COUNTY
PROJECT: 8.2221601 (B-3685)

REV 5/2004
SHEET 1 OF 1

CONTRACT: C201075 TIP PROJECT: B-3685

09/08/99

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

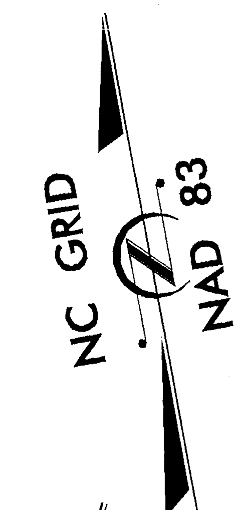
PITT COUNTY

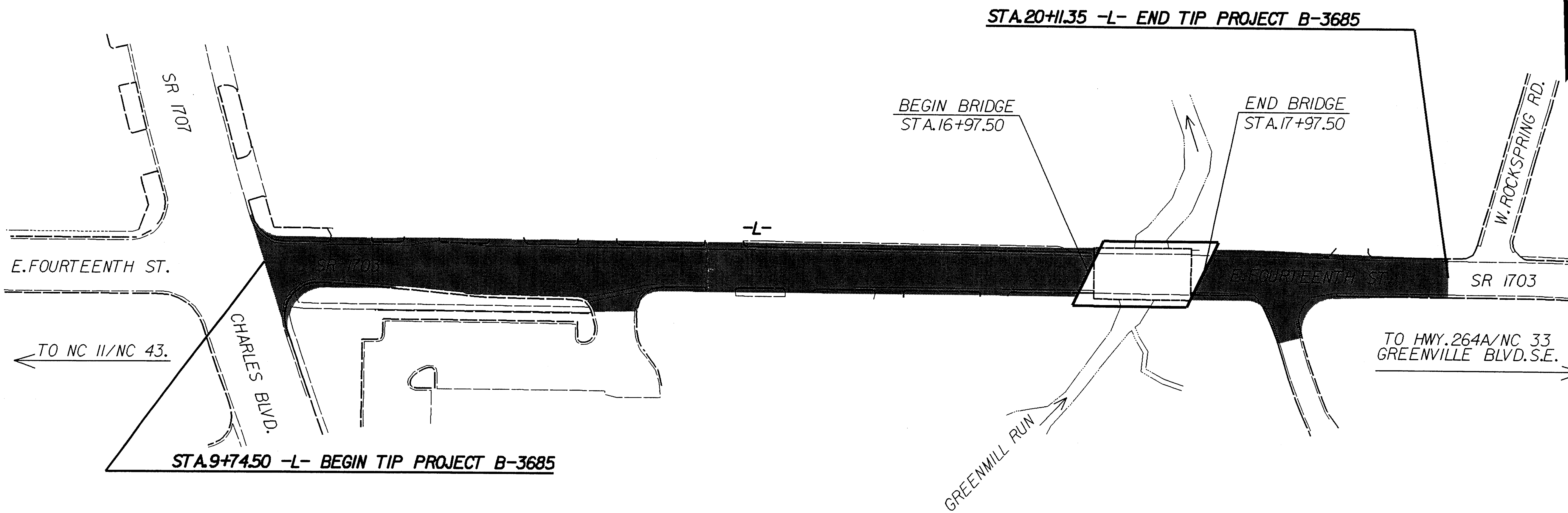
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3685	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33226.1.1	BRSTP-1703(1)	P.E.
33226.2.1	BRSTP-1703(1)	R/W
33226.3.1	BRSTP-1703(2)	CONST.

LOCATION: BRIDGE NO. 30 OVER GREENMILL RUN ON SR 1703 (14th STREET)

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





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

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 2003 = 16700
ADT 2025 = 24000
DHV = 10 %
D = 60 %
T = 2 % *
V = 40 MPH

* TTST 1 % DUAL 1 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3685 = 0.177 mi.

LENGTH STRUCTURE TIP PROJECT B-3685 = 0.019 mi.

TOTAL LENGTH OF TIP PROJECT B-3685 = 0.196 mi.

Prepared "for NCDOT" in the Office of:

WANG ENGINEERING

15200 WESTON PARKWAY SUITE 101 CARY, NC 27513

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOV. 21, 2003

LETTING DATE: OCT 19, 2004

GREG S. PURVIS, P.E. — PROJECT ENGINEER

SCOTT L. KENNEDY — PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 W. HENRY WELLS JR. — SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22999 GREG S. PURVIS — 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

27-MAY-2004 13:57
P:\Roadway\Proj\b3685_rdy_tsh.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-3685	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 — CM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary

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
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

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
- Designated U/G Power Line (S.U.E.*)

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
- Designated U/G Telephone Cable (S.U.E.*)
- Recorded U/G Telephone Conduit
- Designated U/G Telephone Conduit (S.U.E.*)
- Recorded U/G Fiber Optics Cable
- Designated U/G Fiber Optics Cable (S.U.E.*)

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line
- Designated U/G Water Line (S.U.E.*)
- 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
- Designated U/G TV Cable (S.U.E.*)
- Recorded U/G Fiber Optic Cable
- Designated U/G Fiber Optic Cable (S.U.E.*)

GAS:

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

SANITARY SEWER:

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

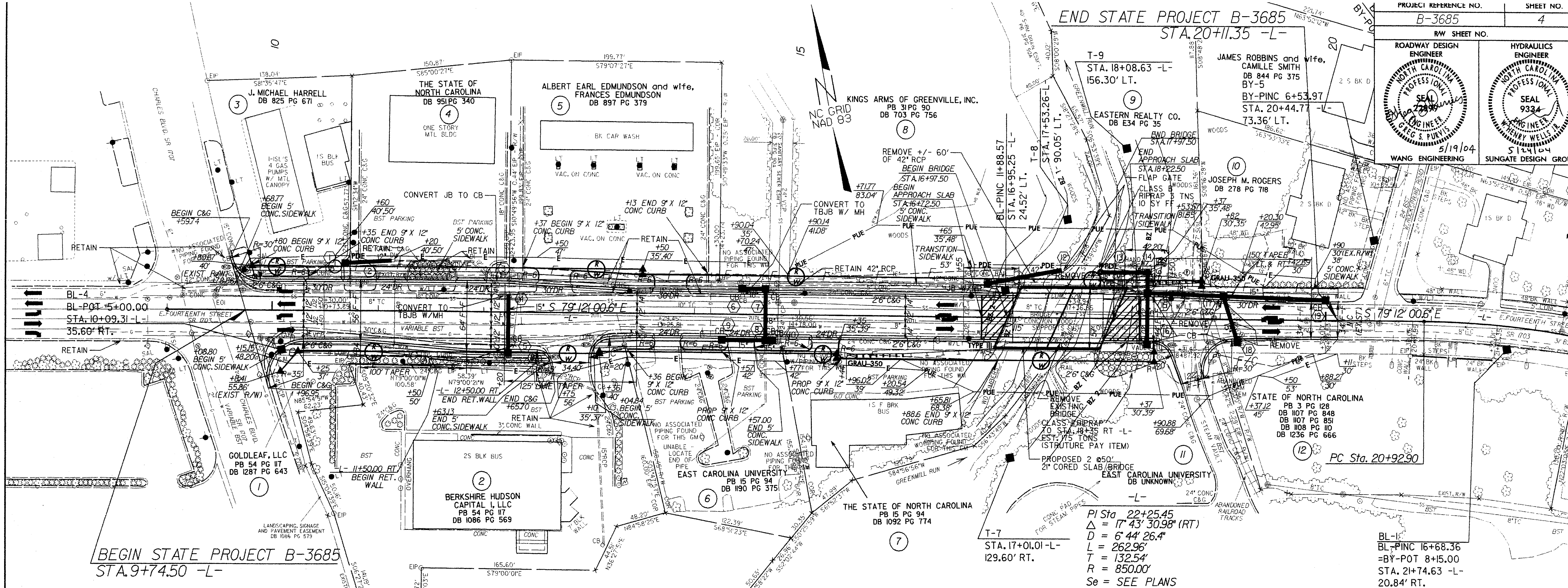
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line
- 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.

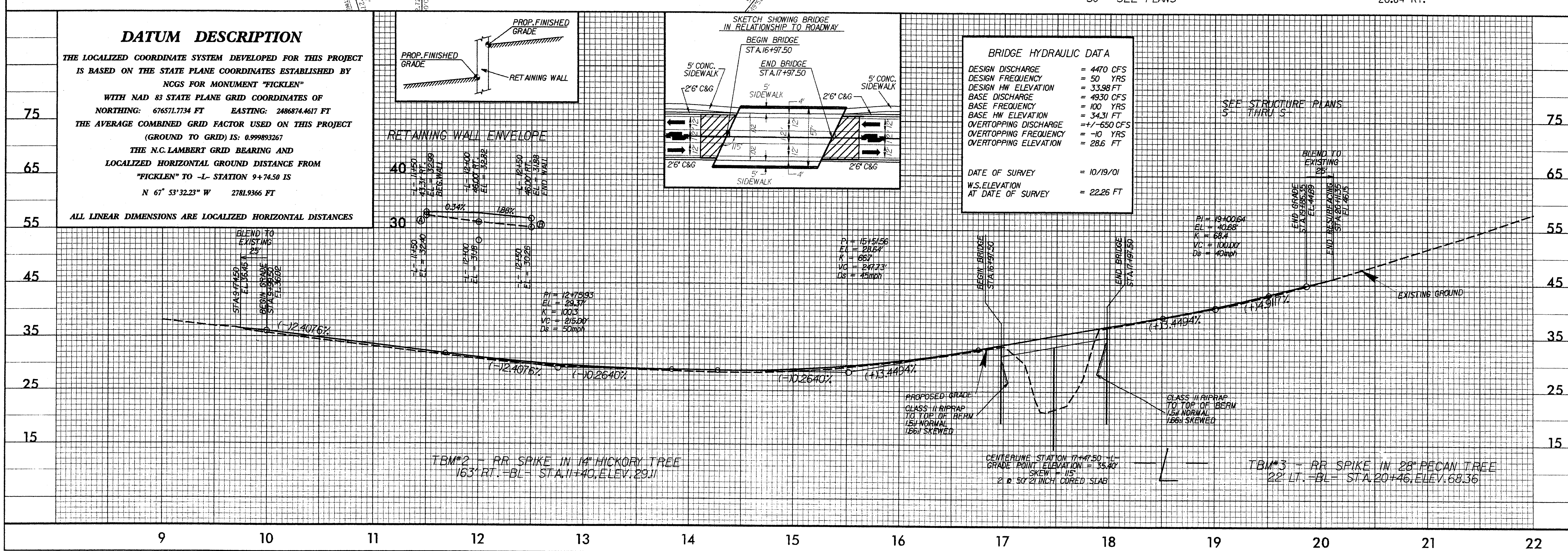
PROJECT REFERENCE NO.	SHEET NO.
B-3685	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22895 GREG S. PURVIS — 5/19/04 — WANG ENGINEERING

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 HENRY WELLS JR. — 5/24/04 — SUNGATE DESIGN GROUP



END STATE PROJECT B-3685
STA.20+11.35 -L-
BEGIN STATE PROJECT B-3685
STA.9+74.50 -L-
NC GRID NAD 83
BL-4
BL-POT 5+00.00
STA. 10+09.31 -L-
35.60' RT.
S 79°12'00.6" E
E. FOURTEENTH STREET
J. MICHAEL HARRELL DB 825 PG 671
THE STATE OF NORTH CAROLINA DB 951 PG 340
ALBERT EARL EDMUNDSON and wife, FRANCES EDMUNDSON DB 897 PG 379
KINGS ARMS OF GREENVILLE, INC. PB 31 PG 90 DB 703 PG 756
EASTERN REALTY CO. DB E34 PG 35
JAMES ROBBINS and wife, CAMILLE SMITH DB 844 PG 375
JOSEPH M. ROGERS DB 278 PG 718
GOLDLEAF, LLC PB 54 PG 117 DB 1287 PG 643
BERKSHIRE HUDSON CAPITAL I, LLC PB 54 PG 117 DB 1086 PG 569
EAST CAROLINA UNIVERSITY PB 15 PG 94 DB 1190 PG 375
THE STATE OF NORTH CAROLINA PB 15 PG 94 DB 1092 PG 774
EAST CAROLINA UNIVERSITY DB UNKNOWN
STATE OF NORTH CAROLINA PB 3 PG 128 DB 1107 PG 848 DB 1107 PG 851 DB 1108 PG 110 DB 1236 PG 666
PI Sta 22+25.45
Δ = 17° 43' 30.98" (RT)
D = 6° 44' 26.4"
L = 262.96'
T = 132.54'
R = 850.00'
Se = SEE PLANS
PC Sta. 20+92.90
BL-1
BL-PINC 16+68.36
=BY-POT 8+15.00
STA. 21+74.63 -L-
20.84' RT.
REMOVE EXISTING BRIDGE
PROPOSED 2 @ 50' 21" CORED SLAB BRIDGE



SKETCH SHOWING BRIDGE IN RELATIONSHIP TO ROADWAY
BEGIN BRIDGE STA.16+97.50
END BRIDGE STA.17+97.50
RETAINING WALL ENVELOPE
SEE STRUCTURE PLANS S-1 THRU S-
TBM#2 - RR SPIKE IN 14" HICKORY TREE 163' RT. -BL- STA.11+40, ELEV. 29.11
TBM#3 - RR SPIKE IN 28" PECAN TREE 22' LT. -BL- STA.20+46, ELEV. 68.36
CENTERLINE STATION 17+47.50 -L- GRADE POINT ELEVATION = 35.40' SKEW = 115° 2 @ 50' 21 INCH CORED SLAB
EXISTING GROUND
PROPOSED GRADE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "FICKLEN"

WITH NAD 83 STATE PLANE GRID COORDINATES OF

NORTHING: 676571.7734 FT EASTING: 2486874.4617 FT

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999893267

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "FICKLEN" TO -L- STATION 9+74.50 IS

N 67° 53' 32.23" W 2781.9366 FT

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4470 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 33.98 FT
BASE DISCHARGE	= 4930 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 34.31 FT
OVERTOPPING DISCHARGE	=+/-650 CFS
OVERTOPPING FREQUENCY	= -10 YRS
OVERTOPPING ELEVATION	= 28.6 FT
DATE OF SURVEY	= 10/19/01
W.S. ELEVATION AT DATE OF SURVEY	= 22.26 FT

Pitt County

Bridge No. 30 on SR 1703 Over Green Mill Run

Federal-Aid Project No. BRSTP-1703(1)

State Project No. 8.2221601

T.I.P. No. B-3685

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

7/17/03
DATE

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

7/17/03
DATE

John F. Sullivan, III
Division Administrator, FHWA

Pitt County

Bridge No. 30 on SR 1703 Over Green Mill Run

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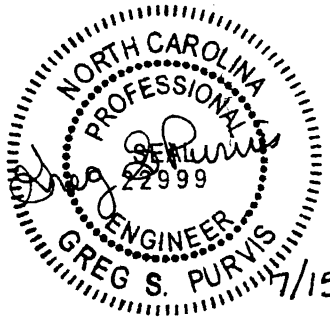
CATEGORICAL EXCLUSION

July 2003

Document Prepared by:
Wang Engineering Company, Inc.

