STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 23, 2004

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

ATTENTION: Mr. Bill Biddlecome
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 23 Permit and Riparian Buffer Application** for the Replacement of Bridge No. 52 over an unnamed canal and Bridge No. 54 over Kitty Creek on US 264, Hyde County. Federal Aid Project No. BRSTP-264(9), State Project No. 8.1080601, TIP Project No. B-3348.

Please find enclosed three copies of the project planning report for the above-mentioned project. Bridge No. 52 over an unnamed canal and Bridge No. 54 over Kitty Creek (DEM Index # 29-70-3, Class SC HQW) on US 264 in Hyde County will be replaced with new bridges approximately 17 feet southeast of the existing bridges. The proposed structures for Bridge Nos. 52 and 54 will provide a 22-foot travel-way with seven-foot shoulders for a total clear structure width of 36 feet. The bridge approach will have a 22-foot travel-ways with six-foot shoulders of which four feet would be paved for bicyclists. The design speed will be 55 mph. The preferred alternative involves staged, simultaneous construction. This will allow one-lane, two-way traffic during construction.

The slight shift to the southeast will allow the proper approach width and construction area necessary to utilize staged construction and maintain traffic without a temporary on-site detour. As a result of the shift, there will be 0.2 acres of permanent impacts to wetlands, 0.48 acres of fill in surface water and 0.06 acres of roadway undercut outside the slopestakes.

The project is located in a CAMA jurisdictional AEC and a CAMA Major application is being submitted under separate cover.

Bridge Demolition

Bridge Demolition: Bridges Nos. 52 and 54 are two lane structures with reinforced concrete caps on timber piles supporting a reinforced concrete deck on timber joists. Bridge No. 52 is 34 feet long with a 26.1-foot clear roadway width. Bridge No. 54 is 53 feet long with a 26.1-foot clear roadway width. Due to the structural components of the bridges, there is the possibility of 41.6

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

cubic yards for Bridge No. 52 and 56.8 cubic yards being dropped into the "Waters of the United States". All measures will be taken to avoid any temporary fill from entering Waters of the U.S. Best Management Practices for Bridge Demolition and Removal will be implemented.

As noted in the project's CE document, NCDOT will observe an in-stream construction moratorium from March 1 to September 30.

Avoidance and Minimization

Due to the location of this project and the juxtaposition of adjacent wetlands and surface waters, total avoidance of the surrounding marsh and surface water is not possible. NCDOT has taken steps to minimize the impacts to this resource.

Bridges No. 52 and 54 are on a primary U. S. Route. Therefore, traffic flow must be maintained throughout construction. Road closure during construction is unfeasible due to the lack of a suitable off-site detour. A temporary on-site detour that would have affected a brackish marsh complex was rejected in favor of staged construction. Staged construction will allow one lane to remain open to traffic during construction while minimizing necessary encroachment into the surrounding wetlands and surface waters.

Bridge No. 54 has been lengthened from 85 feet to 180 feet, allowing approximately 95 feet of former causeway to be restored to wetland elevation. Additionally, the abandoned causeway (from the 17-foot shift) will be restored to wetland elevation and replanted with native brackish marsh plants.

Minimum width for the approaches and structure has been utilized.

Summary of Impacts

Wetlands: The total amount of wetland impacted is 0.26 acres.

Surface Waters: The amount of fill in surface waters is 0.46 acres and fill in a pond is 0.02 acres.

Buffer Impacts: The amount of impacts to Zone 1 is 1675 sq. ft. and the amount of impacts to Zone 2 is 1000 sq. ft.

Mitigation: Due to the amount of wetland created by the 17-foot shift, NCDOT is not requesting the EEP to provide mitigation. The shift in alignment to the southeast will allow 0.64 acres of previously filled wetlands to be restored. The net gain in wetlands for this project is 0.44 acres.

Protected Species

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to co-exist with human activities. Federal law (under the provisions of the Endangered Species Act (ESA) of 1973, as amended) requires that any action likely to adversely affect a species classified as federally protected be subject to review by the United States Fish and Wildlife Service (USFWS). Other species may receive additional protection under separate state laws. Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of ESA §§7 and 9, as amended.

As of January 29, 2003, the US Fish and Wildlife Service (USFWS) lists 13 federally protected species for Hyde County. Table 1 depicts these species. The biological conclusion of **No Effect** remains valid.

Table 1. Federally Protected Species in Hyde County.

Common Name	Scientific Name	Status	Bio. Conclusion
Leatherback sea turtle	*Dermochelys coriacea*	E	No Effect
Hawksbill sea turtle	*Eretomochelys imbricata*	E	No Effect
Kemp's Ridley sea turtle	*Lepidochelys kempii*	E	No Effect
Red-cockaded woodpecker	*Picoides borealis*	E	No Effect
Manatee	*Trichecus manatus*	E	No Effect
Sensitive joint-vetch	*Aeschynomene virginica*	T	No Effect
Seabeach amaranth	*Amaranthus pumilus*	T	No Effect
Loggerhead sea turtle	*Caretta caretta*	T	No Effect
Piping plover	*Charadrius melodus*	T	No Effect
Green sea turtle	*Chelonia mydas*	T	No Effect
Bald Eagle	*Haliaeetus leucocephalus*	T	No Effect
American alligator	*Alligator mississippiensis*	T	No Effect
Red wolf	*Canis rufus*	EXP	N/A

Tar-Pamlico River Basin Buffer Rules

As previously noted, this project is located in the Tar-Pamlico River Basin (sub-basin 03-03-08, HUC 03020105); therefore, the regulations pertaining to the buffer rules apply. Buffer impacts associated with this project total 1675.0 sq. ft (0.46 ac.) for Zone 1 and 1000.0 sq. ft (0.23 ac.) for Zone 2. All practicable measures to minimize impacts within buffer zones were followed. According to the buffer rules, bridges are allowable. Uses designated as allowable may proceed within the riparian buffer provided that there are no practicable 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.

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 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.

Riparian Buffer Authorizaton: NCDOT requests written authorization for a Buffer Certification from the Division of Water Quality.

A CAMA Major application is being submitted under separate cover to the Division of Coastal Management.

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

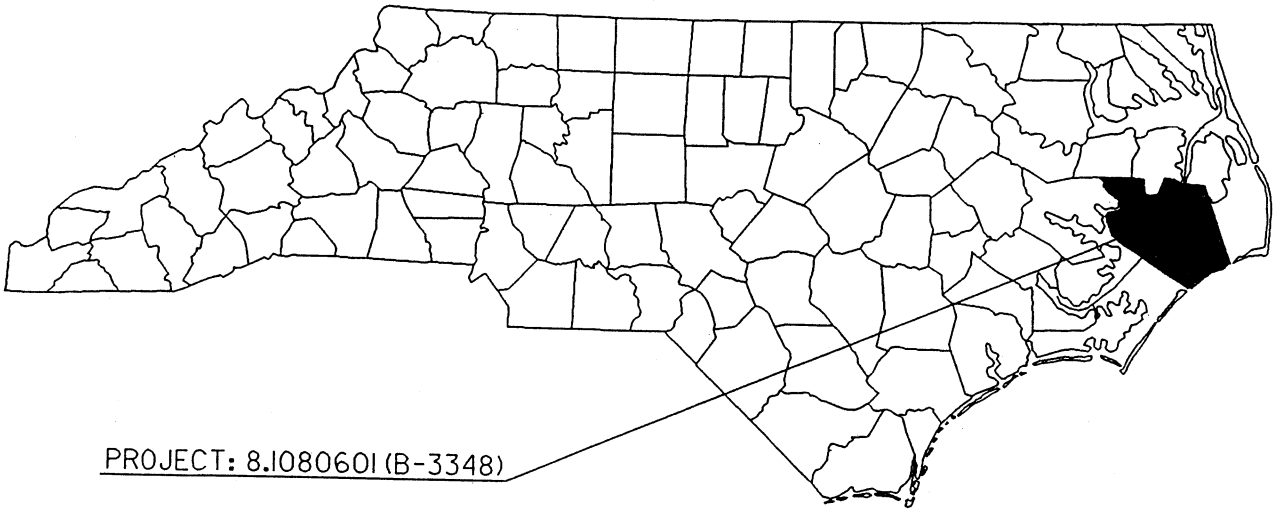
If you have any questions or need additional information, please contact Chris Underwood at (919) 715-1451.

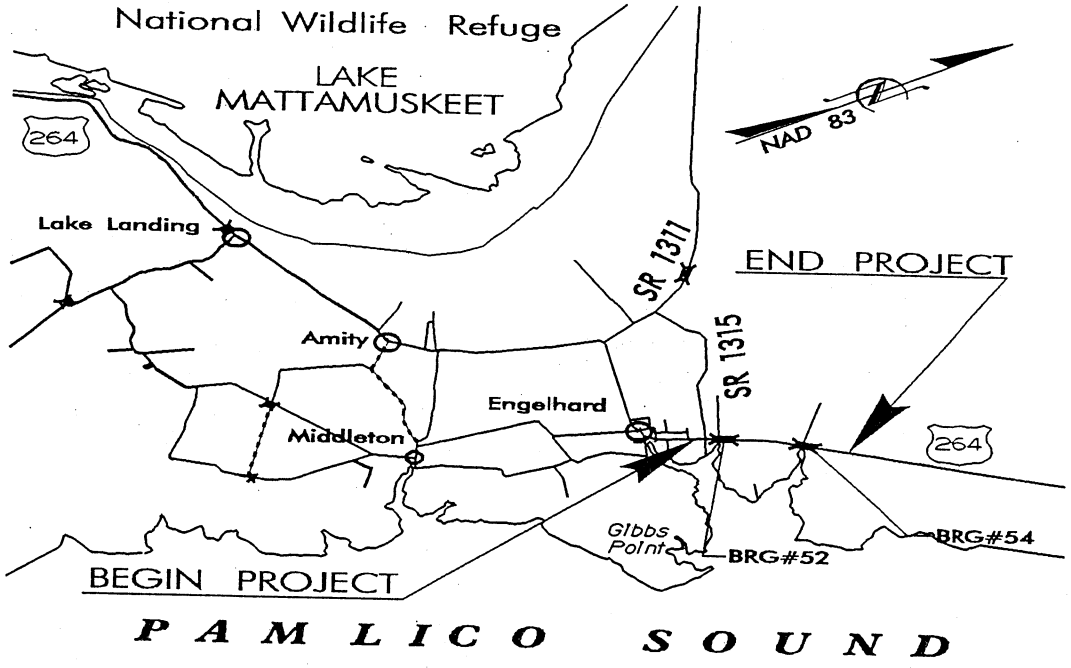
Sincerely,

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

w/ attachment:

Mr. John Hennessy, DWQ Raleigh
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Ms. 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. John Sullivan, FHWA
Mr. D.R. Conner, P.E., Division Engineer
Mr. Clay Willis, DEO
Mr. David Franklin, USACE, Wilmington
Ms. Stacy Baldwin, P.E., Project Planning Engineer
Ms. Cathy Brittingham, DCM
Ms. Lynn Mathis, DCM, Elizabeth City