Greg S. Purvis, P.E.
Project Manager



7/15/03

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

For the North Carolina Department of Transportation

John Wadsworth, P.E.
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

Pitt County
Bridge No. 30 on SR 1703 Over Green Mill Run
Federal-Aid Project No. BRSTP-1703(1)
State Project No. 8.2221601
T.I.P. No. B-3685

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 Bridge Demolition and Removal, 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 Engineer

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

Additional Commitments

The Tar-Pamlico River Basin Riparian Buffer Protection Rules will be implemented during the design, construction, and maintenance of this project.

An in-water construction moratorium will be in effect from February 15 to June 30.

No deck drainage will be allowed to discharge directly into the water, main channel or Zone 1 (30 feet (nine meters) from the channel banks).

Pitt County
SR 1703
Replace Bridge No. 30 Over Green Mill Run
Federal-Aid Project No. BRSTP-1703(1)
State Project No. 8.2221601
T.I.P. No. B-3685

INTRODUCTION: The replacement of Bridge No. 30 is included in the 2004-2010 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 60.6 out of a possible 100 for a new structure. When Bridge No. 30 was added to the TIP in 1996 the sufficiency rating was 45.9. Maintenance work has been performed to raise the sufficiency rating to 60.6. The bridge is considered functionally obsolete and structurally deficient. The replacement of an inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

SR 1703 (Fourteenth Street) is classified as an urban minor arterial. Land use in the project area is predominantly residential and light commercial. Private residences and maintained yards are located in the eastern quadrant of the study area. Commercial businesses are adjacent on the west quadrant of the study area.

Bridge No. 30 was constructed in 1956. The existing structure is 87 feet (26.1 meters) in length, consisting of five spans with the maximum span at approximately 18 feet (5.4 meters). The clear roadway width is 34.0 feet (10.2 meters), providing three ten-foot (three meter) travel lanes with two-foot (600 millimeters) gutters. There is also a five-foot (1.5 meter) sidewalk along each side. The superstructure consists of a reinforced concrete floor on timber joists. The substructure is a timber abutment design. The interior bents consist of timber caps on timber piles. The bed to crown height is 15 feet (4.5 meters) and the normal depth of flow is 2.5 feet (750 millimeters). The posted weight limit is 25 tons (22.7 metric tons) for single vehicles (SV) and 34 tons (30.8 metric tons) for truck-tractors semi-trailers (TTST).

The existing bridge and approaches on SR 1703 is tangent. There is an approximate 6.75-degree (261.25 meter radius) curve located approximately 305 feet (91.5 meters) east of the existing structure. SR 1703 consists of three ten-foot (three meter) lanes with 2.5-foot (750 millimeters) curb and gutters.

The estimated 2003 average daily traffic volume is 16,700 vehicles per day (vpd). The projected traffic volume is expected to increase to 25,500 vpd by the design year 2030. The volumes include one percent TTST and one percent dual tired vehicles.

The posted speed limit is 35 miles per hour (mph) (55 kilometers per hour).

This section of SR 1703 is listed in the TIP as needing wide outside lanes (14 feet [4.2 meter] wide) as an incidental bicycle accommodation.

There are aerial power lines and telephone lines on the north and south side of SR 1703. There is a gas pipeline attached to the south side of the bridge. There is a sewer line that runs underneath and near the center of the bridge. Utility impacts are anticipated to be low.

There were fifty-one accidents reported for the three-year period of January 1, 1999 to December 31, 2001. The statewide crash rate is 373.69 per 100 million vehicle miles traveled for the period from 1999-2001.

Thirteen school buses cross this bridge twice daily.

III. ALTERNATIVES

A. Project Description

The proposed structure will provide a 44-foot (13.2 meter) travel-way providing two 12-foot (3.6 meters) travel lanes and one 12-foot (3.6 meter) turning lane with 4.0-feet (1.2 meter) between the edge of travelway and the face of the sidewalk for bicycle use. The structure will also provide a 5-foot (1.5 meter) sidewalk along each side. The design speed will be 40 mph [65 kilometers per hour (kmh)].

The proposed approach roadway will be 44 feet (13.2 meters) face-to-face, providing one 12-foot (3.6 meter) turning lane and two 12-foot (3.6 meters) travel lanes. There will be 4.0-feet between the edge of travelway and the face of curb for bicycle use. The approach roadway will also provide ten-foot berms (three meters) with 2.5-foot (750 millimeter) curb and gutter and a five-foot (1.5 meter) sidewalk along the north side. This project will include the addition of a turn lane from the west approach of the proposed bridge to the intersection with SR 1707(Charles Boulevard) that will be funded separately.

Based on a preliminary hydraulic analysis, Bridge No. 30 will be a cored slab bridge approximately 100 feet (30 meters) in length with a spill through design. The low point approximately 240 feet (72 meters) from the proposed bridge will be raised approximately 0.44 feet (132 millimeters) to help alleviate the frequent flooding adjacent to the bridge. The length and opening size of the proposed bridges 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 Elm St., SR 1598 (Tenth. St.) and SR 1707 Charles Boulevard approximately two miles (3.2 kilometers) in length. The length of approach work will be approximately 723 feet (216.9 meters) on the west side of the bridge and approximately 214 feet (64.2 meters) on the east side of the bridge. This work will include the addition of a turn lane from the west approach of the proposed bridge to the intersection with SR 1707(Charles Boulevard). The right-of-way width varies from 60 feet (18 meters) to 70 feet (21 meters).

Alternate B replaces the bridge on existing alignment. During construction, traffic will be maintained by an on-site temporary detour structure located north of the existing bridge. The length of approach work will be approximately 723 feet (216.9 meters) on the west side of the bridge and approximately 292 feet (87.6 meters) on the east side of the bridge. The right-of-way width varies from 60 feet (18 meters) to 70 feet (21 meters). This work will include the addition of a turn lane from the west approach of the proposed bridge to the intersection with SR 1707(Charles Boulevard). Alternate B was not selected because of the comparatively higher construction cost, higher environmental impacts, and long construction season.

C. Alternatives Eliminated From Further Study

The "Do-Nothing" Alternative will eventually necessitate removal of the bridge. This is not desirable due to the traffic service provided by SR 1703.

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.

IV. ESTIMATED COSTS

The estimated costs, based on current 2003 prices, are as follows:

	Alternate A (Preferred)	**Alternate B**
Structure Removal (existing)	**$ 30,600**	$ 30,600
Structure (proposed)	**370,500**	370,500
Detour Structure and Approaches	**0**	205,000
Roadway Approaches	**151,300**	180,200
Utilities	**20,000**	20,000
Miscellaneous and Mobilization	**94,100**	144,500
Engineering and Contingencies	**108,500**	149,200
ROW/Const. Easements/Utilities:	**258,000**	405,000
TOTAL	**$ 1,033,000**	$ 1,505,000

The estimated cost of the project, as shown in the 2004-2010 Transportation Improvement Program, is $825,000 including $325,000 for right-of-way and $500,000 for construction. The projected cost includes the addition of a turn lane from the west approach of the proposed bridge to the intersection with SR 1707(Charles Boulevard).

V. 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 (Greenville SE, NC 7.5 minute quadrangle), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory mapping (NWI) (Greenville SE, NC 7.5 minute quadrangle), Natural Resources Conservation Service (NRCS; formerly the Soils Conservation Service) soils mapping (SCS 1974), and recent aerial photography.

The site was visited on February 13, 2001. The study corridor was walked and visually surveyed for significant features. For purposes of this evaluation, the study corridor was assumed to be the same as right-of-way (70 feet [21.0 meters]) and temporary easement boundaries. Actual impacts will be limited to cut-fill boundaries and are expected to be less than those shown for the right-of-way. Special concerns evaluated in the field include 1) potential protected species habitat and 2) wetlands and water quality protection in Green Mill Run.

Plant community descriptions are based on a classification system utilized by North Carolina 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 exceptions for updated nomenclature. Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). 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; Hamel 1992; Palmer and Braswell 1995; Rohde *et al.* 1994). Water quality information for area streams and tributaries was derived from available sources (DWQ 1999, 1997). Quantitative sampling was not undertaken to support existing data.

The most current FWS listing of federally protected species with ranges extending into Pitt County (February 25, 2003) was reviewed prior to generation of this report. In addition, NHP records documenting presence of federally or state listed species were consulted before commencing field investigations.

B. Physiography and Soils

The study corridor is underlain by the Yorktown and Duplin geologic formation within the inner Coastal Plain physiographic province of North Carolina. Topography is characterized as gently undulating with wide floodplains and broad, flat interstream divides. The study corridor is located on uplands and across the floodplain of Green Mill Run. Elevations in the study corridor are gently sloping and range from 22 to 52 feet (6.6 to 15.6 meters) National Geodetic Vertical Datum (NGVD) (USGS Greenville SE, NC quadrangle).

Soil mapping units underlying the study corridor are Bibb complex (*Typic Haplaquents*), Wagram loamy sand (*Arenic Paleudults*), and Craven fine sandy loam (*Aquic Hapludults*) (SCS 1974). The Bibb complex series is listed as a hydric soil in Pitt County (NRCS 1997) and typically occurs on floodplains and in draws and depressions in uplands. This series occurs in the study corridor in bottomland areas beneath Bridge No. 30 and in the Green Mill Run floodplain. The Wagram series is a well-drained soil and typically occurs on uplands and stream terraces with a zero to six percent slope. This series is characterized by rapid infiltration, slow runoff, and occurs on the western,

upland side of the study corridor. The Craven series consists of moderately well drained soils on smooth side slopes of one to six percent in uplands. This series occurs in the study corridor on upland areas east of Bridge No. 30 (SCS 1974).

C. Water Resources

1. Surface Waters

The study corridor is located within sub-basin 03-03-05 of the Tar-Pamlico River Basin (DWQ 1999). This area is part of USGS Hydrologic Unit 03020103 of the Mid-Atlantic/Gulf Region. The drainage basin area at the project site is 10.8 square miles (28 square kilometers). Structures targeted for replacement span the open water stream associated with Green Mill Run. There is no direct involvement of additional streams or tributaries. This section of Green Mill Run has been assigned Stream Index Number 28-96 by the N.C. Division of Water Quality (DWQ 1997). The nearest tributary to Green Mill Run is Fornes Branch (according to USGS mapping), which is joined by Green Mill Run approximately 1.1 miles (1.8 kilometers) downstream (west) of the study corridor.

2. Stream Characteristics

Green Mill Run is a disturbed, moderately entrenched, perennial, Coastal Plain, stream with moderate flow over a silty substrate. At Bridge No. 30, Green Mill Run is approximately eight feet (2.4 meters) wide. The banks are steep and average seven feet (2.1 meters) high. During field investigations, water clarity was good, flow velocity was moderate, and water depth was approximately three feet (900 millimeter). The stream channel is moderately entrenched, has low sinuosity, poor riffle/pool sequence, and shows very little natural features. The streambed is composed of silt with some gravel and rock, and some concrete rip-rap near the bridge. Bridge height averages 11 feet (3.3 meters) above the water surface. A storm-water drainage pipe exists on the northwest side of the bridge providing input to the west side of the stream.

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 Green Mill Run. The designation **C** denotes that appropriate uses include aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation refers to human body contact with waters on an infrequent or incidental basis. The designation **NSW** denotes Nutrient Sensitive Waters, which require limitations on nutrient inputs. No designated High Quality Waters (**HQW**), Outstanding Resource Waters (**ORW**), Water Supply I (**WS-I**), or Water Supply II (**WS-II**) waters occur within one mile (1.6 kilometers) of the study corridor (DWQ 1997).

The Division of Water Quality (DWQ) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed study corridor is summarized in the Tar-Pamlico basinwide water quality plan (DWQ 1999). Green Mill Run is rated as **Not Rated** for designated uses. Green Mill Run is not rated for ambient water quality; however, Hardee Creek, approximately 2.7 miles (4.3 kilometers) west and upstream of the study corridor, has a bioclassification rating of **Good** based on fish sampling (DWQ 1999).

This sub-basin (03-03-05) supports one major point-source discharger and three minor point-source dischargers. Total permitted flow for the major discharger is 17.5 million gallons per day (MGD) (66.5 million liters per day [MLD]). Total permitted flow for the three minor dischargers

is one MGD (3.8 MLD). There are no permitted point-source discharges directly associated with Green Mill Run. Major non-point sources of pollution for the Tar-Pamlico River Basin are agriculture, animal operations, urban runoff, construction, forestry, mining, onsite wastewater disposal, solid waste disposal, and atmospheric deposition. Sedimentation and nutrient inputs are major problems associated with non-point source discharges and often result in fecal coliform, heavy metals, oil from roads and parking lots, and increased nutrient levels in surface waters (DWQ 1999).

3. Anticipated Impacts

a) Impacts Related to Water Resources

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. 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 steams by catch basins and roadside vegetation.

The proposed bridge replacement will allow for continuation of pre-project stream flows in Green Mill Run, thereby protecting the integrity of these waterways. Long-term impacts to adjacent reaches resulting from construction are expected to be negligible. In order to minimize impacts to water resources, NCDOT Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the entire life of the project.

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.

Dropping any portion of the structure into waters of the United States will be avoided unless there is no other practical method of removal. In the event that no other practical method is feasible, a worst-case scenario is assumed for calculations of fill entering waters of the United States. There is potential for components of the bridge to be dropped into waters of the United States. The resulting temporary fill associated with the concrete deck is expected to be approximately 38 cubic yards (29 cubic meters). NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) will be applied for the removal of this bridge.

Under the guidelines presented in the documents noted in the first paragraph of this section, work done in the water for this project will fall under Case 2, which states that no work will be performed in the water during moratorium periods (February 15 to June 30) associated with fish migration, spawning, and larval recruitment into nursery areas. This conclusion is based upon the classification of the waters within the project area and vicinity, the Stream Crossing Guidelines for Anadromous Fish Passage, and comments received from the North Carolina Wildlife Resources Commission (NCWRC).