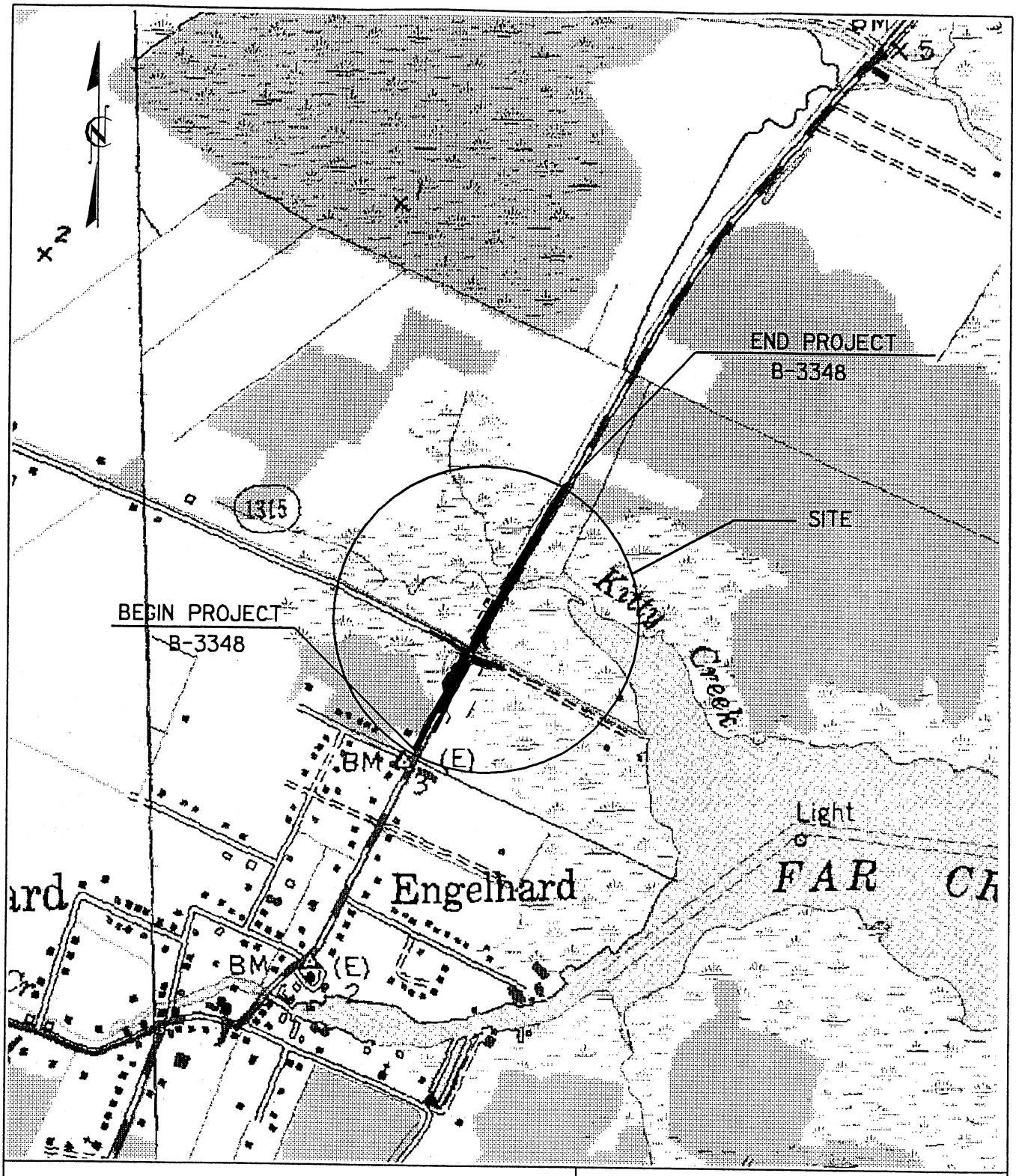
VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
HYDE COUNTY
PROJECT: 8.1080601 (B-3348)

REPLACE BRG#52, BRG#54 OVER WALLACE CANAL AND KITTY CREEK ON US 264

SHEET 1 OF 7 09/03/03



LOCATION MAP

NCDOT

DIVISION OF HIGHWAYS
HYDE COUNTY

PROJECT: 8.1080601 (B-3348)

REPLACE BRG#52, BRG#54 OVER
WALLACE CANAL AND KITTY CREEK
ON US 264

SHEET 2 OF 7

09/03/03

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

(DASHED LINES DENOTE EXISTNG STRUCTURES)

12"-48" PIPES

54" PIPES & ABOVE

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

NCDOT

DIVISION OF HIGHWAYS

HYDE COUNTY

PROJECT: 8.1080601 (B-3348)

REPLACE BRG#52, BRG#54 OVER WALLACE CANAL AND KITTY CREEK ON US 264

SHEET 3 OF 7 **09/03/03**

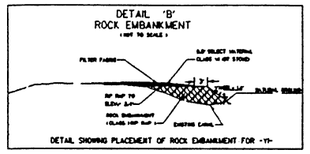
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
B-3348	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

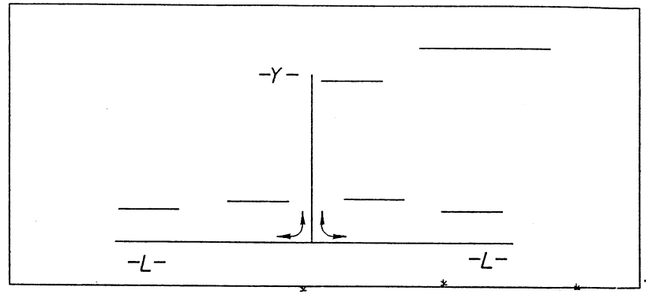
R/W REVISION 9/03/03 JCL
INCREASED TEMP.CONST.EASEMENT
ON PARCEL 1

DETAIL 'B'
ROCK EMBANKMENT
(NOT TO SCALE)



DETAIL SHOWING PLACEMENT OF ROCK EMBANKMENT FOR -Y1-

FROM STA. 10+50-Y1- TO 12+00-Y1- RT.



-DR-

PI Sta 11+08.84
Δ = 87° 21' 28.8" (LT)
D = 114° 35' 29.6"
L = 76.23'
T = 47.75'
R = 50.00'
SE = NC

PI Sta 10+43.99
Δ = 88° 05' 28.0" (RT)
D = 190° 59' 09.4"
L = 46.12'
T = 29.02'
R = 30.00'
SE = NC

-L-

PI Sta 12+95.86
Δ = 5° 07' 21.1" (RT)
D = 1° 08' 45.3"
L = 447.03'
T = 223.66'
R = 5,000.00'
SE = 0.03
RO = 78°

PI Sta 16+37.71
Δ = 1° 21' 27.5" (LT)
D = 0° 34' 22.6"
L = 236.95'
T = 118.48'
R = 10,000.00'
SE = NC

-Y-

PI Sta 11+23.53
Δ = 13° 55' 09.1" (LT)
D = 8° 00' 07.9"
L = 173.94'
T = 87.40'
R = 716.00'
SE = NC

POT Sta. 13+18.54 -Y-

NATHAN PAUL GIBBS ②

C. GILBERT GIBBS ⑤

PT Sta. 12+10.07 -Y-
End Construction

POT Sta. 10+00.00 -Y1-
POT Sta. 17+63.63 -L-

PRC Sta. 15+19.23 -L-

PC Sta. 10+36.13 -Y-

PT Sta. 17+56.18 -L-

POT Sta. 10+00.00 -DR- =
POT Sta. 19+50.13 -L-

BEGIN STATE PROJECT No.B-3348
-L- POT Sta. 10+00.00

N 26° 01' 43.4" E

+00.00 -L- Exist. R/W

+00.00 -L- Exist. R/W, 40.00'

+50.00 -L- Exist. R/W, 40.00'

TO ENGELHARD

US 264 28' BST

+00.00 -L- Exist. R/W

+72.20 -L- Exist. R/W

+00.00 -L- Exist R/W, 65.00'

PC Sta. 10+72.20 -L-

BM-9 R/R SPIKE IN 18" PINE
ELEV. = 4.43'
99.9' RT OF -BL- 4+82.7

+19.23 -L- 65.00'

POT Sta. 10+00.00 -Y- =
POT Sta. 17+57.69 -L-

PC Sta. 10+14.97 -DR-

PRC Sta. 10+61.09 -DR-

PT Sta. 11+37.33 -DR-
End Construction
-DR- Sta. 11+40.00

+56.18 -L- 65.00'

+60.00 -L- 65.00', 90.00'

+20.00 -L- 30.00'

+90.00 -L- 45.00'

+00.00 -L- 90.00', 110.00'

④ DORTHEA LONG QUINN

POT Sta. 11+50.00 -DR-

PCSta. 11+07.58 -Y1-

PI Sta 11+83.65
Δ = 8° 41' 59.2" (RT)
D = 5° 43' 46.5"
L = 151.84'
T = 76.07'
R = 1,000.00'
SE = NC

GEORGE AUBREY LONG

+00.00 -Y1- 30.00'

PTSta. 12+59.42
END GRADING

+65.00 -Y1- 30.00'

EASEMENT TO:
STATE OF NORTH CAROLINA
(NC WILDLIFE RESOURCES COMMISSION)

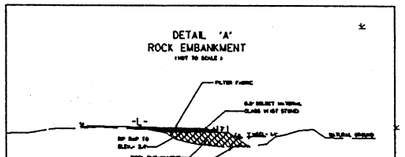
③

BM-10 BRIDGE NAIL IN 18" PINE
ELEV. = 3.69'
320.8' RT OF -BL- 11+64.9

End Construction
POTSta. 15+60.00 -Y1-

+60.00 -Y1- 25.00'

DETAIL 'A'
ROCK EMBANKMENT
(NOT TO SCALE)



DETAIL SHOWING PLACEMENT OF ROCK EMBANKMENT FOR -L-

FROM STA. 13+00-L- TO STA. 17+25-L- RT.

① C. GILBERT GIBBS

50 0 25 50
SCALE: 1" = 60' HORIZ.