D. Biotic Resources

1. Plant Communities

Two distinct plant communities were identified within the study corridor: Coastal Plain hardwoods and roadside/disturbed land. These plant communities are described below.

a) Coastal Plain Hardwoods

Coastal Plain hardwoods are a natural plant community occurring along the Green Mill Run floodplain north and southeast of Bridge No. 30. This community represents approximately 70 percent of the total vegetated study corridor area, and consists of a mature forest with many invasive species. The canopy is closed and includes sycamore (*Platanus occidentalis*), willow oak (*Quercus phellos*), cherrybark oak (*Q. pagoda*), hackberry (*Celtis laevigata*), American elm (*Ulmus americana*), river birch (*Betula nigra*), sweetgum (*Liquidambar styraciflua*), and laurel oak (*Q. laurifolia*). The sub-canopy/shrub layer is moderately dense and consists of American holly (*Ilex opaca*), ironwood (*Carpinus caroliniana*), silverberry (*Elaeagnus pungens*), red maple (*Acer rubrum*), Chinese privet (*Ligustrum sinense*), and giant cane (*Arundinaria gigantea*). Herbaceous vegetation is moderately sparse and includes Japanese honeysuckle (*Lonicera japonica*), grape (*Vitus rotundifolia*), common greenbriar, (*Smilax rotundifolia*), and crossvine (*Anisostichus capreolata*).

b) Roadside/disturbed Land

Roadside/disturbed land is defined as the maintained roadside and developed margins within the study corridor. This plant community represents approximately 30 percent of the total vegetated study corridor, and occurs adjacent to SR 1703 and the streamside southwest of the bridge. Plant species include sweetgum, blackberry (*Rubus argutus*), wild strawberry (*Duchesnea indica*), pokeweed (*Phytolacca americana*), Japanese honeysuckle, Chinese privet, common greenbriar, nightshade (*Solanum sp.*), and chinaberry (*Melia azedarach*).

c) Anticipated Impacts to Plant Communities

Plant community areas are estimated based on the amount of each plant community present within the projected right-of-ways (70 feet [21.0 meters]) and temporary easements. A summary of potential plant community impacts is presented in Table 1.

Total plant community impacts are greater for Alternate B because of the use of an on-site detour with this alternative. Alternate A minimizes impacts to natural plant communities (Coastal Plain hardwoods), and results in approximately one-third the impact area to hardwood forest relative to Alternate B.

Table 1 Area of Anticipated Impacts to Plant Communities acres (hectares)			
Alternate	Plant Community		
	Coastal Plain hardwood	Roadside/Disturbed	Total
A	0.12 (0.049)	0.24 (0.097)	0.36 (0.15)
B	0.41 (0.17)	0.18 (0.073)	0.59 (0.24)

Impacts to plant communities resulting from bridge replacements are generally restricted to narrow strips adjacent to the existing bridge and roadway approach segments. Very little area of natural plant community is expected to be impacted by the proposed project. From an ecological perspective, impacts of upgrading existing road facilities are minimal. No additional fragmentation of plant communities will be created, as the project will result only in alteration of community boundaries. Much of the alignment is currently bounded by a maintained right-of-way 60 feet (18 meters) in width; therefore, the proposed project may only claim narrow strips of adjacent natural communities.

Roadside-forest edges typically serve as vectors for movement of invasive species into adjacent natural communities. An example of an undesirable invasive species utilizing roadsides is kudzu (*Pueraria lobata*). The establishment of a hardy groundcover on road shoulders as soon as practicable will limit the availability of construction areas to invasive and undesirable plants.

2. Wildlife

a) Terrestrial

Signs of two mammal species, beaver (*Castor canadensis*) and raccoon (*Procyon lotor*), were observed during the site visit. Other mammal species, which are expected to occur within the study corridor, are white-tailed deer (*Odocoileus virginianus*), gray fox (*Urocyon cinereoargenteus*), eastern cottontail (*Sylvilagus floridanus*), marsh rabbit (*Sylvilagus palustris*), fox squirrel (*Sciurus niger*), Virginia opossum (*Didelphis virginiana*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), southeastern shrew (*Sorex longirostris*), and cotton mouse (*Peromyscus gossypinus*).

Birds observed within or adjacent to the study corridor are northern cardinal (*Cardinalis cardinalis*), red-tailed hawk (*Buteo jamaicensis*), blue jay (*Cyanocitta cristata*), red-bellied woodpecker (*Melanerpes carolinus*), and tufted titmouse (*Baeolophus bicolor*). Other avian species expected to occur in the study corridor are prothonotory warbler (*Protonotaria citrea*), yellow-billed cuckoo (*Coccyzus americanus*), turkey vulture (*Cathartes aura*), downy woodpecker (*Picoides pubescens*), blue-gray gnatcatcher (*Polioptila caerulea*), Carolina chickadee (*Poecile carolinensis*), eastern towee (*Pipilo erythrophthalmus*), American robin (*Turdus migratorius*), hermit thrush (*Catharus guttatus*), wood duck (*Aix sponsa*), Acadian flycatcher (*Empidonax virescens*), American redstart (*Setophaga ruticilla*), pileated woodpecker (*Dryocopus pileatus*), barred owl (*Strix varia*), and red-shouldered hawk (*Buteo lineatus*).

No terrestrial reptile or amphibian species were observed during the site visit. Some terrestrial reptiles which may occur within the study corridor include eastern box turtle (*Terrapene carolina*), Carolina anole (*Anolis carolinensis*), eastern fence lizard (*Sceloporus undulatus*), five-lined skink (*Eumeces fasciatus*), broadhead skink (*Eumeces laticeps*), worm snake (*Carphophis amoenus*), rat snake (*Elaphe obsoleta*), eastern kingsnake (*Lampropeltis getula*), eastern garter snake (*Thamnophis sirtalis*), copperhead (*Agkistrodon contortrix*), little grass frog (*Limnaoedus ocularis*), southern toad (*Bufo terrestris*), and slimy salamander (*Plethodon cylindraceus*).

b) Aquatic

Limited surveys resulted in no observations of aquatic reptile or amphibian species within the study corridor. Aquatic or semi-aquatic reptiles and amphibians which are expected to occur within the study corridor include snapping turtle (*Chelydra serpentina*), mud turtle (*Kinosternon subrubrum*), yellowbelly slider (*Trachemys scripta*), river cooter (*Pseudemys concinna*), brown water snake (*Nerodia taxispilota*), redbelly water snake (*Nerodia erythrogaster*), cottonmouth (*Agkistrodon piscivorus*), eastern newt (*Notophthalmus viridescens*), dwarf salamander (*Eurycea quadridigitata*), marbled salamander (*Ambystoma opacum*), and southern dusky salamander (*Desmognathus auriculatus*).

Green Mill Run was not sampled to determine fishery potential. Visual surveys of Green Mill Run did reveal the presence of fish and molluscan fauna, in particular a juvenile tassellated darter (*Etheostoma olmstedi*), and an invasive Asian clam (*Corbicula fluminea*). Fish species that may be present in Green Mill Run include eastern mudminnow (*Umbra pygmaea*), eastern silvery minnow (*Hybognathus regius*), American shad (*Alosa sappidissima*), bluehead chub (*Nocomis leptocephalus*), margined madtom (*Noturus insignis*), tadpole madtom (*Noturus gyrinus*), golden shiner (*Notemigonus crysoleucas*), spottail shiner (*Notropis hudsonius*), creek chubsucker (*Erimyson oblongus*), and yellow bullhead (*Ameiurus natalis*). Potential game fish that may be present within the study corridor include bluespotted sunfish (*Enneacanthus gloriosus*), bluegill (*Lepomis macrochirus*), redbreast sunfish (*Lepomis auritus*), bowfin (*Amia calva*), yellow perch (*Perca flavescens*), and largemouth bass (*Micropterus salmoides*).

c) Anticipated Impacts to Wildlife

Green Mill Run is a Coastal Plain system, and anadromous fish passage will be considered in the timing of any proposed in-stream activities associated with bridge replacement. Several anadromous fish species have been documented to occur in the Tar-Pamlico River basin and have distributions that include Pitt County (Rohde *et al.* 1994, Menhinick 1991). Design and scheduling of the bridge replacement will avoid the necessity of in-stream activities during the spring migration period for anadromous fish species (February 15 to June 30) within the Tar-Pamlico River and its tributaries, including Green Mill Run.

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal populations. No substantial habitat fragmentation is expected since most improvements will be restricted to existing roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns. However, long-term impacts are expected to be negligible. Potential down-stream impacts to aquatic habitat will be avoided by bridging the system to maintain regular flow and stream integrity. Short-term impacts associated with turbidity and suspended sediments will affect

benthic populations. Temporary impacts to downstream habitat from increased sediment during construction will be minimized by implementation of stringent erosion control measures.

E. Special Topics

1. Waters of the United States

Surface waters within the embankments of Green Mill Run are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR section 328.3). NWI mapping indicates that Green Mill Run exhibits characteristics of a riverine system with an unconsolidated bottom that is permanently flooded (R2UBH; Cowardin *et al.* 1979). Field investigations indicate that, within the study corridor, this description of Green Mill Run is accurate.

Wetlands adjacent to Green Mill Run are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR section 328.3). These areas 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). NWI mapping indicates that floodplains of Green Mill Run exhibit characteristics of a palustrine, broad-leaved, deciduous and needle leaved forest system that is seasonally flooded (PFO1/2C; Cowardin *et al.* 1979). Field investigations indicate that no vegetated wetlands occur within the study corridor.

Bridging will not result in fill or dredging of wetlands/waters of the United States, and encroachment into the stream will be avoided. Upon completion of construction, temporary impacts associated with construction activities and temporary alignments will be restored to pre-project conditions.

Alternate A entails reconstruction of Bridge No. 30 in place with no impact to vegetated wetlands. Alternate B entails construction of a temporary bridge alignment north of the existing alignment and no impacts to vegetated wetlands.

Table 2
Potential riparian buffer impacts

Alternate	Jurisdictional Type Riparian Buffer Area Acres (hectares)
A	0.24 (0.10)
B	0.35 (0.14)

Table 2 Potential open water and riparian buffer impacts resulting from project alternatives. Area estimations are expressed in acres (hectares) and linear distance is expressed in feet (meters).

There is potential that components of the existing bridge may be dropped into waters of the United States during construction. The resulting temporary fill is associated with the bridge removal is expected to be 38 cubic yards (29 cubic meters). This project can be classified as Case 2, where no in-stream work may occur during moratorium periods due to anadromous fish migration (February 15 to June 30) as well as those outlined in Best Management Practices for

Protection of Surface Waters. Impacts by construction activities to Threatened or Endangered species, or protected water resources, are not expected. NCDOT will coordinate with the various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

2. Permits

a). Section 404 of the Clean Water Act

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) No. 23 (67 FR 2019, 2095; January 15, 2002) for CEs due to minimal impacts 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 No. 23. However, authorization for jurisdictional area impacts through use of this permit will require written notice to DWQ. In the event that NWP No. 23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington COE District. Notification to the Wilmington COE office is required if this general permit is utilized.

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 should 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 38 cubic yards (29 cubic meters) of temporary fill. Permitting will be coordinated such that any permit needed for bridge construction will also address issues related to bridge demolition.

d). Coast Guard

The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard bridge permits when the bridge project crosses nontidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. Due to this, this bridge project is exempt, and will not require a Coast Guard Bridge Permit (Appendix).

3. Riparian Buffer Protection Rules for the Tar-Pamlico River Basin

Since this project is within the Tar-Pamlico River Basin, it is subject to The Nutrient Sensitive Waters Management Strategy for the Protection and Maintenance of Existing Riparian Buffers

(15A NCAC 02B.0259). These rules were developed to protect and preserve existing riparian buffers and are part of larger nutrient reduction strategies for the basin.

The Tar-Pamlico River Basin Rule applies to 50-foot (15.0 meter) wide riparian buffers directly adjacent to surface waters in the Tar-Pamlico River Basin. This rule does not apply to portions of the riparian buffer where a use is existing and ongoing. Existing uses include transportation facilities. It should be noted that only the portion of the buffer that contains the footprint of the existing use is exempt. Any change in land use within the riparian buffer is characterized as an impact

Activities in the buffer area beyond the footprint of the existing use are classified as either "exempt", "allowable", "allowable with mitigation", or "prohibited". The following list of activities that may be subject to buffer rules within the study area are provided along with their classifications. Depending upon project alternatives, not all of the uses listed may apply, and other uses not listed here, such as utility crossings and roadside drainage ditches, among others, may be regulated under the buffer rules. Guidelines should be consulted in entirety to review all project related uses subject to the buffer rules.

Activities deemed "exempt" should be designed, constructed, and maintained to minimize soil disturbance and to provide the maximum water quality protection practicable. "Allowable" activities may proceed within the riparian buffer provided that there are no practical alternatives to the requested use. Written authorization from the DWQ or delegated local authority is required. Activities deemed "allowable with mitigation" may proceed within the riparian buffer if there are no practical alternatives to the requested use and an appropriate mitigation strategy has been approved. Written authorization from the DWQ or delegated local authority is required. "Prohibited" activities, none of which are listed above, may not proceed within the riparian buffer unless a variance is granted from the DWQ or delegated local authority.

RIPARIAN BUFFER PROTECTION RULES				
Use	***Exempt***	***Allowable***	***Allowable With Mitigation***	***Prohibited***
Bridges		*X*		
Road crossings that impact less than or equal to 150 linear ft. (45 linear meters) or 0.33 acres (0.13 hectares) of riparian buffer		*X*		
Road crossings that impact greater than 150 linear ft. (45 linear meters) or greater than 0.33 acres (0.13 hectares) of riparian buffer			*X*	
Temporary roads that disturb less than or equal to 2,500 square feet (225 square meters) provided that vegetation is restored within six months	*X*			
Temporary roads that disturb greater than 2,500 square feet (225 square meters) provided that vegetation is restored within six months		*X*		

Expected activities involved with project development include a temporary roadway crossing for Alternative B, and bridge replacement for both alternatives. These uses are designated **Allowable**

within the riparian buffer, assuming project impacts are below 150 linear feet (45.0 meters) of buffer (measured parallel to the stream) and/or 0.33 acre (0.13 hectares). The **Allowable** designation means that the intended uses may proceed within the riparian buffer provided that there are no practical alternatives, and that written authorization from the N.C. DWQ is obtained prior to project development.

4. Mitigation

Compensatory mitigation is not proposed for this project due to the limited nature of project impacts. However, utilization of BMP's will minimize impacts. Temporary impacts to floodplains associated with construction activities could be mitigated by replanting disturbed areas with native wetland species and removal of temporary fill material upon project completion. Fill or alteration of more than 150 linear feet (45.0 meters) of stream may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). A final determination regarding mitigation rests with the COE and DWQ.

F. Protected Species

1. Federally Protected Species

Species with the federal classification of Endangered (E), Threatened (T), Threatened due to Similarity of Appearance (T [S/A]), 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 that 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). The term "Threatened due to Similarity of Appearance" is defined as a species that is not "Endangered" or "Threatened", but "closely resembles an Endangered or Threatened species" (16 U.S.C. 1532). Federally protected species listed for Pitt County (February 25, 2003 FWS list) are presented in Table 3.

Table 3
Federally Protected Species Listed For Pitt County
(February 25, 2003 FWS list)

Common Name	*Scientific Name*	Status
West Indian Manatee	*Trichechus manatus*	E
Red-cockaded Woodpecker	*Picoides borealis*	E
Bald Eagle	*Haliaeetus leucocephalus*	T
Tar Spinymussel	*Elliptio steinstansana*	E

West Indian Manatee - The West Indian Manatee is a large, gray or brown aquatic mammal that averages ten to 13 feet (three to 3.9 meters) in length and weighs up to 1,000 pounds (455 kilograms). During summer months, manatees migrate from their Florida wintering areas to as far north as coastal Virginia. These mammals inhabit warm waters, both fresh and salt, where their diet consists mostly of aquatic vegetation (Webster *et al.* 1985).