NC GRID NAD 83

DENOTES FILL IN SURFACE WATER (POND)

DENOTES FILL IN WETLAND

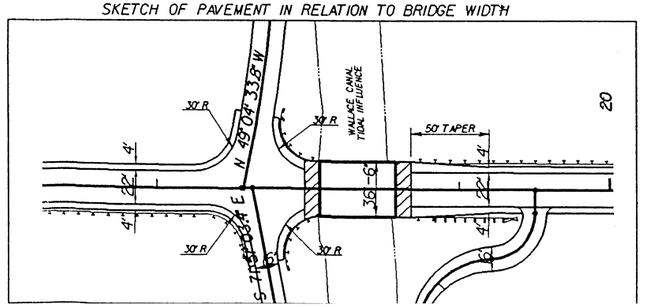
DENOTES FILL IN SURFACE WATER

CREATED WETLANDS

PROPERTY OWNERS

③ KENNETH W. PHIPPS

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH



GRADING FOR PROP. WETLAND

PAVEMENT REMOVAL

BRIDGE APPROACH SLAB

MATCH L SHEET 5

8:17:49

2003 14:43
P:\pulic\Eddi\B3348_HYD_DRN.dgn

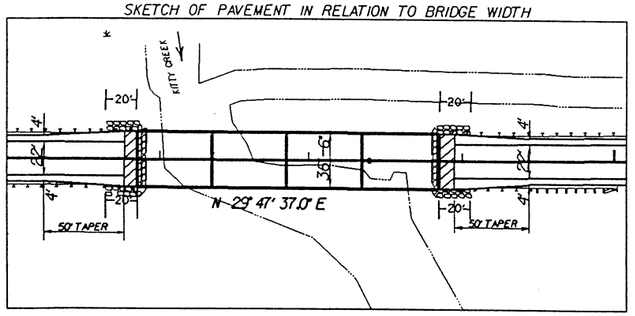
R/W REVISION 5/16/03 JCL
EXPANDED TEMP.CONST.EASEMENT
ON PARCEL 4 AND 7 RT.OF -L-

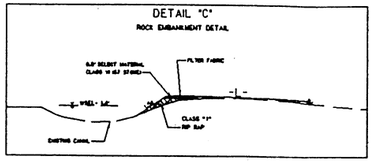
PROJECT REFERENCE NO.	SHEET NO.
B-3348	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE: SEE SHEET No.6 FOR -L- PROFILE
NOTE: SEE S- THRU S- FOR STRUCTURE PLANS

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH



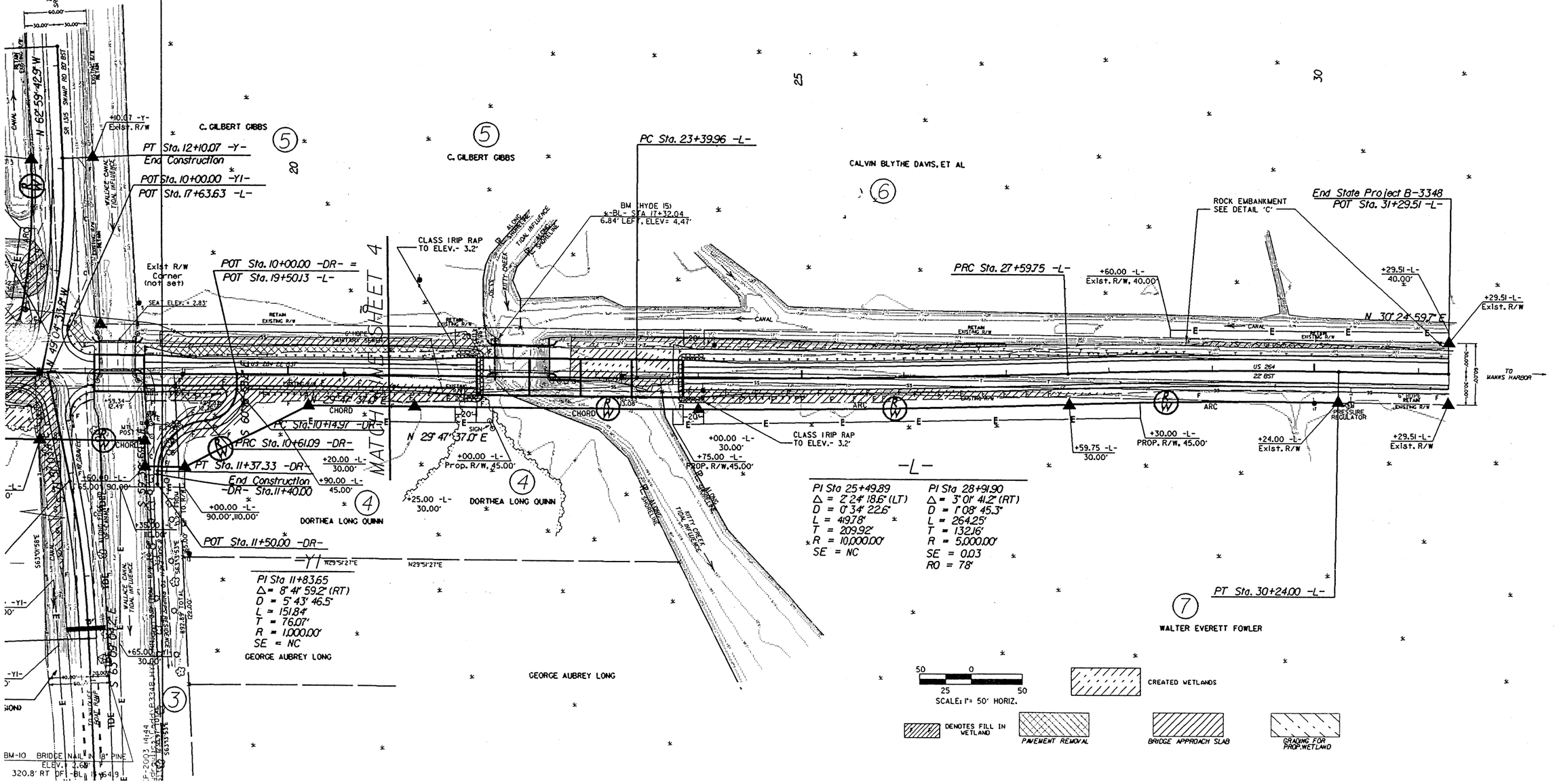


FROM STA. 29+25-L- TO 31+25-L- LT.
FROM STA. 10+70 -Y- TO 11+30 -Y- LT.

ENGLISH

ENGLISH

NC GRID NAD 83



-L-

PI Sta 25+49.89	PI Sta 28+91.90
Δ = 2° 24' 18.6" (LT)	Δ = 3° 01' 41.2" (RT)
D = 0° 34' 22.6"	D = 1° 08' 45.3"
L = 419.78'	L = 264.25'
T = 209.92'	T = 132.16'
R = 10,000.00'	R = 5,000.00'
SE = NC	SE = 0.03
	RO = 78'

PI Sta 11+83.65
Δ = 8° 41' 59.2" (RT)
D = 5° 43' 46.5"
L = 151.84'
T = 76.07'
R = 1,000.00'
SE = NC

SCALE: 1" = 50' HORIZ.

CREATED WETLANDS
DENOTES FILL IN WETLAND
PAVEMENT REMOVAL
BRIDGE APPROACH SLAB
GRADING FOR PROP. WETLAND

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	50' Bridge	21+50-24+20-L-	X		625.0	1000.0	1625.0			0.0		
		29+00-31+00-L-		X	1050.0		1050.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
TOTAL:					1675.0	1000.0	2675.0	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HYDE COUNTY
PROJECT: 8.1080601 (B-3348)

9/10/03
SHEET 6 OF 7

Site No.	Station (From/To) (-L-)	Structure Size / Type	Roadway Undercut (ac)	Berm Restoration (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Total) (ac)	Fill In SW (Pond) (ac)	Fill In Wetland (ac)	Created Wetland (ac)	
1	11+50 - 31+00		0.06		0	0	0.46				
	11+80- 17+70			0.25							
	11+00 -Y- LT.							0.02			
	18+80- 21+85								0.2		
	11+50- 31+00									0.64	
TOTALS:			0.06	0.25	0	0	0.46	0.02	0.2	0.64	0

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HYDE COUNTY

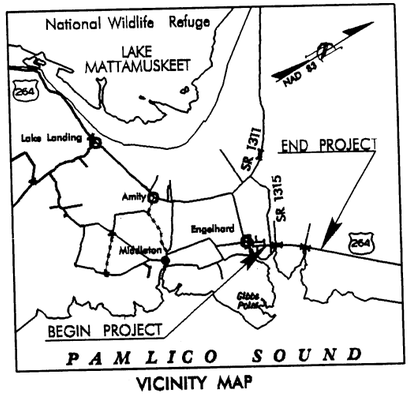
PROJECT: 8.1080601 (B-3348)

SHEET 7 OF 7 (02/09/04)

09/08/99

CONTRACT: TIP PROJECT: B-3348

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HYDE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3348	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
32594.1.1	BRSTP-264 (9)	P.E.
32594.2.1	BRSTP-264 (9)	R/W, UTIL.
32594.3.1	BRSTP-264 (26)	CONSTRUCTION

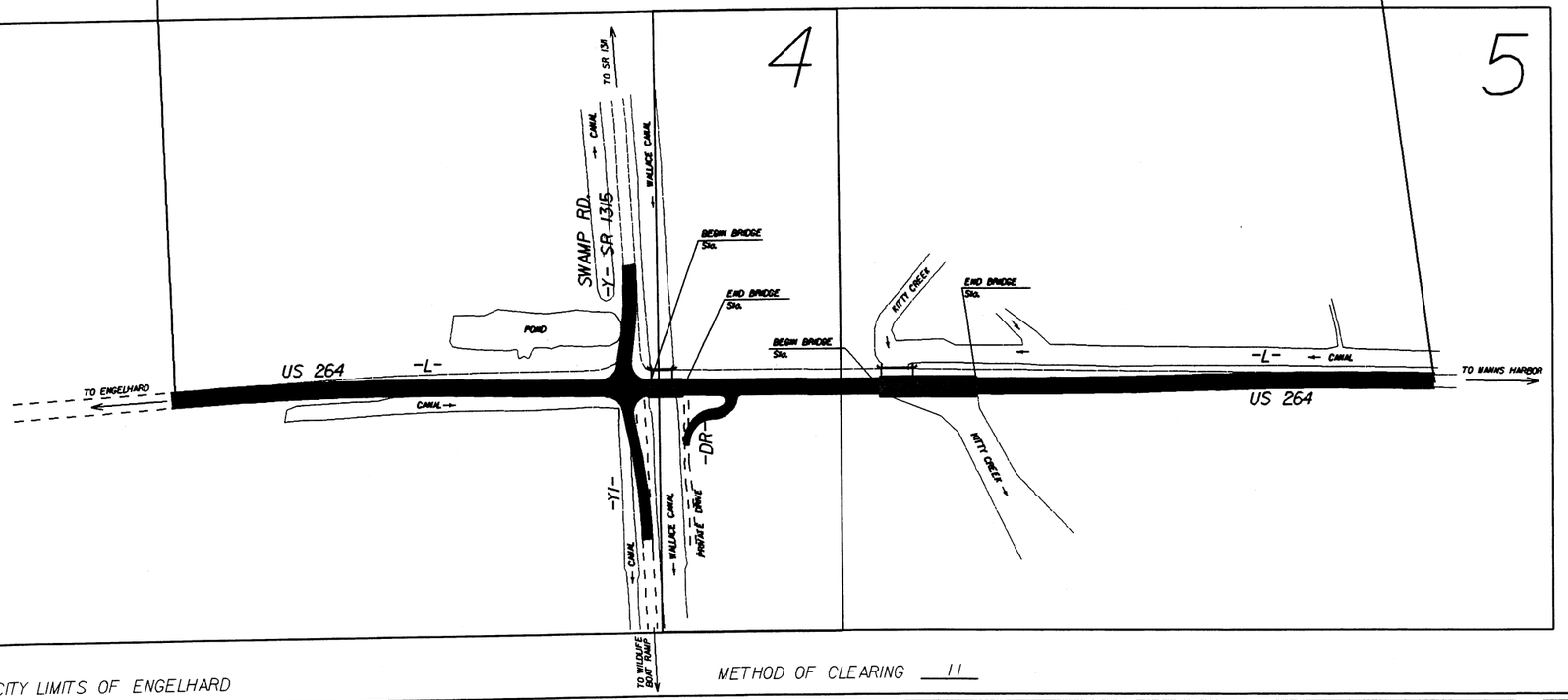
LOCATION: BRIDGE No. 52 OVER WALLACE CANAL AND BRIDGE No. 54 OVER KITTY CREEK ON US 264 EAST OF ENGELHARD