Green Mill Run is a small, shallow, Coastal Plain stream lacking submerged aquatic vegetation. Therefore, this tributary does not provide passage or suitable forage habitat for the manatee. Manatees have not been documented to occur within one mile (1.6 kilometers) of the study corridor.

> **BIOLOGICAL CONCLUSION:** NHP records indicate that manatees have not been documented to occur within one mile (1.6 kilometers) of the study corridor, and the study corridor contains no suitable habitat for this species. Based on analysis of NHP records and the aquatic habitat type within the study corridor, this project will not affect manatee. **NO EFFECT**

Bald Eagle - The bald eagle is a large raptor with a wingspan greater than six feet (1.8 meters). Adult bald eagles are dark brown with a white head and tail. Immature eagles are brown with whitish mottling on the tail, belly, and wing linings. Bald eagles typically feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980).

Bald eagles typically nest in tall, living trees in a conspicuous location near open water. Eagles forage over large bodies of water and utilize adjacent trees for perching (Hamel 1992). Disturbance activities within a primary zone extending 750 to 1500 feet (225 to 450 meters) from a nest tree are considered to result in unacceptable conditions for eagles (FWS 1987). The FWS recommends avoiding disturbance activities, including construction and tree-cutting within this primary zone. Within a secondary zone, extending from the primary zone boundary out to a distance of one mile (1.6 kilometers) from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. The FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding significant land-clearing activities within 1500 feet (450 meters) of known roosting sites.

Plant communities within the study corridor are 1) roadside/disturbed land and 2) Coastal Plain hardwoods. Although the forested community may be suitable to bald eagle nesting and foraging, no large bodies of water exist within the study corridor, and no large bodies of water occur within 2.5 miles (four kilometers) of the study corridor. Therefore, no habitat for bald eagle occurs within or adjacent to the study corridor. Bald eagles have not been documented to occur within one mile (1.6 kilometers) of the study corridor.

> **BIOLOGICAL CONCLUSION:** NHP records indicate that bald eagle has not been documented to occur within one mile (1.6 kilometers) of the study corridor, and the study corridor contains no suitable habitat for this species. Based on analysis of NHP records and habitat types within the study corridor, this project will not affect bald eagle. **NO EFFECT**

Red-cockaded Woodpecker - This small woodpecker (seven to 8.5 inches [17.5 to 21.3 centimeters] in length) has a black head, prominent white cheek patch, and 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 (*Pinus taeda*), long-leaf (*P. palustris*), slash (*P. elliotii*), 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 (FWS 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 habitat.

Plant communities within the study corridor are 1) roadside/disturbed land and 2) Coastal Plain hardwoods. Forested areas within the study corridor lack a pine component in the canopy, which is necessary habitat required by this species for foraging and nesting. The red-cockaded woodpecker has not been documented to occur within one mile (1.6 kilometers) of the study corridor.

> **BIOLOGICAL CONCLUSION:** NHP records indicate that red-cockaded woodpecker has not been documented to occur within one mile (1.6 kilometers) of the study corridor, and the study corridor contains no suitable habitat for this species. Based on analysis of NHP records and habitat types within the study corridor, this project will not affect red-cockaded woodpecker. **NO EFFECT**

Tar Spinymussel - The Tar spinymussel is a small, subrhomboidal mussel that grows to approximately 2.5 inches (6.3 centimeters) in length. The external shell of the adult is smooth, orange-brown to dark brown, and ornamented by one or two rows of short spines (0.2 inch [0.5 centimeter] long). The shell is thicker on the anterior end and thinner on the posterior end. Preferred habitat of the spiny mussel includes relatively fast-flowing, well-oxygenated, circumneutral water over a silt-free, non-compacted, gravel/coarse sand substrate (FWS 1992). The mussel's range is believed to be limited to a one-mile (1.6 kilometers) section of the Tar River in Edgecombe County and Swift Creek in Vance and Edgecombe Counties (TSCFTM 1990) and is also known from Little Fishing Creek in Halifax County, and Shocco Creek in Warren/Franklin Counties.

Green Mill Run is a disturbed, moderately entrenched, perennial stream, characterized by moderate flow. The stream bed is primarily composed of silt, with scattered gravel and rock, and concrete rip-rap near the bridge. Shells of only the Asian clam (*Corbicula fluminea*) were observed during the site visit.

The project site was visited on September 12, 2001 by NCDOT environmental specialists to conduct a field survey. Surveys for mussels were conducted from approximately 400 foot (120 meters) downstream to 200 foot (60 meters) upstream of the project crossing. Survey methodology included wading using visual and tactile methods. The stream occurs in a highly urbanized area, and is degraded by trash, and storm-water discharge. A total of three elliptio mussels (*Elliptio sp.*) were found in approximately one man-hour of survey time.

> **BIOLOGICAL CONCLUSION:** NHP records indicate that Tar spinymussel has not been documented to occur within one mile (1.6 kilometers) of the study corridor. The study corridor contains poor habitat for this species. Based on the conducted field survey, it is apparent that the Tar spinymussel does not occur within the project area. **NO EFFECT**

Federal Species of Concern - The February 25, 2003 FWS 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 Pitt County are presented in Table 4. NHP files have no documentation of FSC-listed species within the study corridor or within one mile (1.6 kilometers) of the study corridor.

Table 4 Federal Species Of Concern Listed For Pitt County (February 25, 2003 FWS list)			
Common Name	**Scientific Name**	***Potential Habitat***	***State Status****
Eastern Henslow's sparrow	*Ammodramus henslowii*	no	SR
Southern hognose snake	*Heterodon simus*	no	SR
Pinewoods shiner	*Lythrurus matutinus*	yes	SR
Atlantic pigtoe	*Fusconaia masoni*	yes	T (PE)
Tar River crayfish	*Procambarus medialis*	yes	W3
Yellow lampmussel	*Lampsilis cariosa*	yes	T (PE)
"Neuse" madtom	*Noturus furiosus*	no	SC
Carolina asphodel	*Tofieldia glabra*	no	C

* E = Endangered; T = threatened; SC = Special concern; SR = Significantly Rare; C = Candidate; P = Species has been formally proposed for listing as Endangered, Threatened, or Special Concern; W1 = NC Plant Watch List: rare, but relatively secure; W3 = NC Plant Watch List: rare, but uncertain documentation (Amoroso 1999; LeGrand and Hall1999).

2. State Protected Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), Special Concern (SC), Candidate (C), Significantly Rare (SR), or Proposed (P) (Amoroso 1999; LeGrand and Hall 1999) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*). NHP records indicate that no state listed species have been documented to occur within one mile (1.6 kilometers) of the study corridor.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, 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 2, 1999. All structures within the APE were photographed, and later reviewed by the North Carolina State Historic Preservation Office (HPO). In a concurrence form dated October 27, 2000, the HPO concurred that there are no historic architectural resources either listed in or eligible for listing on the National

Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

The SHPO, in a memorandum dated July 28, 2000, had no comment on the project as was currently proposed. There is little likelihood of any National Register archaeological sites occurring in the project area because of the disturbed landforms, therefore the SHPO recommends no further action. A copy of the SHPO memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of 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.

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 Pitt 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. There is one facility with potential environmental hazards, (The Wash House, located 100 feet (30.5 meters) southwest of the project. This facility may pose an environmental hazard because of the dry cleaning solvents that may have been used there.) A letter dated August 22, 2000 concerning the Geoenvironmental Impact Study stated, "If an off-site detour is utilized, this facility (The Wash House) will not be impacted." The preferred alternative utilizes an off-site detour therefore there will no impacts to the Wash House.

Pitt County is a participant in the National Flood Insurance Regular Program. This site over Green Mill Run is included in a detailed F.E.M.A. flood study. Attached is a copy of the Flood Insurance Rate Map, on which are shown the approximate limits of the 100-year flood plain in the vicinity of the project (Figure 5). There are six businesses in the existing floodplain near Bridge No. 30. The proposed replacement will not adversely affect the 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.

VIII. PUBLIC INVOLVEMENT

Efforts were undertaken early in the planning process to contact local officials and involve them in the project development with scoping letters and newsletters. A Local Officials Meeting, followed by a Citizens Informational Workshop was held at C. M. Eppes Middle School on January 28, 2002, where preliminary alternatives were reviewed and discussed with concerned citizens and local officials.

The local officials concerns were the frequent flooding of 14th Street at the low point west of the bridge, the off-site detour route, and construction duration. The general consensus was that Alternate A is the preferred alternative.

Approximately eight citizens attended the workshop. The citizens primary concerns were the frequent flooding of 14th Street at the low point west of the bridge. Three comment sheets were received; the majority of all the citizens attending the workshop preferred Alternate A.

IX. AGENCY COMMENTS

The following are comments received during the scoping process:

1. National Marine Fisheries Service (NMFS)

   Comment: "No construction or demolition activities shall be allowed in the water between February 15 and June 30 of any year, and mitigation shall be provided for any unavoidable wetland losses."

   Response: Construction work will be restricted as noted in the Project Commitments.

2. North Carolina Wildlife Resource Commission (NCWRC)

   Comment: *"Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadramous Fish Passage". This includes an in-water work moratorium from February 15 to June 15."*

   Response: Construction work will be restricted as noted in the Project Commitments.

   Comment: *"Bridge deck drains should not discharge directly into the stream."*

   Response: No deck drainage will be allowed to discharge directly into the water, main channel or Zone 1 (30 feet (nine meters) from the channel banks).

3. North Carolina Department of Environment and Natural Resources – Division of Marine Fisheries (NCDENR)

   Comment: *"...the Division requests an in-water work moratorium. This would include removal and new construction. The requested moratorium timeframe is February 15 through June 30."*

   Response: Construction work will be restricted as noted in the Project Commitments.

4. City of Greenville, North Carolina

   Comment: *"Flooding of the section of 14th Street at Station 14+50 occurs on average six times per year. With the volume of traffic that currently uses this road, minimizing the frequency of flooding as part of this project is imperative. The property adjacent to and upstream of the roadway is approximately 18" higher than the roadway. It appears that the roadway could be raised 6" – 18" without affecting the surrounding properties in a negative manner. In addition, the drainage system within 14th Street at this location is poorly designed and with minor revisions could result in significant improvements in the flooding circumstances."*

   Response: Based on a preliminary hydraulic analysis, Bridge No. 30 will be a cored slab bridge approximately 100 feet in length with a spill through design. The low point approximately 240 feet (72 meters) from the proposed bridge will be raised 0.44 feet (132 millimeters) to help alleviate the frequent flooding adjacent to the bridge. This area was modeled using the top of curb as control elevations for the proposed road, since the proposed top of curb elevations is 0.06 feet (18 millimeters) higher than the centerline/grade point. NCDOT requires that the proposed 100-year storm elevations match or lower the existing 100-year elevations. This requirement cannot be met if the existing grade is raised more than 0.44 feet (132 millimeters), since the top of

curb is 0.06 feet (18 millimeters) higher than the grade point. Increasing the length of the bridge would not add any significant additional area under the bridge since the bridge would be spanning a height of approximately 1 foot (300 millimeters). Raising the grade 0.44 feet (132 millimeters) will not significantly decrease the frequency of flooding of the street due to Greenmill Run however; it will alleviate the problem somewhat. The existing drainage system will also be replaced and this will help improve the flooding situation as well.

Comment: *"The City of Greenville Greenway Master Plan and draft Greenville Bicycle Plan call for a Greenway to cross 14th Street in the vicinity of Green Mill Run and a bike route along 14th street.... In order to allow the anticipated bicycle and pedestrian traffic, this bridge and street section needs to allow an appropriate width for bike lanes and provision for crossing for the Greenway."*

Response: To allow for the anticipated bicycle and pedestrian traffic the proposed replacement structure will provide a 44-foot (13.2 meter) travel-way providing two 12-foot (3.6 meter) travel lanes and one 12-foot (3.6 meter) turning lane. The structure will provide 4.0-feet between the edge of travelway and the face of sidewalk for bicycle use. The structure will also provide a 5-foot (1.5 meter) sidewalk along each side.

Comment: *"A sidewalk along the north side of 14th Street currently exists. The new cross section of 14th Street should certainly accommodate the existing sidewalk and take into consideration a sidewalk along the south side of 14th Street."*

Response: The proposed structure will provide a 5-foot (1.5 meter) sidewalk along each side. The proposed approach roadway will be 44 feet (13.2 meter) face-to-face, providing one 12-foot (3.6 meter) turning lane and two 12-foot (3.6 meter) travel lanes with 2.5-foot (750 millimeter) curb and gutter. There will be 4.0-feet between the edge of travelway and the face of curb for bicycle use. There will be ten-foot (3.0 meter) berms on each side and a five-foot (1.5 meter) sidewalk along the north side. The berm width on the south side will accommodate any future sidewalk placed there.

Comment: *"The City of Greenville Thoroughfare Plan calls for a five-lane curb and gutter street as the ultimate thoroughfare plan cross section on both sides of the bridge."*

Response: We will build a three-lane section and design the structure so that it can be widened in the future in the event 14th Street is widened to five-lanes.

Comment: *"Fire, rescue, and police personnel have indicated that they can adapt, but that an extended road closure will be inconvenient."*

Response: 14th Street will be closed due to the replacement of the existing bridge. The NCDOT will try to ensure that the road closure is limited to as short a time as possible.

Comment: *"Consider routing traffic through Elm Street and 10th Street."*

Response: During construction, traffic will be maintained by an off-site detour route along Elm St., SR 1598 (Tenth. St.) and SR 1707 Charles Boulevard approximately two miles (3.2 kilometers) in length.