TYPE OF WORK: GRADING, PAVING, DRAINAGE, GUARDRAIL, STRUCTURES, TEMPORARY SIGNALS

NAD 83

BEGIN TIP PROJECT B-3348
-L- POT Sta. 10+00

END TIP PROJECT B-3348
-L- POT Sta. 31+29.54



THIS PROJECT IS NEAR THE CITY LIMITS OF ENGELHARD

METHOD OF CLEARING II

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2002 = 1060 VPD
ADT 2025 = 1400 VPD
DHV = 12 %
D = 60 %
T = 3 % *
V = 55 MPH

* TTST 2 % DUAL 1 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3348 = MILES
LENGTH STRUCTURES TIP PROJECT B-3348 = MILES
TOTAL LENGTH TIP PROJECT B-3348 = 0.403 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., NC, 27610

1995 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 7, 2003

LETTING DATE: JUNE 15, 2004

JAMES A. SPEER, P.E.
PROJECT ENGINEER

JOHN C. LANSFORD, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

AUG 2003 12:00
ansford 2-d.dgn
ansford at R-00/502a

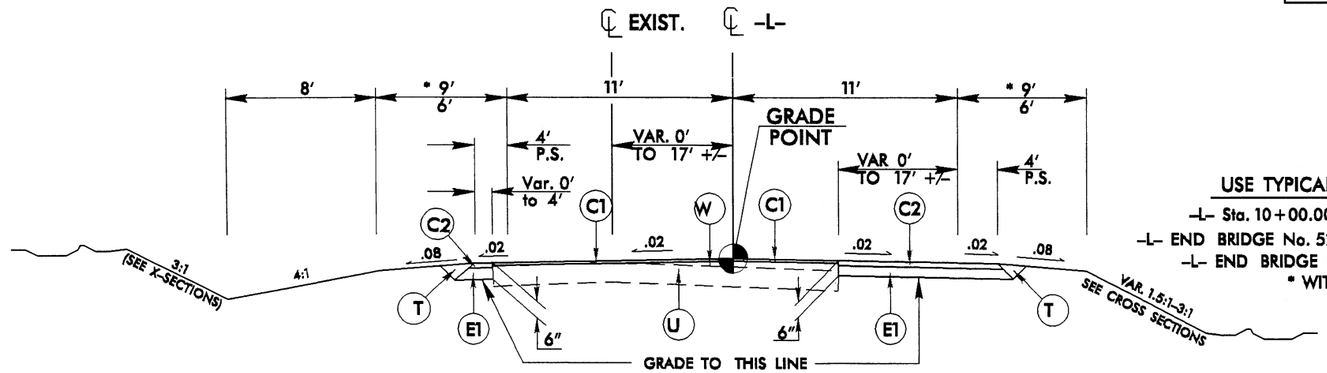
PROJECT REFERENCE NO.	SHEET NO.
B-3348	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

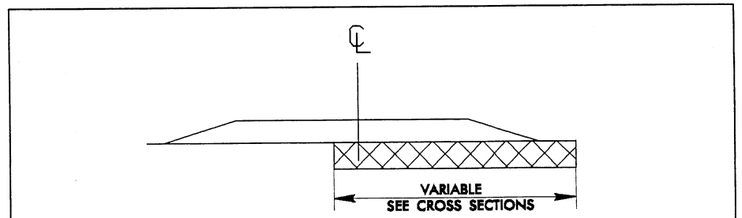
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 3½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

NOTE: ALL SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



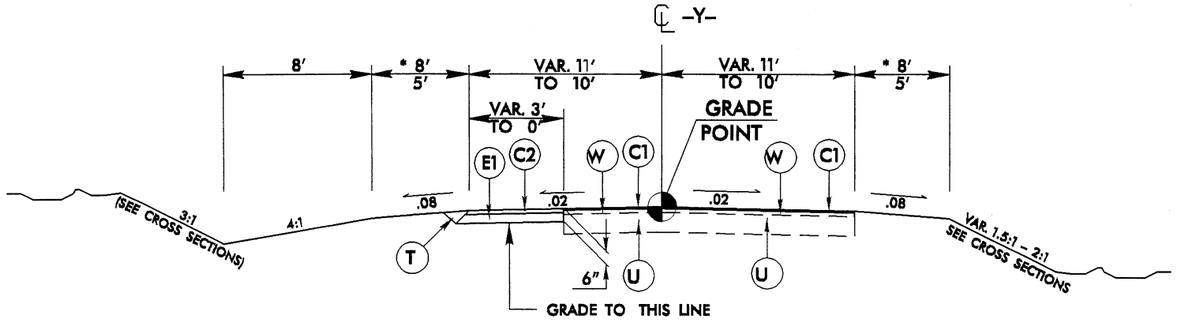
USE TYPICAL SECTION NO. 1
-L- Sta. 10+00.00 TO BEG. BRIDGE No. 52
-L- END BRIDGE No. 52 TO BEG. BRIDGE No. 54
-L- END BRIDGE No. 55 TO Sta. 31+29.54
* WITH GUARDRAIL

TYPICAL SECTION NO. 1



Sta. 11+99 to 17+80 -L-
Sta. 18+80 to 21+93 -L-
Sta. 23+79 to 28+20 -L-
Sta. 10+20 to 11+51 -Y1-

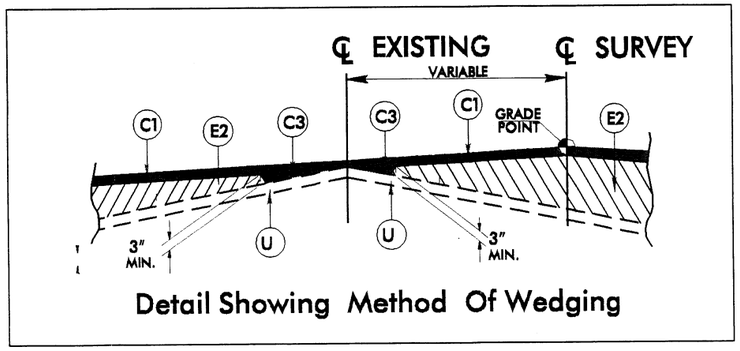
Detail of Undercut Excavation



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-Y- Sta. 10+11.221 TO Sta.11+97.35

* WITH GUARDRAIL



Detail Showing Method Of Wedging

10/26/98

29-AUG-2003 12:00
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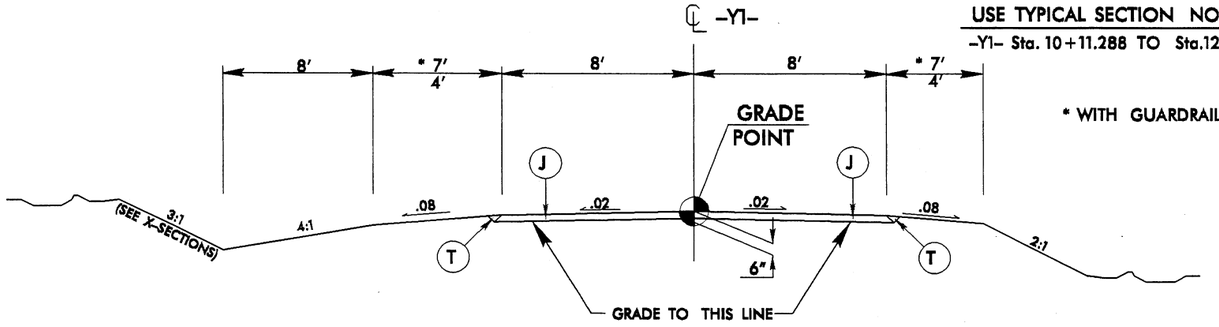
$:[ROADWAY]

PROJECT REFERENCE NO.	SHEET NO.
B-3348	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C1	PROP. 1.25" S9.5A	J	PROP. 6" AGGREGATE BASE COURSE
C2	PROP. 2.5" S9.5A	T	EARTH MATERIAL
C3	VARIABLE DEPTH S9.5A	U	EXISTING PAVEMENT
E1	PROP. 3.5" B25.0B	W	ASPHALT WEDGING
E2	VARIABLE DEPTH B25.0B		

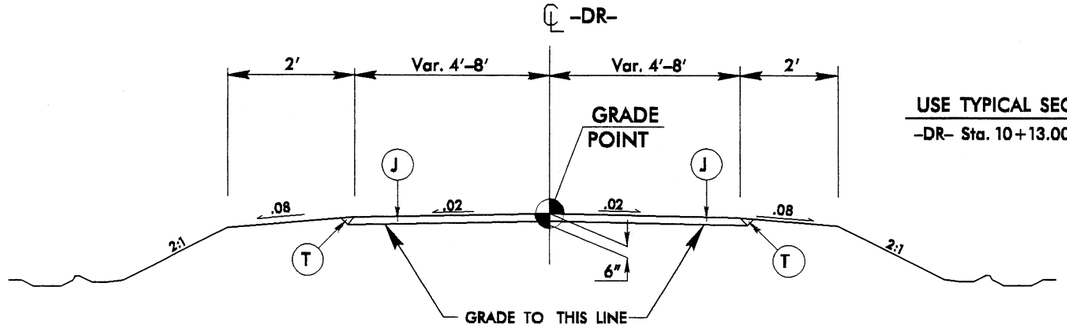


USE TYPICAL SECTION NO. 3

-Y1- Sta. 10+11.288 TO Sta.12+34.53

* WITH GUARDRAIL

TYPICAL SECTION NO. 3



USE TYPICAL SECTION NO. 4

-DR- Sta. 10+13.00 TO Sta. 11+40.00

TYPICAL SECTION NO. 4

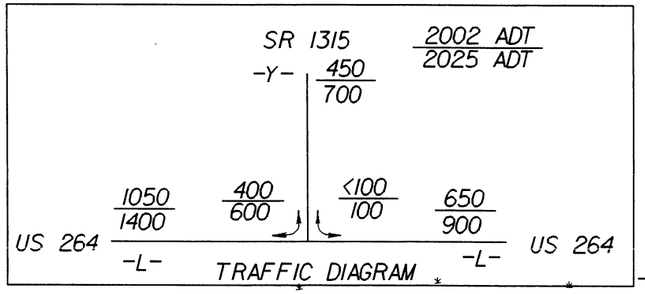
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3348	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "CUTHRELL"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 654262.2184(ft) EASTING: 2893025.5492(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998828
THE NC LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "CUTHRELL" TO -L- Sta. 10+00.00 IS
N 53°54'48.87" E 1917.57'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29



R/W REVISION 5/16/03 JCL
EXPANDED TEMP.CONST.EASEMENT
ON PARCEL 4 -DR-

PI Sta 11+08.84
Δ = 87° 21' 28.8" (LT)
D = 114° 35' 29.6"
L = 76.23'
T = 47.75'
R = 50.00'
SE = NC

PI Sta 10+43.99
Δ = 88° 05' 28.0" (RT)
D = 190° 59' 09.4"
L = 46.12'
T = 29.02'
R = 30.00'
SE = NC

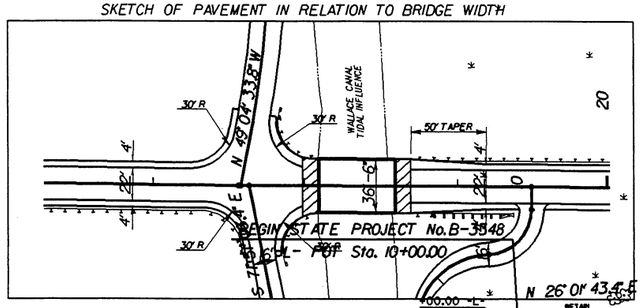
PI Sta 12+95.86
Δ = 5° 07' 21.1" (RT)
D = 1° 08' 45.3"
L = 447.03'
T = 223.66'
R = 5,000.00'
SE = 0.03
RO = 78°

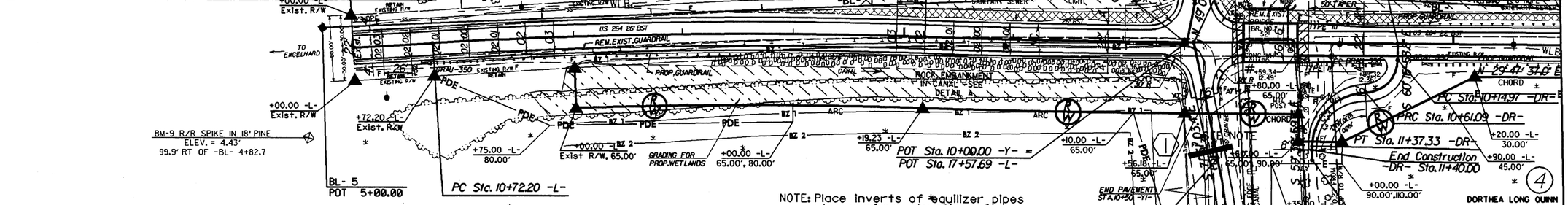
PI Sta 16+37.71
Δ = 1° 21' 27.5" (LT)
D = 0° 34' 22.6"
L = 236.95'
T = 118.48'
R = 10,000.00'
SE = NC

PI Sta 11+23.53
Δ = 13° 55' 09.1" (LT)
D = 8° 00' 07.9"
L = 173.94'
T = 87.40'
R = 716.00'
SE = NC

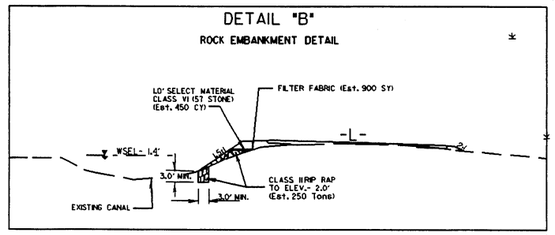
NOTE: SEE SHEET No.6 FOR -L- PROFILE
NOTE: SEE SHEET No.7 FOR -Y- PROFILE
NOTE: SEE SHEET No.7 FOR -Y1- PROFILE
NOTE: SEE SHEET No.7 FOR -DR- PROFILE
NOTE: SEE SHEET S-1 THRU S- FOR STRUCTURE PLANS

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH



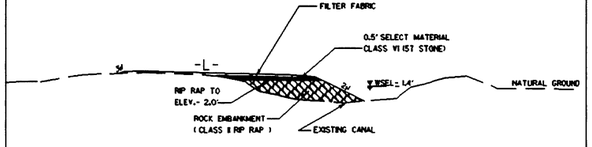


DETAIL "B"
ROCK EMBANKMENT DETAIL



FROM STA. 10+70 TO 11+30 -Y- LT.

DETAIL 'A'
ROCK EMBANKMENT
(NOT TO SCALE)



DETAIL SHOWING PLACEMENT OF ROCK EMBANKMENT FOR -L-

FROM STA. 13+25 TO 17+50 -L- RT.

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8/17/99

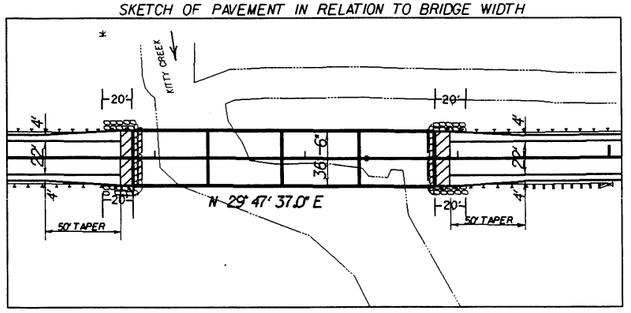
R/W REVISION 5/16/03 JCL
EXPANDED TEMP.CONST.EASEMENT
ON PARCEL 4 AND 7 RT.OF -L-

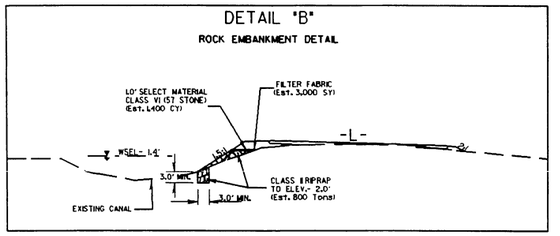
PROJECT REFERENCE NO.	SHEET NO.
B-3348	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

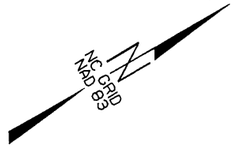
NOTE: SEE SHEET No.6 FOR -L- PROFILE
NOTE: SEE S- THRU S- FOR STRUCTURE PLANS

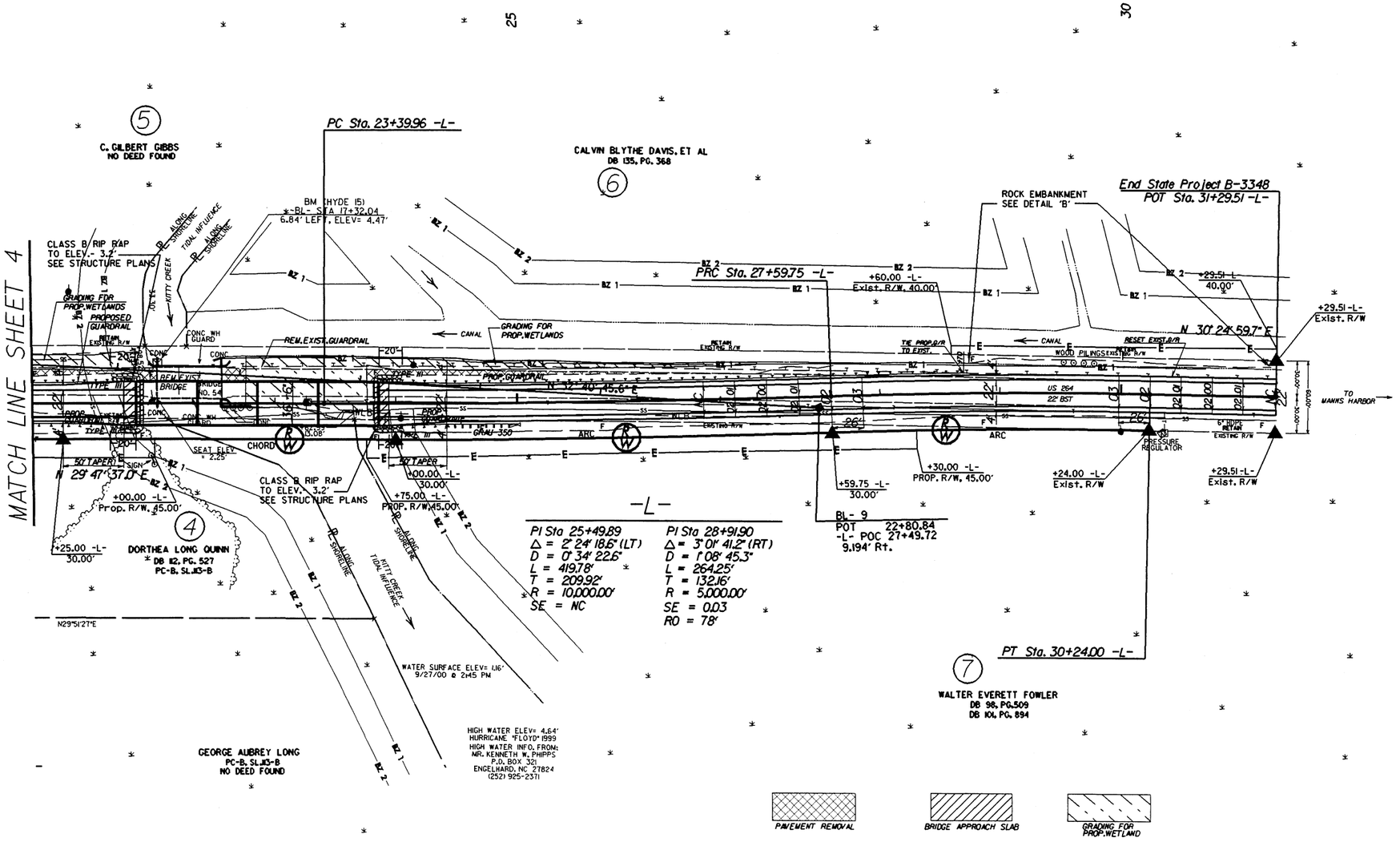
SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH





FROM STA. 29+25 -L- TO 31+25 -L- LT.