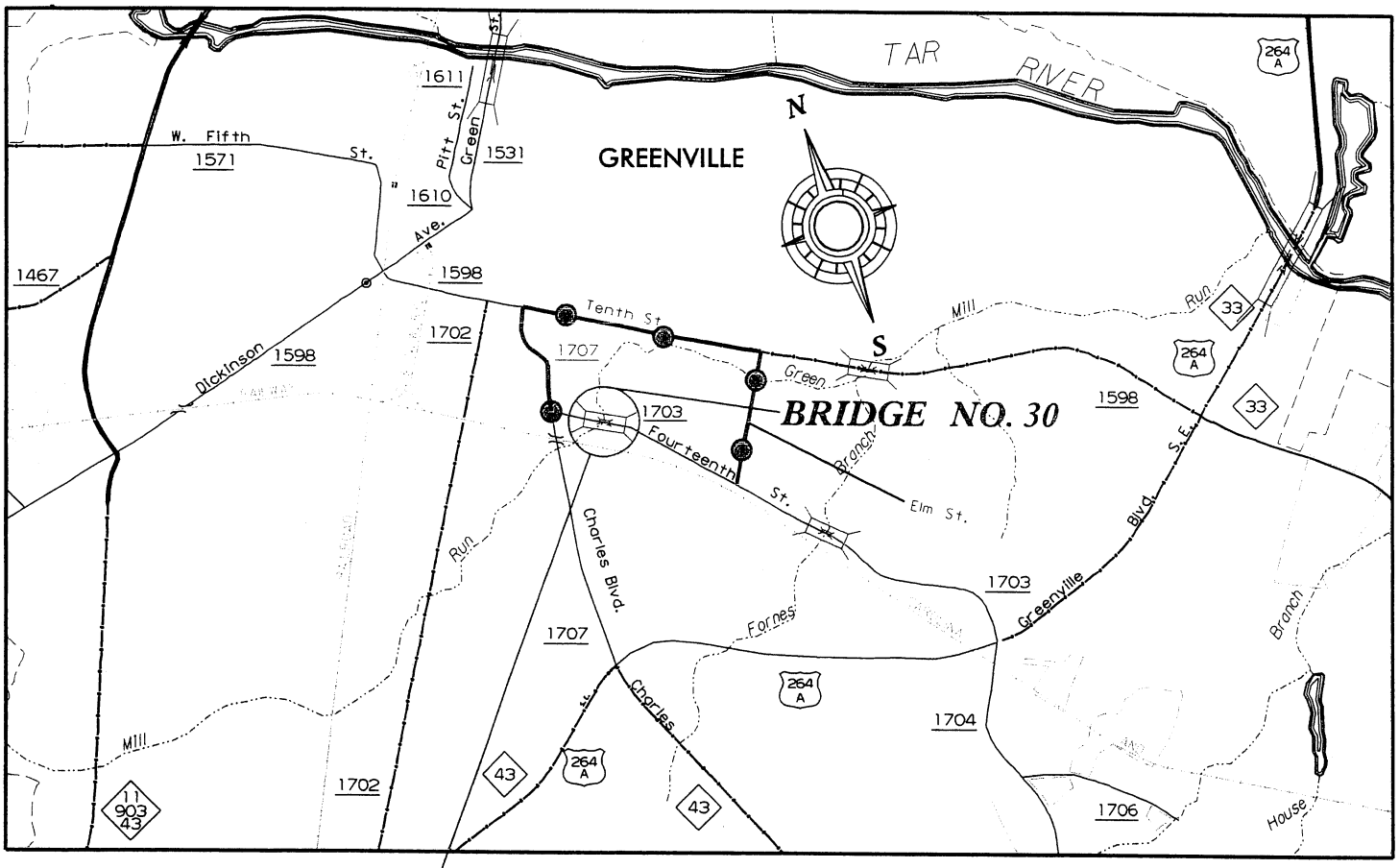
Comment: *"Coordinate intersection improvements at Charles Boulevard and 14th Street with local Division Office..."*

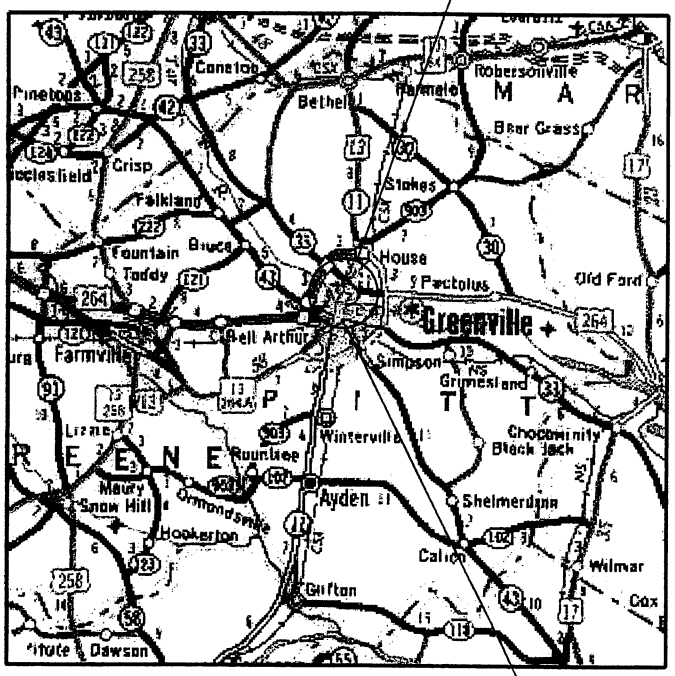
Response: Funding in the amount of $250,000 has been approved to make the necessary improvements to the intersection to help facilitate traffic flow. These improvements will be constructed at the same time as the proposed bridge. This work will include the addition of a turn lane from the west approach of the proposed bridge to the intersection with SR 1707(Charles Boulevard).

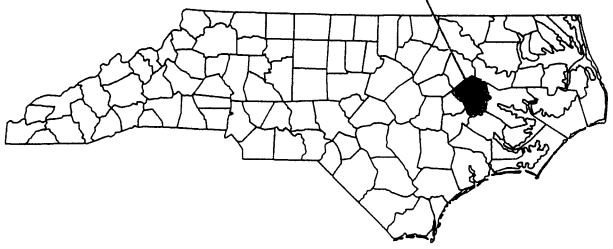
Comment: *"We would also encourage utilizing construction methods that would limit the length of time that 14th Street is closed to traffic.*

Response: The proposed bridge structure will be a cored slab structure. This type of structure consists of pre-fabricated concrete units. Utilizing this type of structure will limit the length of time 14th Street is closed during construction.

FIGURES







1 0.5 0 1 MILE

1 0 1 KILOMETERS

SCALE

LEGEND

Studied Detour Route

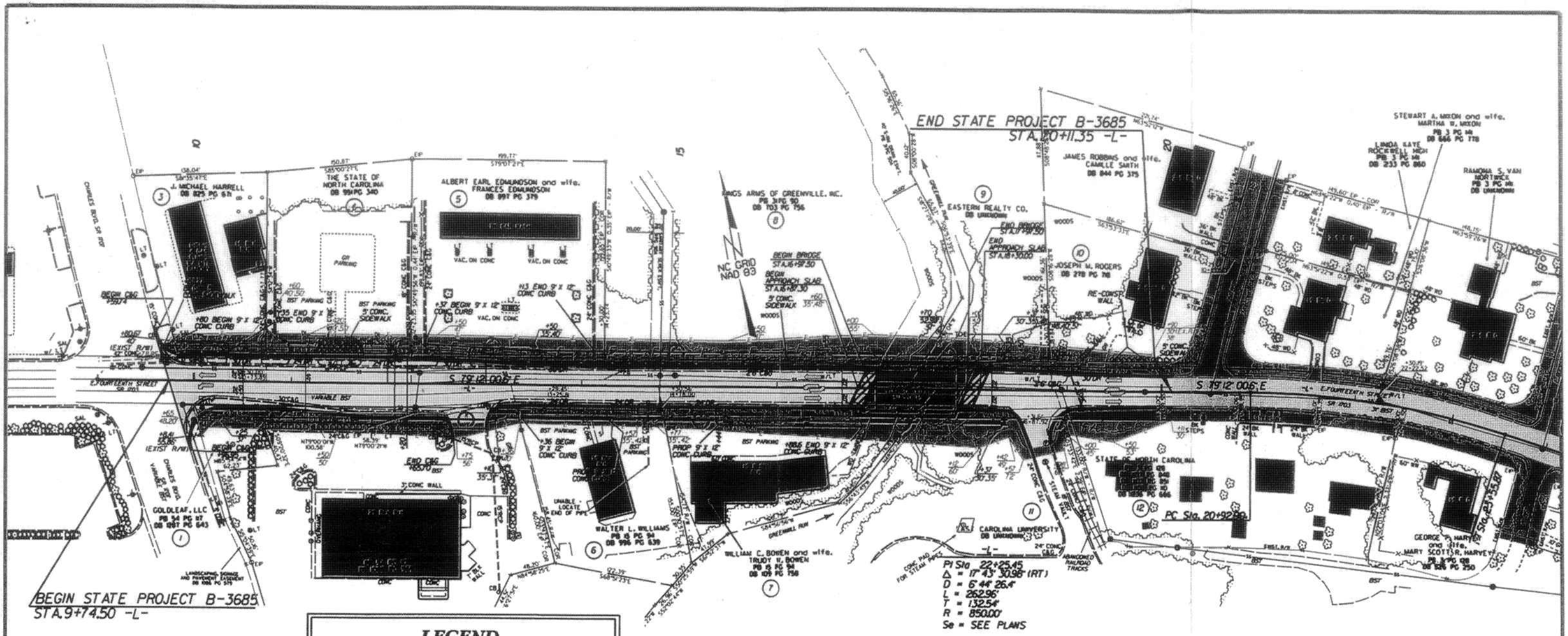
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS

PITT COUNTY

BRIDGE NO. 30 ON SR 1703 OVER GREEN MILL RUN

TIP NO. B-3685

VICINITY MAP
FIGURE 1



LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- BUILDINGS
- CEMETARY
- EXISTING ROAD TO BE REMOVED
- EXISTING STRUCTURES TO BE REMOVED
- ALL EASEMENTS
- PROPERTY LINES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

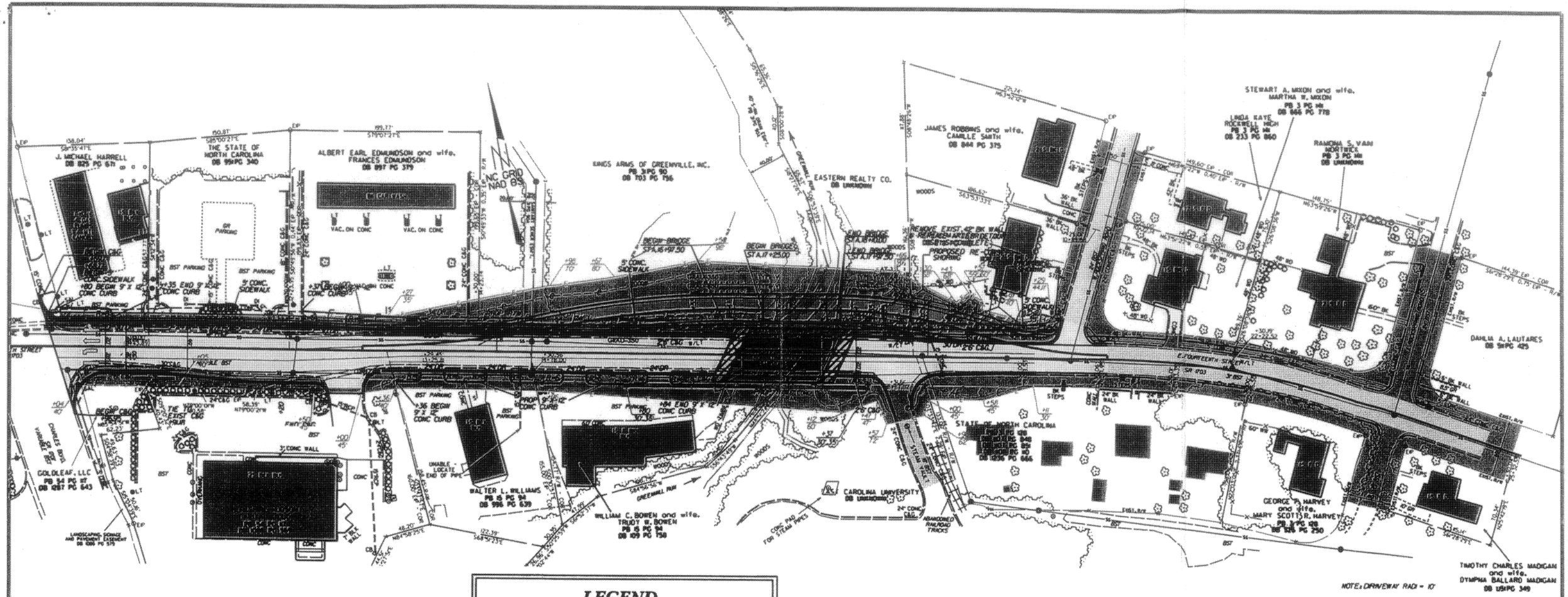
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

PITT COUNTY
BRIDGE NO. 30 ON SR 1703 OVER GREEN MILL RUN
TIP NO. B-3685

1 " = 100'
1 cm = 12 m

ALTERNATE A
(PREFERED)



LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- BUILDINGS
- CEMETARY
- EXISTING ROAD TO BE REMOVED
- EXISTING STRUCTURES TO BE REMOVED
- ALL EASEMENTS
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PRELIMINARY PLANS
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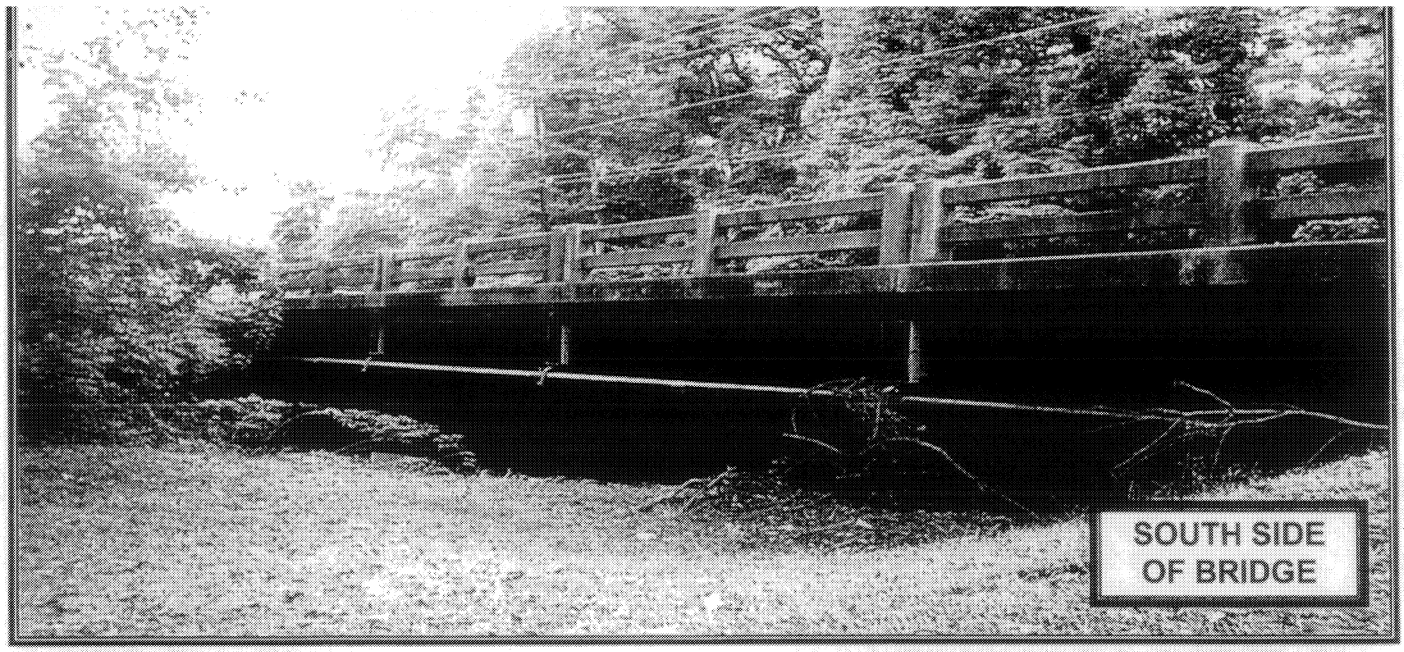
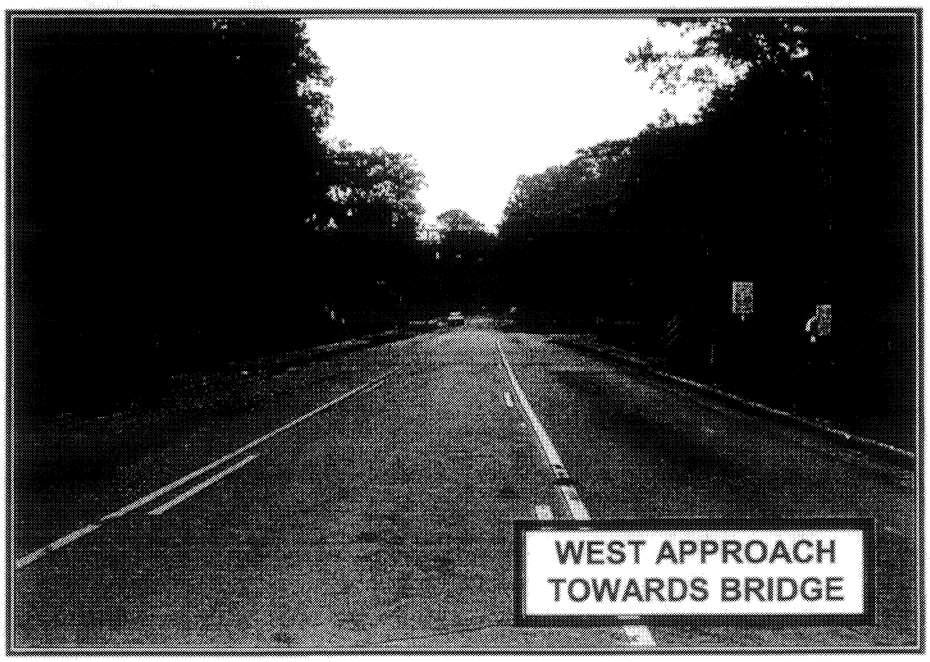
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

PITT COUNTY
BRIDGE NO. 30 ON SR 1703 OVER GREEN MILL RUN
TIP NO. B-3685

1 " = 100'
1 cm = 12 m

ALTERNATE B

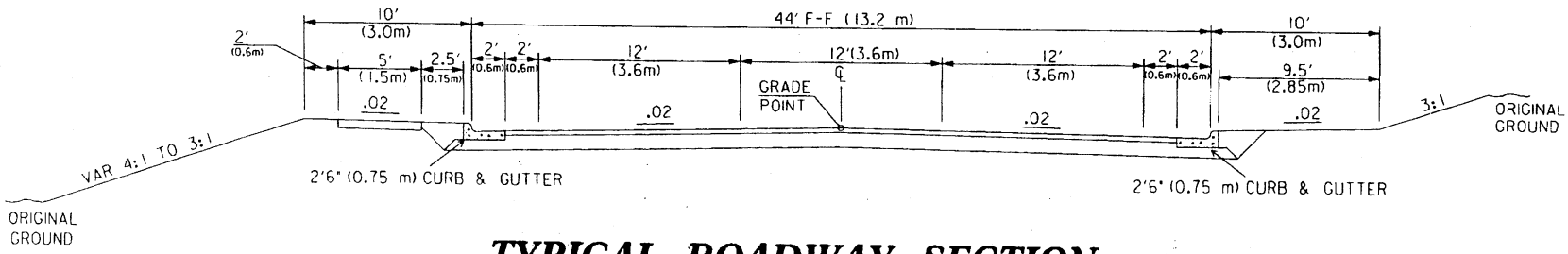




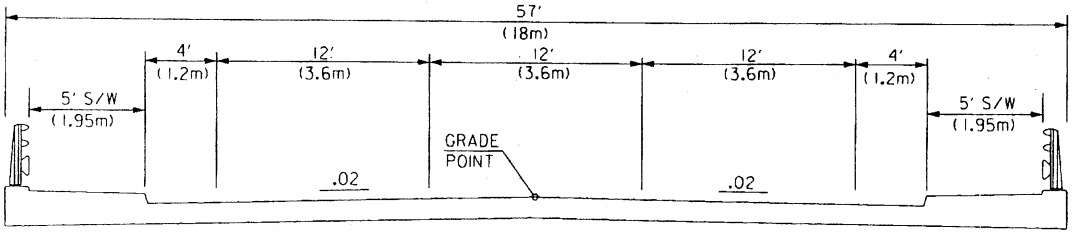
B-3685
Replacement of Bridge No. 30 on SR 1703 Over Greene Mill Run
Pitt County

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

FIGURE 3



TYPICAL ROADWAY SECTION



TYPICAL BRIDGE SECTION

TRAFFIC DATA

ADT 2003	16,700 LOS D
ADT 2004	17,000 LOS D
ADT 2030	25,520 LOS E
DUAL	1%
TTST	1%

FUNCTIONAL CLASSIFICATION:
URBAN MINOR ARTERIAL

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPEMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

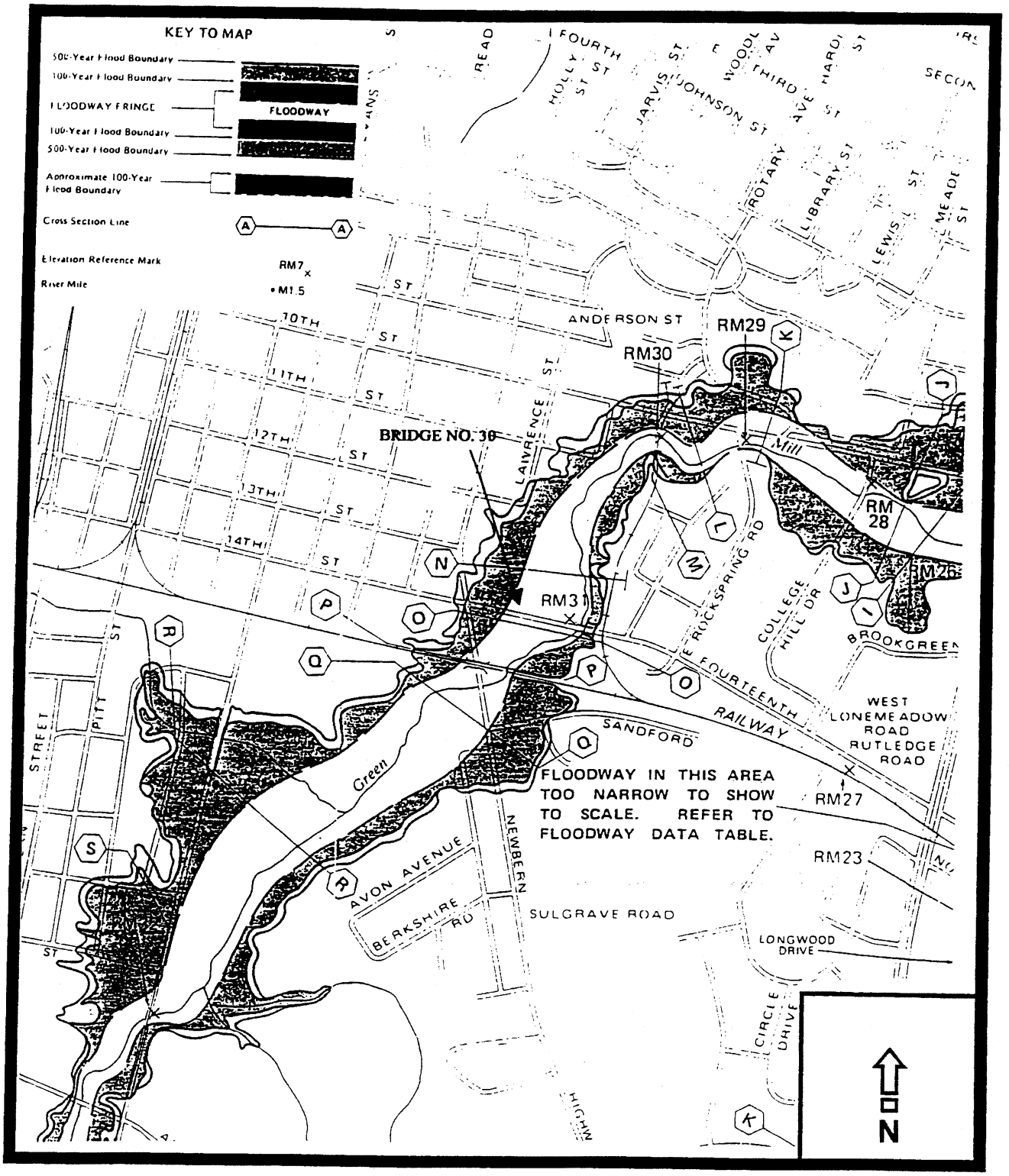
PITT COUNTY

BRIDGE NO. 204 ON SR 1703
OVER GREEN MILL RUN

B-3685

FIGURE 4

B-3685
BRIDGE NO. 30
PITT COUNTY



FEMA FLOOD STUDY 100 YEAR FLOOD PLAIN

Panel No. 370191 0010
Date: April 30, 1986
Street Name: SR 1703
City of Greenville, North Carolina

1000 ft. 0 1000 ft
305 m Approximate Scale 305 m

FIGURE 5

APPENDIX

RECORD OF CONTACT

DATE: 7/11/01
CONTACT WITH: Mike Bell, Corps of Engineers – Washington Office
SUBJECT: Bridge Group 27 Scoping comments(B-3612, B-3626, B-3640, B-3684, B-3685, B-3711, B-3712, B-3809, B-3810, and B-3871)

VIA: Telephone 1:00 pm

DISCUSSED: He said he agreed with the specific comments for each bridge from David Cox's(from the North Carolina Wildlife Resource Commission) letter dated 6/08/2001(included in appendix) and the general comments from David Franklin's (of the Corps of Engineers) letter dated 8/2/2000 (included in appendix). He will not be sending out a letter.

Signed: Greg Purvis Greg Purvis, Wang Engineering

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

August 2, 2000

Regulatory Division

Action ID No. 200001525, 200001526, 200001527, 200001528, 200001529, 200001530, 200001531.

Mr. William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Dear Mr. Gilmore:

Reference your letters dated June 7, 2000, June 28, 2000, and July 3, 2000 regarding the following proposed bridge replacement projects, including those of Group XXVII:

1. TIP Project B-3449, Duplin County, Bridge No. 204 on SR 1827 over Northeast Cape Fear River, Action ID 200001525.
2. TIP Project B-3626, Carteret County, Bridge No. 26 on SR 1154 over a branch of the Newport River, Action ID 200001526.
3. TIP Project B-3884, Onslow County, Bridge No. 40 on SR 1308 over Squires Run, Action ID 200001527.
4. TIP Project B-3887, Pender County, Bridge No. 116 on SR 1520 over Shaken Creek, Action ID 200001528.
5. TIP Project B-3516, Scotland County, Bridge No. 59 on SR 1614 over Gum Swamp Creek, Action ID 200001529.
6. TIP Project B-3515, Scotland County, Bridge No. 46 on SR 1612 over Big Shoe Heel Creek, Action ID 200001530.
7. TIP Project B-3613, Bladen/Sampson County, Bridge No. 44 on NC 41 over South River, Action ID 200001531.

Based on the information provided in the referenced letters, it appears that each proposed bridge replacement project may impact jurisdictional wetlands. Department of the Army (DA) permit authorization, pursuant to Section 404 of the Clean Water Act of 1977, as amended, will be required for the discharge of excavated or fill material in waters of the United States or any adjacent wetlands in conjunction with these projects, including

disposal of construction debris. Specific permit requirements will depend on design of the projects, extent of fill work within the waters of the United States, including wetlands, construction methods, and other factors.

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

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

b. Off-site detours are always preferable to on-site (temporary) detours in wetlands. If an on-site detour is the recommended action, justification should be provided. On-site detours can cause permanent wetland impacts due to sediment consolidation resulting from the on-site detour itself and associated heavy equipment. Substantial sediment consolidation in wetland systems may in turn cause fragmentation of the wetland and impair the ecological and hydrologic functions of the wetland. Thus, on-site detours constructed in wetlands can result in more than minimal wetland impacts. These types of wetland impacts will be considered as permanent wetland impacts.

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

In view of our concerns related to onsite detours constructed in wetlands, recent field inspections were conducted at each of the proposed project sites and a cursory determination was made on the potential for sediment consolidation due to an onsite detour. Based on these inspections, potential for sediment consolidation in wetlands exists at several of the proposed projects. Therefore, it is recommended that geotechnical evaluations be conducted at <u>each</u> project site to estimate the magnitude of sediment consolidation that can occur due to an on-site detour and the results be provided in the project planning report.

Based on our field inspections, we strongly recommend that geotechnical evaluations be conducted at the following proposed project sites:

1) TIP Project B-3626, Carteret County, Bridge No. 226 on SR 1154 over a branch of the Newport River, Action ID 200001526.
2) TIP Project B-3884, Onslow County, Bridge No. 40 on SR 1308 over Squires Run, Action ID 200001527.
3) TIP Project B-3887, Pender County, Bridge No. 116 on SR 1520 over Shaken Creek, Action ID 200001528.
4) TIP Project B-3516, Scotland County, Bridge No. 59 on SR 1614 over Gum Swamp Creek, Action ID 200001529.
5) TIP Project B-3515, Scotland County, Bridge No. 46 on SR 1612 over Big Shoe Heel Creek, Action ID 200001530.

c. Project commitments should include the removal of all temporary fills from waters and wetlands and "time-of-year" restrictions on in-stream work if recommended by the NC Wildlife Resources Commission. In addition, if undercutting is necessary for temporary detours, the undercut material should be stockpiled to be used to restore the site.

d. All restored areas should be planted with endemic vegetation including trees, if appropriate.

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

f. If a bridge is proposed to be replaced with a culvert, NCDOT must demonstrate that the work will not result in more than minimal impacts on the aquatic environment, specifically addressing the passage of aquatic life including anadromous fish. In addition, the report should address the impacts that the culvert would have on recreational navigation.

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

Should you have any questions, please call Mr. David L. Timpy at the Wilmington Field office at 910-251-4634.

Sincerely,

E. David Franklin
NCDOT Team Leader

United States Department of the Interior

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

July 25, 2000

Mr. William D. Gilmore, P.E., Manager
NCDOT
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Gilmore:

Thank you for your July 3, 2000 request for information from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of fourteen proposed bridge replacements in various counties in eastern North Carolina. This report provides scoping information and is provided in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA) (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). This report also serves as initial scoping comments to federal and state resource agencies for use in their permitting and/or certification processes for this project.