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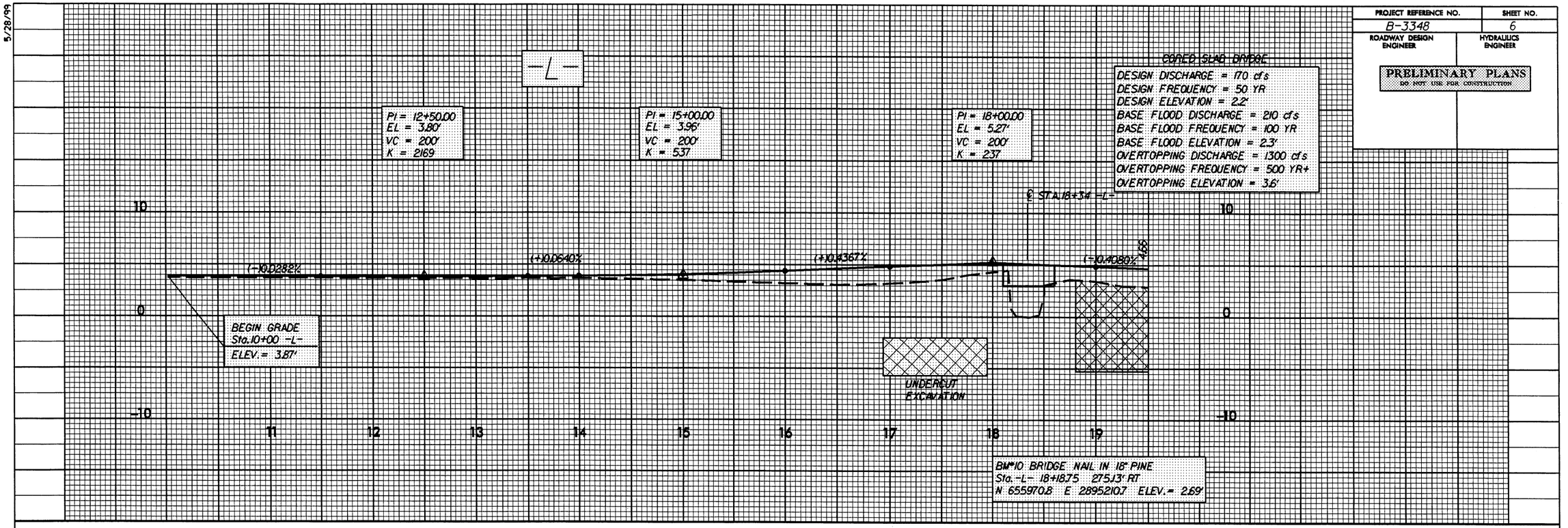
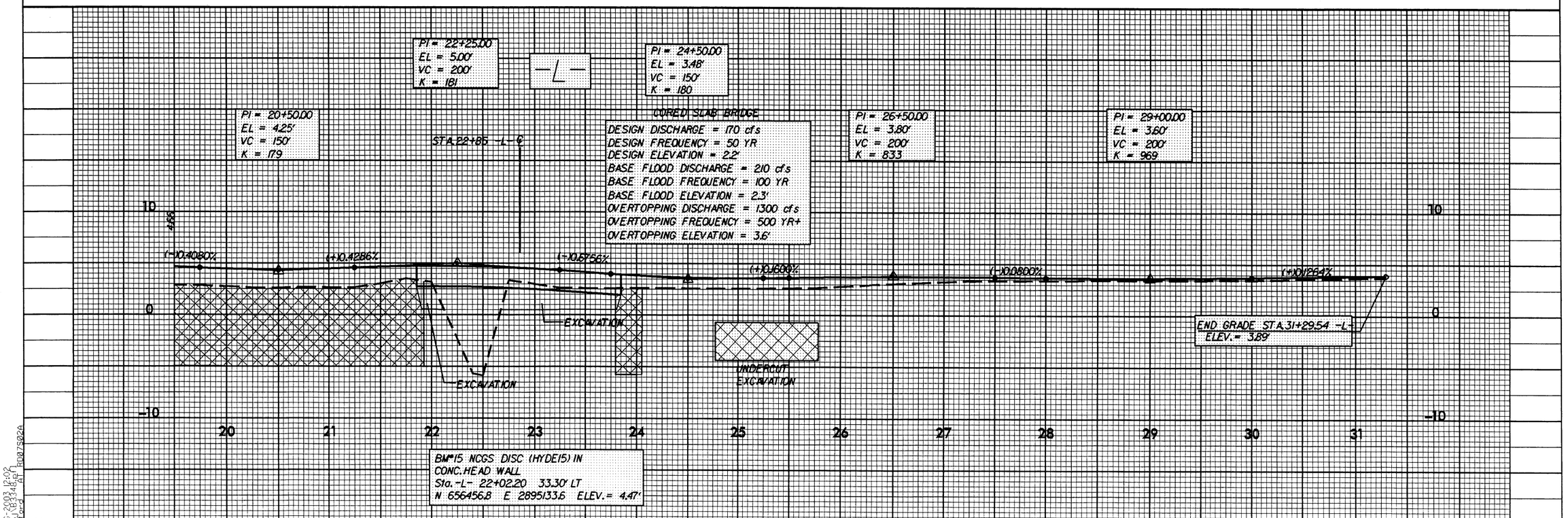
jlamsford
User: jlamsford

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3348	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3348	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y-

Begin Grade
Sta. 10+13.28 -Y-
El. 4.76'

PI = 10+75.00
EL = 4.20'
VC = 90'
K = 131

End Grade
Sta. 12+10.00 -Y-
El. 3.90'

4.76
(-)0.907%
(-)0.222%
10
0
10
11
12
13

-Y1-

Begin Grade
Sta. 10+13.26 -Y1-
El. 4.77'

PI = 11+00.00
EL = 3.10'
VC = 100'
K = 42

End Grade
Sta. 12+60.00 -Y1-
El. 3.83'

UNDERCUT EXCAVATION

4.77
(-)1.928%
(+)0.457%
3.83
10
0
10
11
12

-DR-

Begin Grade
Sta. 10+13.00 -DR-
El. 4.40'

PI = 10+75.00
EL = 3.16'
VC = 50'
K = 34

End Grade
Sta. 11+40.00 -DR-
El. 2.81'

4.40
(-)2.000%
(-)0.538%
2.81
10
0
10
11

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US 264
Hyde County
Bridge No. 52 over a canal
and
Bridge No. 54 over Kitty Creek
Federal-Aid Project No. BRSTP-264 (9)
State Project 8.1080601
T.I.P. No. B-3348

CATEGORICAL EXCLUSION

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

N. C. DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

8/30/02
Date

William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation

08-30-2002
Date

for Nicholas L. Graf, P.E.
Division Administrator
Federal Highway Administration

US 264
Hyde County
Bridge No. 52 over a canal
and
Bridge No. 54 over Kitty Creek
Federal-Aid Project No. BRSTP-264 (9)
State Project 8.1080601
T.I.P. No. B-3348

CATEGORICAL EXCLUSION

August 2002

Documentation Prepared by Carter & Burgess, Inc.

Julie E. Hunt
Transportation Planner

David B. Simpson, Jr.
David B. Simpson, Jr., P.E.
Transportation Unit Manager

For the North Carolina Department of Transportation

Stacy B. Harris
Stacy B. Harris, P.E.
Consultant Engineering Unit
Project Manager/Unit Head

PROJECT COMMITMENTS

US 264
Hyde County
Bridge No. 52 over a canal
and
Bridge No. 54 over Kitty Creek
Federal-Aid Project No. BRSTP-264 (9)
State Project 8.1080601
T.I.P. No. B-3348

In addition to the standard Nationwide Permit #33 and #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, General Certification Conditions, Protection of Surface Waters, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Division

- To avoid adverse impacts to spawning populations of fish species at the project site, NCDOT will follow the "Stream Crossing Guidelines for Anadromous Fish Passage".
- In order to minimize negative effects on the early stage development of the marine organisms found in the Primary Nursery Area, no in-water work will be conducted between March 1 and September 30.

Design/Division/Roadside Environmental

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

Categorical Exclusion
Green Sheet
August 2002

US 264
Hyde County
Bridge No. 52 over a canal
and
Bridge No. 54 over Kitty Creek
Federal-Aid Project No. BRSTP-264 (9)
State Project 8.1080601
T.I.P. No. B-3348

INTRODUCTION: The replacement of Bridge Nos. 52 and 54 are included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and in 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 STATEMENT

Bridge Maintenance Unit records indicate that Bridge No. 52 has a current sufficiency rating of 69.6 out of a possible 100 for a new structure. The bridge has an estimated remaining life of 7 years. The bridge is currently constructed with timber joists and piling substructure and has problems with overloads. Midspan bents were added to the bridge as a temporary measure to increase the load capability. NCDOT considers this type of structure as inadequate on a primary route. The replacement of Bridge 52 will result in safer and more efficient traffic operations. Since the sufficiency rating is above 50, an FHWA exception will be required for this bridge replacement to be eligible for federal funds. The FHWA exception is required for bridges that are not classified as structurally deficient or functionally obsolete.

Bridge Maintenance Unit records indicate that Bridge No. 54 has a current sufficiency rating of 32.6 out of a possible 100 for a new structure. The bridge has an estimated remaining life of 7 years. The bridge is considered functionally obsolete and structurally deficient. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

US 264 is classified as a minor arterial on the Statewide Functional Classification System. This section of US 264 is included in the Pamlico Scenic Byway. The Pamlico Scenic Byway extends from the City of Washington waterfront, following the Pamlico River, to Pamlico Sound and to the junction of Croatan Sound. This section of US 264 also corresponds to a designated bicycle route, NC Bicycling Highways "Mountains to Sea", Map 15 (Mattamaskeet), and is used by a substantial number of bicyclists (Figure 7). The speed limit along US 264 is posted at 55 miles (90 kilometers) per hour. The speed limit is posted 35 mph (56 kilometers per hour) approximately 0.5 miles (0.8 kilometers) south of the structures, within the urban limits of Engelhard.

Bridge No. 52 crosses over a canal and Bridge No. 54 crosses over Kitty Creek, a tributary to Far Creek, on US 264 approximately 0.1 miles (0.2 kilometers) east of the junction with SR 1315 (Swamp Road) in Hyde County. The two sites are approximately 340 feet (103.6 meters) apart. US 264 serves as the only direct access between Engelhard and areas in northeastern Hyde and Dare Counties. Land use in the immediate vicinity of the bridge is undeveloped with residential development intermixed with farmland beginning south of the bridge near Engelhard. The terrain in the immediate vicinity of the project is marshy.

The existing bridges are in a horizontal tangent that extends approximately 500 feet (152.4 meters) on the south side of Bridge No. 52 and approximately 1000 feet (305 meters) north of Bridge No. 54. The roadway grade is very flat although both bridges are slightly perched with a low point between the two bridges and a low point on each approach.

Bridge No. 52 is a two-lane structure, built in 1955 (Figure 3), with reinforced concrete caps on timber piles supporting timber joist and a reinforced concrete deck. The bridge has four spans totaling 34 feet (10.4 meters) in length. The bridge deck contains weep holes to facilitate drainage. The existing bridge has a clear roadway width of 26.1 feet (8 meters). The existing structure has a deck width of 29.4 feet (9 meters). Near the bridge, US 264 is a two-lane facility with a 22-foot (6.6-meter) pavement with two foot (0.6 meter) paved shoulders. Existing right of way is 60 feet (18 meters) wide with no control of access. There is no current posted weight limit.

SR 1315 (Swamp Road) forms a "T" intersection with US 264 approximately 30 feet (9.1 meters) south of Bridge No. 52. The roadway across from SR 1315 provides access to a wildlife boat ramp. The road entrance and the adjacent land is not part of a publicly owned park, recreation area, or wildlife and waterfowl refuge. A private driveway is located on the north-east side of Bridge 52. SR 1315, the boat ramp access road, and the private driveway parallel the canal and connect to US 264 directly adjacent to Bridge 52.

The bridge is situated approximately 11 feet (3.3 meters) above the canal bed; measured from the top of the rail is 14.2 feet (4.3 meters) with the observed high water mark seven feet (2.1 meter) below the top of rail.

Bridge No. 54 is a two-lane structure, built in 1955 (Figure 4), with reinforced concrete caps on timber piles supporting timber joists and a reinforced concrete deck. The bridge has concrete post and railing measuring 33 inches (0.83 meters) in height. The bridge consists of three spans totaling 53 feet (16.2 meters) in length. The bridge deck contains weep holes to facilitate drainage. There is no current posted weight limit.

The existing bridge has a clear roadway width of 26.1 feet (eight meters). The existing structure has a deck width of 28.2 feet (8.6 meters). Near the bridge, US 264 is a two-lane 22-foot (6.6 meter) wide facility with eight-foot (2.4-meter) grass shoulders. Existing right of way is 60 feet (18 meters) wide with no control of access. A residence that is screened with pine and cedar trees is located on

The existing bridge has a clear roadway width of 26.1 feet (eight meters). The existing structure has a deck width of 28.2 feet (8.6 meters). Near the bridge, US 264 is a two-lane 22-foot (6.6 meter) wide facility with eight-foot (2.4-meter) grass shoulders. Existing right of way is 60 feet (18 meters) wide with no control of access. A residence that is screened with pine and cedar trees is located on the southeast side of the existing bridge. Located adjacent to the existing bridge is a homemade boat ramp.

The height of the bridge measured from the top of the rail above the canal bed is approximately 11 feet (3.3 meters) with the high water mark located 5.4 feet (1.6 meters) below the top of rail.