The North Carolina Department of Transportation (NCDOT) proposes to replace the following bridge structures:

1. B-3449, Bridge No. 204 on SR 1827 over the Northeast Cape Fear River, Duplin County;

2. B-3612, Bridge No. 143 on SR 1123 over Branch of Indian Creek, Bertie County;

3. B-3626, Bridge No. 26 on SR 1154 over Branch of Newport River, Carteret County;

4. B-3640, Bridge No. 16 on SR 1400 over Merchants Mill Pond, Gates County;

5. B-3684, Bridge No. 129 on SR 1565 over the Tar River, Pitt County;

6. B-3685, Bridge No. 30 on SR 1703 over Green Mill Run, Greenville, Pitt County;

7. B-3708, Bridge No. 66 on SR 1325/SR 1583 over Welch Creek, Washington/Martin Counties;

8. B-3711, Bridge No. 42 on NC 111 over the Neuse River Outflow, Wayne County;

9. B-3712, Bridge No. 88 over SR 1006, Falling Creek, Wayne County;

10. B-3809, Bridge No. 64 on NC 99 over Pungo Creek, Beaufort County;

11. B-3810, Bridge No. 272 on SR 1514 over Big Swamp, Beaufort County;

12. B-3871, Bridge No. 64 on SR 1001 over Dog Branch, Martin County;

13. B-3884, Bridge No. 40 on SR 1308 over Squires Run, Onslow County; and,

14. B-3887, Bridge No. 116 on SR 1520 over Shaken Creek, Pender County.

The following recommendations are provided to assist you in your planning process and to facilitate a thorough and timely review of the project.

Generally, the Service recommends that wetland impacts be avoided and minimized to the maximum extent practical as outlined in Section 404 (b)(1) of the Clean Water Act Amendments of 1977. In regard to avoidance and minimization of impacts, we recommend that proposed highway projects be aligned along or adjacent to existing roadways, utility corridors, or previously developed areas in order to minimize habitat fragmentation and encroachment. Areas exhibiting high biodiversity or ecological value important to the watershed and region should be avoided. Crossings of streams and associated wetland systems should use existing crossings and/or occur on a structure wherever feasible. Where bridging is not feasible, culvert structures that maintain natural water flows and hydraulic regimes without scouring, or impeding fish and wildlife passage, should be employed. Highway shoulder and median widths should be reduced through wetland areas. Roadway embankments and fill areas should be stabilized by using appropriate erosion control devices and techniques. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons.

The National Wetlands Inventory (NWI) maps of the Chinquapin, Grantham,Greenville SW, Grimesland, Merchants Mill Pond, Newport, Old Ford, Ransomville, Richlands, SE Goldsboro, Stag Park, Washington, Williamston, and Woodville 7.5 Minute Quadrangles show wetland resources in the specific work areas. However, while the NWI maps are useful for providing an overview of a given area, they should not be relied upon in lieu of a detailed wetland delineation by trained personnel using an acceptable wetland classification methodology. Therefore, 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. 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. Wetland boundaries should be determined by using the 1987 Corps of Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers (Corps).

2. If unavoidable wetland impacts are proposed, we recommend that every effort 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, preferably via conservation easement, should be explored at the outset.

The enclosed lists identify the federally-listed endangered and threatened species, and Federal Species of Concern (FSC) that are known to occur in Beaufort, Bertie, Carteret, Duplin, Gates, Martin, Onslow, Pender, Pitt, Washington, and Wayne Counties. The Service recommends that habitat requirements for the listed species be compared with the available habitats at the respective project sites. If suitable habitat is present within the action area of the project, biological surveys for the listed species should be performed. Environmental documentation that includes survey methodologies, results, and NCDOT's recommendations based on those results, should be provided to this office for review and comment.

FSC's are those plant and animal species for which the Service remains concerned, but further biological research and field study are needed to resolve the conservation status of these taxa. Although FSC's receive no statutory protection under the ESA, we would encourage the NCDOT to be alert to their potential presence, and to make every reasonable effort to conserve them if found. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

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 these comments, please contact Tom McCartney at 919-856-4520, ext. 32.

Sincerely,

Dr. Garland B. Pardue
Ecological Services Supervisor

Enclosures

cc:
COE, Washington, NC (Michael Bell)
COE, Wilmington, NC (David Timpy)
NCDWQ, Raleigh, NC (John Hennessey)
NCDNR, Northside, NC (David Cox)
FHWA, Raleigh, NC (Nicholas Graf)
EPA, Atlanta, GA (Ted Bisterfield)

FWS/R4:TMcCartney:TM:07/24/00:919/856-4520 extension 32:\14brdgs.var

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: Stacy Harris, PE
Project Engineer, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: June 8, 2001

SUBJECT: NCDOT Bridge Replacements in Duplin, Bertie, Carteret, Gates, Pitt, Wayne, Beaufort, Martin, Onslow, and Pender counties of North Carolina. TIP Nos. B-3449, B-3612, B-3626, B-3640, B-3684, B-3685, B-3711, B-3712, B-3809, B-3810, B-3871, B-3884, and B-3887.

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

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

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

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

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

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

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary

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

structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

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

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

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

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

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

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

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

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

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

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

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

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

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If multiple cells are required the second and/or third cells should be placed so that their

bottoms are at stream bankful stage (similar to Lyonsfield design). This could be accomplished by constructing a low sill on the upstream end of the other cells that will divert low flows to another cell. This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.

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

3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.

4. Riprap should not be placed on the stream bed.

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

Project specific comments:

1. B-3449 – Duplin County – Bridge No. 204 over Northeast Cape Fear River. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 1 to June 15 for areas where there is the potential for Shortnose sturgeon, an endangered species. We request that High Quality Sedimentation and Erosion Control Measures be used due to the presence of HQW waters.

2. B-3612 – Bertie County – Bridge No. 143 over a branch of Indian Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. NCDOT should be aware that NCWRC has designated NCWRC gamelands in the vicinity of this bridge. Impacts to gameland properties should be avoided.

3. B-3626 – Carteret County – Bridge No. 26 over a branch of the New Port River. Standard comments apply. We are not aware of any threatened of endangered species in the project vicinity.

4. B-3640 – Gates County – Bridge No. 16 over Merchant's Mill Pond. Standard comments apply. We are not aware of any threatened of endangered species in the project vicinity.

5. B-3684 Pitt County – Bridge No. 129 over Tar River. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

6. B-3685 – Pitt County – Bridge No. 30 over Green Mill Run. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

7. B-3711 – Wayne County – Bridge No. 42 over the Neuse River Overflow. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

8. B-3712 Wayne County – Bridge No 88 over Falling Creek. Standard comments apply. We are not aware of any threatened of endangered species in the project vicinity.

9. B-3809 - Beaufort County – Bridge No. 64 over Pungo Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

10. B-3810 – Beaufort County – Bridge No. 272 over Big Swamp. Standard comments apply. We are not aware of any threatened of endangered species in the project vicinity.

11. B-3871 – Martin County – Bridge No. 64 over Dog Branch. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

12. B-3884 Onslow County – Bridge No. 40 over Squires Run. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

13. B-3887 Pender County – Bridge No. 116 over Shaken Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

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

Spanning structures allow wildlife passage along streambanks, reducing habitat fragmentation and vehicle related mortality at highway crossings.

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

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Archives and History
Jeffrey J. Crow, Director

July 28, 2000

MEMORANDUM

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

From: David Brook RLG for David Brook
Deputy State Historic Preservation Officer

Re: B-3685, Pitt County, Replace Bridge No. 30 on SR 1703 over Green Mill Run in Greenville, ER 01-7089

Thank you for your memorandum of July 3, 2000, concerning the above project.

We have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance which would be affected by the project. Therefore, we have no comment on the project as currently proposed.

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

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

cc: B. Church, NC DOT
T. Padgett, NC DOT

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

Federal Aid #BRSTP-1703(1) *TIP* #B-3685 *County*: Pitt

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

Project Description: Replace Bridge No. 30 on SR 1703 over Green Mill Run in Greenville

On September 21, 2000, representatives of the

- [X] North Carolina Department of Transportation (NCDOT)
- [ ] Federal Highway Administration (FHWA)
- [X] North Carolina State Historic Preservation Office (SHPO)

Reviewed the subject project at

- [ ] a scoping meeting
- [X] photograph review session/consultation
- [ ] other

All parties present agreed

- [X] there are no properties over fifty years old within the project's area of potential effect.
- [X] there are no properties less than fifty years old which are considered to meet Criterion Consideration G within the project's area of potential effect.
- [ ] there are properties over fifty years old (list attached) within the project's area of potential effect, but based on the historical information available and the photographs of each property, properties identified as _____ are considered not eligible for the National Register and no further evaluation of them is necessary.
- [X] there are no National Register-listed properties located within the project's area of potential effect.

Signed:

Mary Pope Furr — 9.21.2000
Representative, NCDOT — Date

Michael S. Dawson — 10/2/00
FHWA, for the Division Administrator, or other Federal Agency — Date

Gail Montgomery — 9/21/00
Representative, SHPO — Date

David Brook — 10/27/00
State Historic Preservation Officer — Date

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

State of North Carolina
Department of Environment
and Natural Resources
Division of Marine Fisheries

James B. Hunt, Jr., Governor
Bill Holman, Secretary
Preston P. Pate, Jr., Director

NCDENR
North Carolina Department of Environment and Natural Resources

MEMORANDUM:

TO: William D. Gilmore, NCDOT Manager Project Development and Environmental Branch

FROM: Sara E. Winslow, Biologist Supervisor

SUBJECT: Bridge Replacement Projects – TIP 2000-2006

DATE: July 13, 2000

The North Carolina Division of Marine Fisheries has reviewed the information provided relative to upcoming bridge replacement projects and submits the following comments. All of the bridges to be replaced cross documented anadromous spawning areas. These bridges are:

B-3612	Bertie County – Replace No. 143
B-3640	Gates County – Replace No. 16
B-3684	Pitt County – Replace No. 129
B-3685	Pitt County – Replace No. 30
B-3708	Washington/Martin Counties – Replace No. 66
B-3871	Martin County – Replace No. 64

The Division assumes all of the replacements will be with another bridge.

Since all of these areas are spawning areas for anadromous fish, the Division requests an in-water work moratorium. This would include removal and new construction. The requested moratorium timeframe is February 15 through June 30. This will ensure the environmental integrity is protected during critical times of usage by these species.

The Division also expresses concern relative to wetland impacts associated with removal and construction. The importance of wetlands as spawning and nursery areas, providing food directly and indirectly for aquatic resources and being vital to water quality in the receiving waters has been well documented.

This agency appreciates the opportunity to comment on the proposal. If you have any questions relative to the Divisions comments please contact me at (252) 264-3911.

P.O. Box 769, Morehead City, North Carolina 28557-0769 Telephone 252-726-7021 FAX 252-726-0254
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Pitt County Schools

Department of Transportation
901 Mail Drive
Greenville, North Carolina 27834

Office: (919) 756-1424
Fax: (919) 756-0243

July 12, 2000

William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27601

Dear Mr. Gilmore:

I am responding to your letter dated July 3, 2000 concerning the number of buses crossing Bridge No. 129 and Bridge No. 30 in Pitt County. Bridge No. 129 on SR 1565 over the Tar River has no buses crossing at this time due to the weight limit on the bridge. Bridge No. 30 on SR 1703 over Green Mill Run in Greenville has 13 buses crossing this bridge twice a day.

If you need additional information, please give us a call at (252) 756-1424.

Sincerely,

Debbie Lewis

Debbie Lewis, TIMS Coordinator

P.O. Box 7207

CITY OF GREENVILLE

NORTH CAROLINA

27835-7207

PUBLIC WORKS DEPARTMENT

July 21, 2000

Mr. William D. Gilmore, PE, Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
P.O. 25201
Raleigh, NC 27611

Dear Mr. Gilmore:

Re: B-3685, Replace 14th Street (SR 1703) Bridge over Green Mill Run

In response to your July 3, 2000 letter, the City of Greenville offers the following:

1. The vertical profile of 14th St. has a low point west of the bridge over Green Mill Run (see the attached copy of the topographic map). This low point floods frequently during the course of the year due to the rising waters of Green Mill Run. It is requested that the vertical alignment of 14th Street be reviewed in conjunction with the opening area of the structure to replace Bridge No. 30. Every effort to reduce the frequency of flooding atop 14th Street needs to be made. Traffic volumes on this road are 15,000 AADT (1998). It is not unusual that this traffic has to be rerouted due to flooding.

2. The City of Greenville Greenway Master Plan and draft Greenville Bicycle Plan call for a Greenway to cross 14th Street in the vicinity of Green Mill Run and a bike route along 14th Street (see attached plan map). Virtually all of ECU student housing is located on or near 14th Street just east of this bridge. Bicycle access along 14th Street from campus housing to retail development to the west of the bridge is crucial to maintaining pedestrian/bicycle travel. Funds to construct Phase II of the Green Mill Run Greenway in this vicinity has already been appropriated by NCDOT. In order to allow the anticipated bicycle and pedestrian traffic, this bridge and street section needs to allow an appropriate width for bike lanes and provision for crossing for the Greenway.

3. A sidewalk along the north side of 14th Street currently exists. The new cross section of 14th Street should certainly accommodate the existing sidewalk and take into consideration a sidewalk along the south side of 14th Street.

4. As we write this response, the City and Division 2 are in the middle of negotiations with a developer of a new retail center just west of the Green Mill Run on 14th Street. Street improvements being required of this developer must be considered in determining the ultimate replacement of Bridge No. 30. The City of Greenville Thoroughfare Plan calls for a five-lane curb and gutter street as the ultimate thoroughfare plan cross section on both sides of the bridge.

We thank you again for the opportunity to discuss this project. If you have any questions, do not hesitate to call me at 252-329-4520 or Ron Svejkovsky at 252-329-4476.

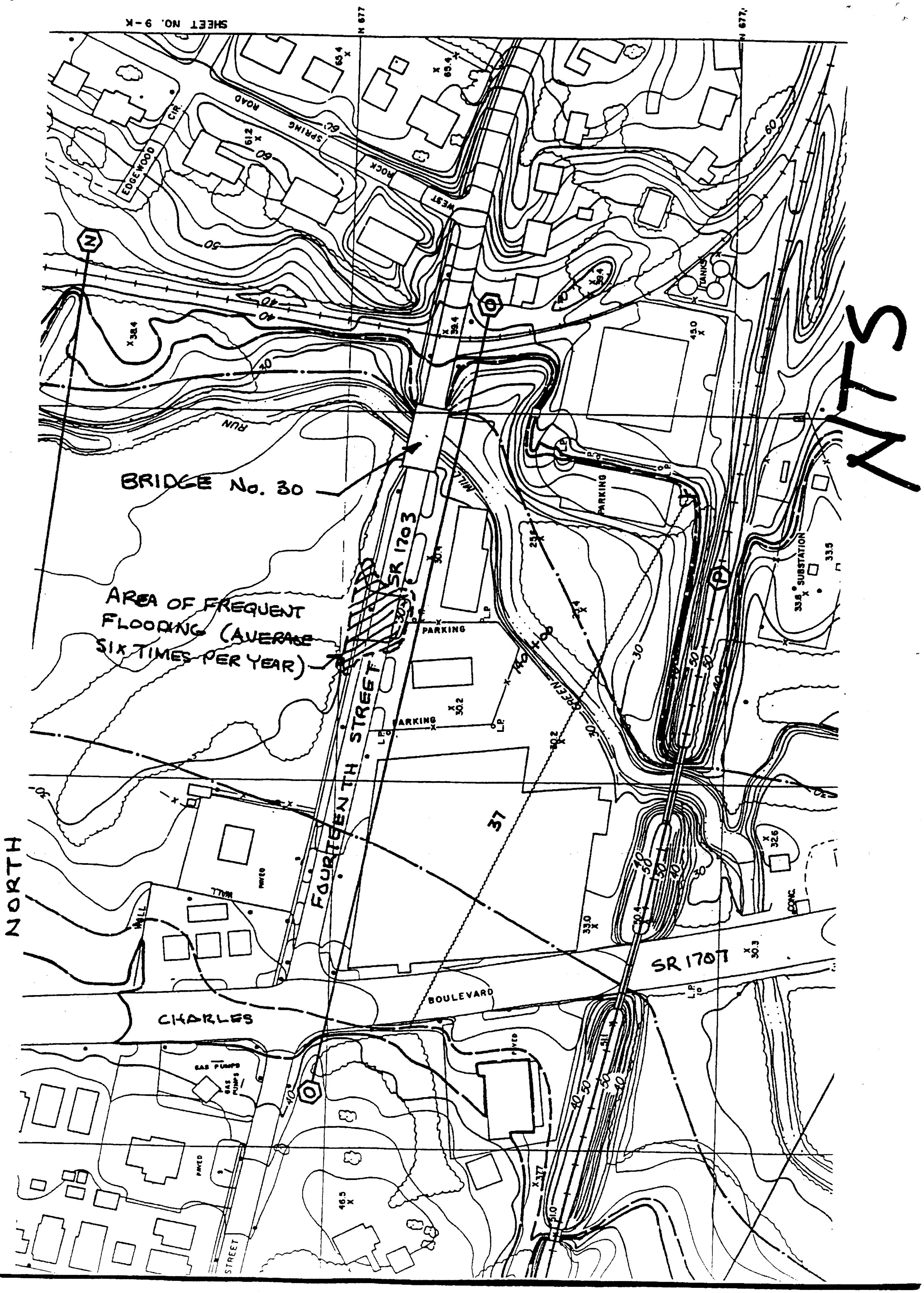
Sincerely,

T. N. Tysinger, PE
Director of Public Works

Attachments

Pc: James H. Jatko, City Engineer
W. Brad Kerr, City Engineering
Steve Yetman, Traffic Engineer
Ronald Svejkovsky, Transportation Planner
Ms. Stacy Harris, Project Development and Environmental Branch, NCDOT ✓

#82676 v1 - Letter to William Gilmore re 14th St bridge project


SHEET NO. 9-K
EDGEWOOD CIR.
WEST ROCK SPRING ROAD
TANKS
RUN
MILL
BRIDGE No. 30
SR 1703
AREA OF FREQUENT FLOODING (AVERAGE SIX TIMES PER YEAR)
PARKING
PARKING
PARKING
SUBSTATION
NTS
FOURTEENTH STREET
NORTH
CHARLES
BOULEVARD
SR 1707
GAS PUMPS
PAVED
STREET

P.O. Box 7207

CITY OF GREENVILLE

NORTH CAROLINA

27835-7207

PUBLIC WORKS DEPARTMENT

February 5, 2002

Ms. Stacy B. Harris, PE
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Re: Comments for B-3685, Replacement of Bridge No. 30 Over Green Mill Run on 14th Street

Dear Ms. Harris:

We expressed many of our concerns at the Citizens' Informational Workshop held January 28, 2002, at C. M. Eppes Middle School in Greenville, N.C. To reiterate concerns expressed early on, enclosed is a copy of a July 21, 2000 letter from me to Mr. William Gillmore in which we address several issues. We feel these concerns were and are still legitimate. In addition to the July 21 letter, we have the following comments:

1. Flooding of the section of 14th Street at Station 14+50 occurs on average six times per year. With the volume of traffic that currently uses this road, minimizing the frequency of flooding as part of this project is imperative. The property adjacent to and upstream of the roadway is approximately 18" higher than the roadway. It appears that the roadway could be raised 6" - 18" without affecting the surrounding properties in a negative manner. In addition, the drainage system within 14th Street at this location is poorly designed and with minor revisions could result in significant improvements in the flooding circumstances. We are requesting that a detailed study be completed in conjunction with this project to review the impact of elevating the roadway centerline and modifying the roadway drainage system. Improvements should be made to minimize the flooding in this area as part of the bridge replacement project.

2. Although the City is not opposing the closing of 14th Street for a 9 month period, we wanted to ensure that you had considered the following:

   a. Students attending classes at East Carolina University use this roadway due to the student housing located on the western side of the bridge. Additionally, employees of East Carolina University park their vehicles and walk to the power plant across the existing bridge to work on a daily basis. If the pedestrian count is high enough, a temporary pedestrian bridge may be a warranted.

   b. Dowdy-Ficklen Stadium traffic uses this section of 14th Street during events at the stadium. The capacity of the stadium is 47,700.

   c. Fire, rescue, and police personnel have indicated that they can adapt, but that an extended road closure will be inconvenient.

d. We would also encourage utilizing construction methods that would limit the length of time that 14th Street is closed to traffic. If an incentive can be offered to the contractor for early completion, this would benefit those that use this roadway.

e. Consider routing detour traffic through Elm Street and 10th Street (map enclosed).

3. Our greenway will cross this bridge. The bridge should be widened to accommodate bike lanes versus a "share the road" approach. At a minimum, this would require a 12' travel lane and a 4' bike lane in each direction that could be striped when the greenway is constructed. Funding has been reserved by NCDOT for this project.

4. Maintain sufficient width across the bridge to allow for sidewalks on each side. Handrails should be installed with the initial bridge construction project for the protection of pedestrians that cross this bridge.

5. This section of 14th Street is proposed to be a 5-lane road as part of our thoroughfare plan. The bridge should be constructed in such a manner that the proposed bridge can be widened when necessary without disrupting traffic on 14th Street.

6. The City received information concerning the workshop approximately 1 week in advance. Please provide more lead-time, preferably 4 weeks, prior to any future public meetings on this or other projects in the Greenville area. We would be delighted to assist in selecting meeting sites if you need assistance.

7. Coordinate intersection improvements at Charles Blvd. and 14th Street with local Division Office (see attached schematic). Improvements at this intersection would help facilitate traffic flow during peak periods.

We thank you for the opportunity to comment on this project. If you have questions, please call on me at 252-329-4520 or Scott Stevens at 252-329-4525.

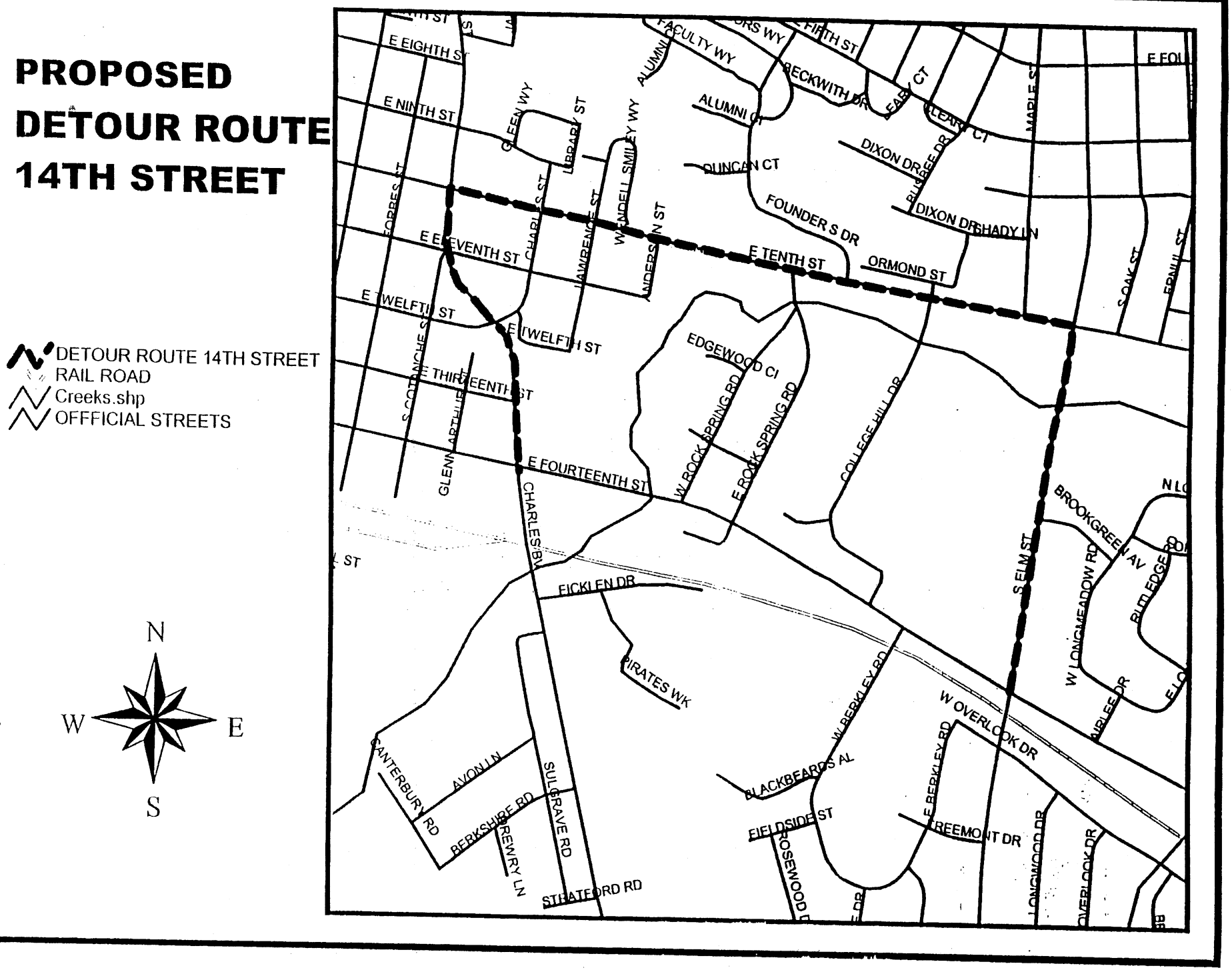
Sincerely,

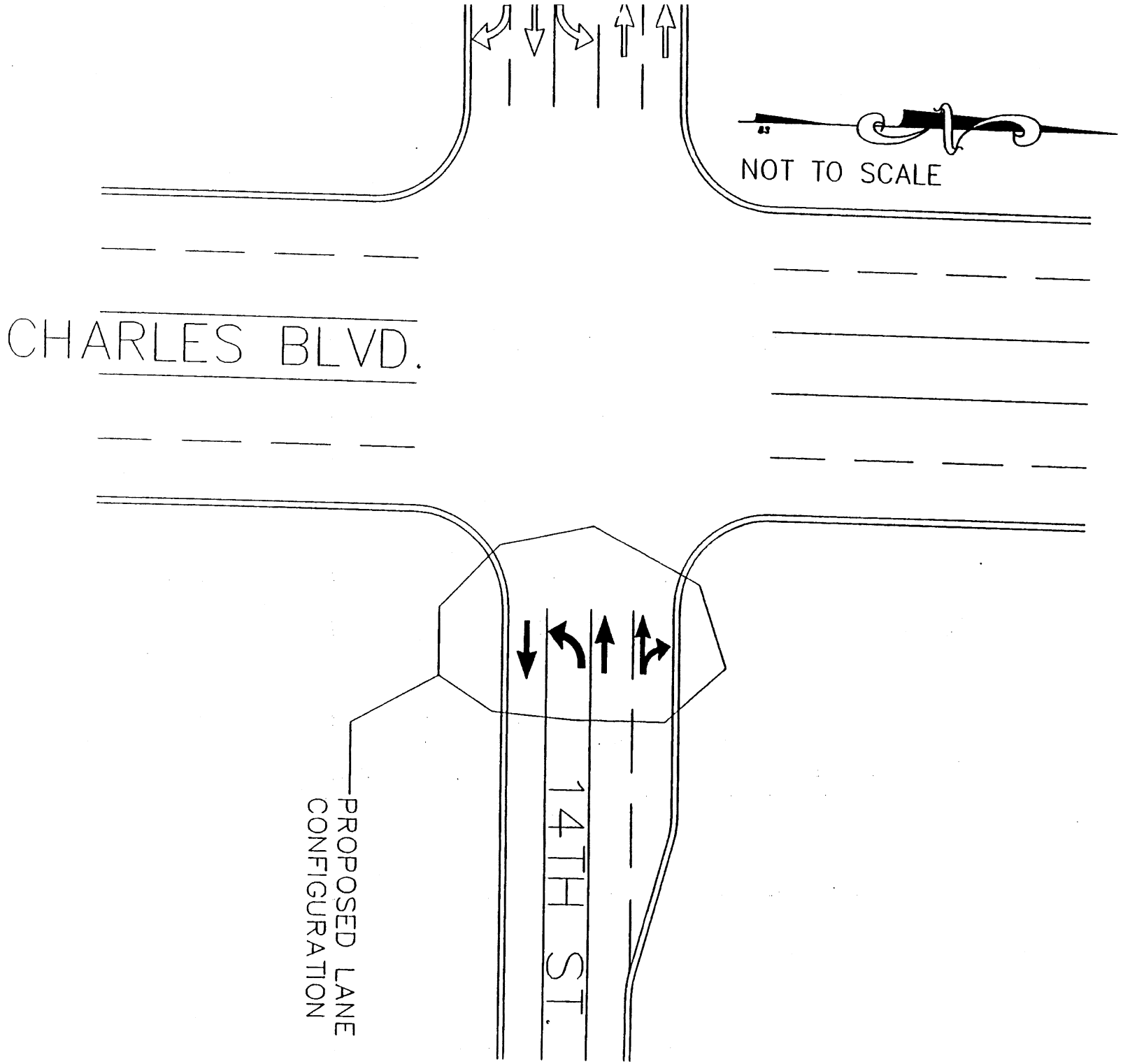
T. N. Tysinger, Jr., PE
Director of Public Works

Attachments

Pc: C.E. Lassiter, PE, NCDOT Division Engineer
Marvin, Davis, City Manager
Scott Stevens, PE, City Engineer
William B. Kerr, PE, Engineer III
Stephen J. Yetman, PE, Traffic Engineer

PROPOSED DETOUR ROUTE 14TH STREET




NOT TO SCALE
CHARLES BLVD.
14TH ST.
PROPOSED LANE CONFIGURATION


Optional Trail Alignments
10TH ST.
FOURTEENTH STREET
CHARLES BOULEVARD
PHASE 1
END
GREEN MILL RUN
BIKEWAY, PHASE 1
EXST. BIKE
PATH
PROPOSED
BIKE PATH
TODD DINING HALL
COLLEGE HILL DR.
AVON LANE
STRATFORD
BERKSHIRE ROAD
STRATFORD ROAD
STRATFORD ARMS APTS.
FOOTBALL
TENNIS
MINGES COLISEUM
E.C.U.
CAMPUS
ELMHURST
ELEMENTARY
SCHOOL
FOLDSIDE ST
RAILS
ALK
RAILS
NTS