Multiple utility lines, both aerial and underground, parallel US 264 across the bridge. Overhead telephone lines are located on the east side of both bridges. An underground telephone cable parallels the east side of the roadway going aerial across the channel crossings. Aerial electric power parallels the west side of the roadway crossing the road diagonally approximately 500 feet (152.4 meters) north of Bridge No. 54. Underground utilities include an insulated six-inch (15.2 centimeters) water line suspended from the east side of the bridge. Additionally, future plans call for Hyde County to install two water lines that will be suspended on the east side of the bridge.

The 2001-traffic volume was projected at 1050 Average Daily Traffic (ADT) on US 264. The traffic volumes are expected to increase to 1400 ADT by the year 2025. The projected volume includes one (1) percent truck-tractor semi-trailer (TTST) and two (2) percent dual-tired vehicles (DT).

There is one school bus that passes through the project area twice a day.

No accidents occurred in the vicinity of the bridge during the period of January 1, 1995, to December 31, 1997.

III. ALTERNATIVES

A. Project Description

The proposed structures to replace Bridge Nos. 52 and 54 would provide a 22-foot (6.6 meter) travel way with seven-foot (2.1 meter) wide shoulders. Bridge railing will accommodate bicycles for a total clear structure width of 36 feet (10.8 meters). Bridge rail height of 54-inches (1.4 meters) would be provided on both structures for bicycle safety. The typical approach roadway for Bridge Nos. 52 and 54 would consist of a 22-foot (6.6-meter) travel way with a six-foot (1.8 meter) shoulder of which four feet (1.2 meters) would be paved. The proposed project would be constructed mostly within the existing 60-foot (18-meter) right-of-way with a centerline shifted approximately 17-feet (5.18 meters) to the southeast. Construction limits will be approximately 800 feet (243.8 meters) from the start of the project to Bridge No. 52 and approximately 860 feet (262.1

be required. The roadway section would accommodate the substantial number of bicyclists using the route. The design speed would be 55 mph (90 km/h).

Based on a preliminary hydraulic analysis, the new structure for Bridge No. 52 was recommended to have a length of approximately 50 feet (15.2 meters) and the new structure for Bridge No. 54 was recommended to have a length of approximately 85 feet (25.9 meters), both on existing location. The elevation of the new structures was to be approximately the same as the existing structure to facilitate deck drainage and to match existing road approaches. The length and opening size of the proposed bridges could be increased or decreased as necessary to accommodate peak flows as determined from a more detailed analysis during the final design phase of the project.

During the alternative development and selection process, it was discovered that the original project description of bridge replacement on existing location would not result in a build alternative with required design standards and that was constructible. The centerline of the proposed bridges would need to be relocated approximately 17.55 feet (5.35 meters) to the southeast to allow safe construction. The approaches to the bridges and connecting roadway would also require realignment to maintain the design speed of the roadway.

B. Build Alternative

One (1) build alternative was studied for this project: Alternative G (Figure 5).

Alternate G (Preferred) involves staged, simultaneous construction of each bridge on an alignment with the new centerline shifted approximately 17 feet (5.18 meters) southeast of the existing bridges. The alignment shift is required for construct-ability and will increase the length of Bridge 54 over Kitty Creek to 180 feet (55 meters). The East Bound lane of the existing bridge and roadway between the bridges will be demolished while maintaining one-lane, two-way traffic on a minimum of 14 feet (4.3 meters) of the remaining portions of the existing bridges and roadway. Once the new structures are partially constructed to allow one-lane, two-way traffic, the remainder of the existing structures will be removed and the remainder of the new structures constructed. Temporary traffic control signals will be required at both approaches to the bridges to control the one-lane, two-way traffic.

C. Alternatives Eliminated from Further Study

Alternate A (rev) involves staged construction, replacing the bridges with 36-foot (11-meter) wide structures at their existing locations. A portion, 11.4 feet (3.5 meters) for Bridge No. 52 and 10.2 feet (3.1 meters) for Bridge No. 54, of the existing structures will be demolished while maintaining one-lane, two-way traffic on the remaining portions. This will allow 17 feet (5.2 meters) of the new structures to be partially constructed. Once the new structures are sufficient to allow one-lane, two-way traffic, the remainder of the existing structures will be removed and the remainder of the new structures constructed. The existing centerline will be offset to allow for the construction of the 36-foot (11-meter)

wide structure to accommodate two 11-foot (3.3- meter) lanes and 7-foot (2.1-meter) offsets. Temporary traffic control signals will be required on both approaches to the bridges during construction to control the one-lane, two-way traffic. The lane widths of 11 feet (3.3 meters) for one-lane, two way traffic proposed for this alternative are substandard for the type of traffic currently using these bridges. Allowing for a 14-foot (4.3 meter) minimum lane width for the one-lane, two way traffic requires greater separation between the existing and proposed centerlines than the maximum separation possible in the design of Alternative A. Therefore, Alternative A (rev) was not considered constructible and was eliminated from further consideration.

Alternate B involves an on-site detour to the east, replacing the bridges at their existing location. During construction, traffic will be maintained on a two-lane temporary detour just east of the existing bridges. A 25-mph (40-kph) design speed is proposed to minimize environmental impacts. Separate detour structures are proposed for the two bridges. The detour will require re-channelization and filling of the existing canal in the southeast quadrant of the US 264 intersection with SR 1315 (Swamp Road). Alternative B was eliminated due to environmental impacts caused by the placement of fill between detour bridges and its high cost.

Alternate C (rev) involves an on-site detour to the east and replacing the bridges at their existing location. During construction, traffic will be maintained on a two-lane temporary detour just east (downstream) of the existing bridges. A 35-mph (56-kph) design speed is proposed to minimize environmental impacts. A single detour structure is proposed to span between both bridges. The detour will require re-channelization and filling of the existing canal in the southeast quadrant of the US 264 intersection with SR 1315 (Swamp Road). A private driveway will require a separate bridge for access during construction. Following construction of the new bridges, the detour embankment will be removed. Alternative C was eliminated due to environmental impacts caused by the placement of fill between detour bridges and the extensive re-channelization, safety on the private driveway, and cost.

Alternative H involves phased construction using on-site detours to the east to replace the bridges at their existing location. During construction, traffic will be maintained on a two-lane temporary detour just east (downstream) of the existing bridges. A 25-mph (40-kph) design speed is proposed to minimize environmental impacts. During Phase I of the construction, a two-lane temporary detour east of Bridge No. 52 will be constructed, the existing bridge will be removed, and a new bridge constructed. Completion of Phase I will include the removal of the detour, restoration of the environment to pre-construction conditions, and the relocation of a private drive north of the bridge. Phase II includes constructing a two-lane temporary detour east of Bridge No. 54, removing the existing structure, and constructing the new bridge. Upon completion of construction of the new bridges, the detour embankment will be removed and the area restored to pre-construction conditions. The curves on Alternative H detours were too small. The design speed for these would have to be 25-mph (40-kph) or less for safety reasons. The bridges are too close to

allow the detour curves to be extended to increase the design speed. Therefore, Alternative H was eliminated from further consideration.

A "do-nothing" alternative would eventually necessitate closure of the bridges due to their poor condition. The "do-nothing" alternative is not considered reasonable and feasible due to the essential traffic service provided by US 264.

"Rehabilitation" of the existing bridges is not feasible due to their age and deteriorated condition.

An off-site detour was considered for this project. Hyde County requested that this alternative be eliminated from consideration due to US 264 being a main corridor for transportation in and out of Hyde County. Hyde County noted that any detour would be in excess of 90 miles and would be devastating to their economy if this area were impassable during the replacements.

D. Preferred Alternative

Bridge No. 52 and Bridge No. 54 will be replaced at their existing locations using a staged, simultaneous construction method as explained on pages three and four and shown in Figure 5. Alternative G, the only build alternative, is the Preferred Alternative.

The Division Engineer and Hyde County concurs with the selection of Alternate G as the Preferred Alternative.

IV. ESTIMATED COST

The estimated cost of the project, shown in the 2002-2008 NCDOT Transportation Improvement Program is $783,000. This cost is based upon an estimated prior year cost of $60,000, right-of-way cost of $23,000 and a construction cost of $700,000.00. The project is scheduled for right of way acquisition in 2002 and construction in 2003.

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

	Alternate G ***Preferred***
Structure Removal BR #54 (existing)	$ 16,840
Structure BR #54 (proposed)	553,200
Structure Removal BR #52 (existing)	14,170
Structure BR #52 (proposed)	153,440
Roadway Approaches	335,659
Miscellaneous and Mobilization	261,693
Engineering and Contingencies	214,998
ROW/Const. Easements/Utilities	46,400
TOTAL	$ 1,596,400

V. NATURAL RESOURCES

A. Methodology

The site was visited on December 28, 1998 and April 18, 2000. The study corridor was walked and visually surveyed for important features. For purposes of this evaluation, the study corridor was assumed to measure approximately 1,120 feet (341.4 meters) in length. Impact calculations for each alternative are based on corridor width of approximately 80 feet (24.4 meters) for each alternative. Special concerns evaluated in the field include potential habitat for protected species, wetlands, and protection of water quality in Kitty Creek and the canals.

Hyde County participates in the National Flood Insurance Regular Program. According to the Flood Insurance Rate Map (FIRM) the bridges are located in a Detailed Study Area (Figure 6). Since the proposed bridges are in-kind replacements, it is anticipated that this project will not have an adverse effect or impact on the existing floodplain or the adjacent properties and existing structures.

Materials and research data for the project were derived from a number of sources, including applicable U.S. Geological Survey (USGS) topographic mapping (Scranton, NC 7.5 minute quadrangle), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory mapping (7.5 minute quadrangle), Natural Resources Conservation Service (NRCS) draft soils mapping (USDA unpublished), and recent aerial photography (scale: 1 inch = 100 feet) and plan sheets (scale: 1 inch = 40 feet).

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). Jurisdictional areas were evaluated using the three-parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (COE) wetland delineation guidelines (COE 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Martof *et al.* 1980, Webster *et al.* 1985, Potter *et al.* 1980, Menhinick 1991, Palmer and Braswell 1995, Hamel 1992, Robins *et al.* 1986, Parnell *et al.* (1991), Fussell 1994, Wiegert and Freeman 1990, Linzey 1998, Gosner 1978, and Odum *et al.* 1984). Water quality information for area streams and tributaries was derived from available sources (DEM 1994, DWQ 1998). Quantitative sampling was not undertaken to support existing data.

The most current FWS listing of federal-protected species with ranges, which extend into Hyde County was obtained prior to initiation of the field investigation.

In addition, NHP records documenting presence of federal or state-listed species were consulted before commencing the field investigation.

B. Physiography and Soils

The study corridor is located in the Outer Coastal Plain or Tidewater physiographic province of North Carolina. Regional topography is generally flat, and consists primarily of patchy mixed forest and emergent shrub/marsh grass complex transected by natural streams, man-made canals and a highway causeway consisting of fill material. The landscape elevation does not exceed five feet (1.5 meters) National Geodetic Vertical Datum (NGVD) within one mile (1.6 kilometers) of the study corridor. The highest elevation within the study corridor is approximately three feet (1.0 meter) NGVD at the road facility surface (Englehard, NC 7.5 minute quadrangle). Both streams join Far Creek and the Pamlico Sound just east of the site.

Soils within the marsh areas typically consist of several feet of very soft to soft organic deposits and/or cohesive sediments, which exhibit very poor engineering properties. It appears that the existing US 264 approaches are 3 to 4 feet high and constructed primarily of silty fine sand (A-2-4) and /or fine sandy silt (A-4) that exhibit fair to excellent engineering characteristics. Low relief and poor drainage features are typical. Man-made canals parallel US 264 along some portions of the project. Water levels are influenced by tidal fluctuations of the Pamlico Sound but are generally at or above the natural ground service.

The landscape adjacent to the road facility near bridge No. 54 is underlain by Delcomb muck (*Terric Humaquepts*). Adjacent to the road facility near bridge No. 52 the dominant soil is Backbay mucky peat (*Terric Medisaprists*). Delcomb muck occurs adjacent to the brackish creek while Backbay mucky peat occurs at a slightly higher relative position in the landscape. Both the Delcomb and Backbay soils are listed as hydric within Hyde County (NRCS 1996).

Delcomb muck is characterized as very poorly drained and with a moderate to moderately rapid permeability. The mapping unit typically occurs on low flats and in troughs and depressions; in this case, landscapes supporting brackish marshes. This soil frequently flooded for long periods. The seasonal high water table is between one foot (0.3 meters) above the marsh surface to one foot (0.3 meters) below the marsh surface (NRCS unpublished, NRCS 1992).

Backbay mucky peat is characterized as a very poorly drained soil with moderate to moderately rapid permeability. This mapping unit typically occurs on marshes adjacent to the Pamlico Sound. This soil is frequently flooded by wind tides for long period. The seasonal high water table is between 1.0-foot (0.3 meters) above the marsh surface to 1.0-foot (0.3 meters) below the marsh surface (NRCS unpublished).

C. Water Resources

1. Surface Waters

The study corridor is located within sub-basin 03-03-08 of the Tar-Pamlico River Basin (DEM 1994). This area is part of USGS accounting unit 03020105 of the South Atlantic-Gulf Region. Kitty Creek has been assigned a Stream Index Number of 29-70-3 by the N. C. Division of Water Quality (DWQ 1998). Unnamed tributaries to Kitty Creek will carry the same stream index number and use support classification. The unnamed tributary to Kitty Creek is crossed by bridge No. 52 approximately 500 feet (152 meters) upstream of the final confluence with Kitty Creek. Bridge No. 54 crosses Kitty Creek approximately 2,000 feet (610 meters) upstream of its confluence with Far Creek, an embayment along the northwestern shore of the Pamlico Sound. The hydrological source for Kitty Creek is a combination of: 1) inland runoff from the region north and west of the subject bridge; 2) wind-blown tides within the Pamlico Sound; and 3) direct precipitation. A result of the unpredictability of these hydrological forces is that marshes within the project corridor are characterized by irregular flooding.

2. Stream Characteristics

Bridge No. 52 crosses a man-made drainage canal. This unnamed tributary has naturalized extensively and appears to have similar ecological functions to Kitty Creek. Bridge No. 54 crosses Kitty Creek, a well-defined brackish marsh stream characterized by slow flow. Both streams generally drain from northwest to southeast. Due to similar landscape position and inter-connectivity, it is likely that these streams have a similar flow regime, substrate composition, and community structure. Flow direction of the two water bodies varies due to wind tides and inland runoff. Substrate composition consists of unconsolidated sediments flocculated (precipitated) out of the water column as a result of fresh water (carrying organics from upstream) meeting with saline water of the estuary.

At the existing bridges, the unnamed tributary is approximately 46 feet (14 meters) wide and 7 feet (2 meters) deep at mid-stream, while Kitty Creek is approximately 54 feet (16.5 meters) wide and 7 feet (2 meters) deep at mid-stream. The highway causeway approaches the water bodies at right angles (on a northwest-southeast axis) and makes perpendicular bridge crossings. Man-made canals on the southeast side of bridge No. 52, and the northwest side of bridge No. 54 bound the causeways. The canal to the southeast side of bridge No. 52 is approximately 13 feet (4 meters) wide and 3.2 feet (1 meter) deep at mid-stream. The canal to the northwest of bridge No. 54 is approximately 30 feet (9 meters) wide and 3 feet (1.0 meters) deep. The canals are identified on USGS mapping by a solid blue line. During the field survey, water in the unnamed tributary (crossed by bridge No. 52) and Kitty Creek was flowing at a moderate velocity downstream (southeastward), toward Far Creek and the Pamlico Sound. Water-column turbidity was high during the visit,

possibly due to runoff from an extended rainfall event that had been in progress for several days prior to the visit.

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 within a basin. A best usage classification of **SC HQW** has been assigned to the Kitty Creek and Far Creek (DWQ 1998). This same best usage classification also applies to the unnamed tributary. The designation of **SC** denotes tidal salt waters suitable for uses such as aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation refers to any activity in which bodily contact with water occurs on an infrequent or incidental basis (DWQ 1998). The supplemental classification of **HQW** denoted high quality waters. This designation is intended to protect surface waters with water quality higher than state water quality standards. Kitty Creek has received this classification due to its designation as a primary nursery area by the N. C. Division of Marine Fisheries. The HQW zone extends into the land area within 1.0 mile (1.6 kilometers) and draining into the designated stream. The N. C. Division of Land Resources has a set of erosion control rules that apply to land-disturbing activities within HQW zones (Design Standards in Sensitive Watersheds).

No waters designated Outstanding Resource Waters (**ORW**), Water Supply I (**WS-I**), or Water Supply II (**WS-II**) occur within 1.0 mile (1.6 kilometers) of the study corridor. Neither Kitty Creek nor Far Creek are designated as a North Carolina Natural and Scenic River, or as a national Wild and Scenic River.

The Division of Water Quality (DWQ), Water Quality Section) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed project area is summarized in Tar-Pamlico River Basinwide Water Quality Management Plan (DEM 1994). The proposed project area is located in Subbasin 08 of the Tar-Pamlico River Basin. No major dischargers reside in this subbasin. User support information concerning water quality indicates that Kitty Creek is **Partially-Supporting** its intended uses, likely due to inputs associated with the community of Engelhard.

The Tar-Pamlico River Basin Rules will be implemented during the design, construction and maintenance of the proposed bridge. Further discussion of these rules is located in Section V.E.3. of this document, which can be located on page 17.)

3. Anticipated Impacts to Water Resources

a. General Impacts

The re-alignment of Swamp Road will cause the loss of open water habitat from impacts to a man-made pond located in the southwest corner of the intersection between Swamp Road and US 264. Roadside canals near this intersection will be impacted from construction of new canals and placement of Swamp Road through the existing canals and the relocation of the public boat ramp access

road. These impacts will require the relocation of 151 linear feet (46 meters) of roadside canal located in the southeastern quadrant of the intersection of Swamp Road and US 264. Alternate G will result in the filling of 0.16 acres (0.06 hectares) of open water habitat from impacts to the man-made pond and roadside canals. Short-term impacts to water quality in Kitty Creek and the canal, such as sedimentation and turbidity, can also be anticipated from construction-related activities. Alternate G will also result in 0.16 acres (0.06 hectares) of shaded area, separate from construction related activities. Impacts from Alternate G will be minimized by using best management practices (BMPs).

Both of these bridges are located in Primary Nursery Areas (PNA) and the surrounding habitat is almost identical. In-water construction-related activities for replacement of these bridges is restricted to occurring between October 1 and February 28 in order to minimize negative effects on the early stage development of marine organisms found in each of these PNAs. The contractor will follow, as applicable, 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 may include: the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in wetlands 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. Deck drains may also be prohibited for protection of the PNAs. Decisions about specific design elements and control measures such as these will be made during final design and through coordination with permitting agencies.

The proposed bridge replacements will allow for continuation of present water flows, thereby protecting system integrity. Long-term impacts to Kitty Creek are expected to be negligible. In order to minimize impacts to water resources, the NCDOT Best Management Practices (BMPs) for Protection of Surface Waters (BMPs) will be strictly enforced during the entire life of the project.

b. Impacts Related to Bridge Demolition and Removal

Bridge No. 52 crosses over a canal and Bridge No. 54 crosses over a tributary (Kitty Creek) to Far Creek on US 264 approximately 0.1 miles (0.2 kilometers) east of the junction with SR 1315 in Hyde County. Bridges No. 52 and No. 54 are two-lane structures, with reinforced concrete caps on timber piles supporting a reinforced concrete deck on timber joist. It was determined that during the removal of the existing structures for Bridge No. 52, 41.6 cubic yards (31.7 cubic meters) and for Bridge No. 54, 56.8 cubic yards (43.4 cubic meters) of concrete fill material could potentially be dropped in the water. Both Kitty Creek and the unnamed tributary are classified as High Quality Water. The dropping of parts or components of structures into any body of water will not be permitted unless there is no other practicable method of removal. This project can be classified as Case 1 as identified in NCDOT's Best Management Practices for Bridge

Demolition and Removal (BMP-BDR), where in-water work is limited to an absolute minimum (see project commitments). In order to protect the water quality and aquatic life in the area affected by this project, NCDOT will follow it's BMP-BDR and Best Management Practices for Protection of Surface Waters.

D. Biotic Resources

1. Plant Communities

Three distinct plant communities were identified within the study corridor: brackish marsh complex, maritime forest and roadside/disturbed land. These plant communities are described below.

Brackish Marsh Complex - This community occurs on relatively flat landscapes at approximate sea level near the upper (landward) extent of estuaries, where fresh water runoff from inland dilutes saline waters from the ocean. Salinities within the brackish marsh complex may vary from less than 0.5 parts per thousand (ppt) to greater than 30 ppt; however, salinities within this community are typically low (approximately 0.5 to 5.0 ppt; considered an oligohaline environment). This community is very similar to that described as Brackish Marsh by Schafale and Weakley (1990). The brackish marsh complex consists primarily of emergent grasses and also contains herbs. Scattered shrubs and stunted trees occur on mounds and along upland fringes. Brackish marsh complex occurs north, southwest and southeast of Bridge No. 52, and to the north and southeast of Bridge No. 54.

Species diversity is low in this community, and species are generally distributed in homogeneous bands or zones within the marsh. The dominant species is black needlerush (*Juncus roemerianus*), which accounts for approximately 80 percent of marsh cover. Other grasses and herbs include salt grass (*Distichlis spicata*), salt meadow cordgrass (*Spartina patens*), giant cordgrass (*S. cynosuroides*), and saltmarsh cordgrass (*S. alteriflora*). Scattered shrubs include: marsh elder (*Iva frutescens*) and silverling (*Baccharis halimifolia*).

Estuarine Fringe Loblolly Pine Forest – This community occurs on slightly higher elevations, and is therefore drier than the brackish marsh complex. This community typically occurs along the inland fringes of the brackish marsh complex; however, within the project corridor, estuarine fringe loblolly pine forest occurs in the southwest quadrant of both bridges and extends to the east along the northern bank of the unnamed canal. The location of this community could be the result of fill placement in the marsh during construction of the existing bridge or man-made canals.

This community is characterized by a broken canopy of loblolly pine (*Pinus taeda*) less than thirty-years old, a well-developed shrub layer, and scattered grasses and herbs. The shrub component of this community includes southern red cedar (*Juniperus silicicola*), silverling, wax myrtle (*Myrica cerifera*), and a shrubby growth form of poison ivy (*Toxicodendron radicans*). Scattered patches of grasses are composed of salt grass and saltmeadow cordgrass. Vines are

abundant within this community and include: Japanese honeysuckle (*Lonicera japonica*), yellow jessamine (*Gelsemium sempervirens*), and greenbrier (*Smilax bona-nox*).

Roadside/Disturbed Land - Roadside/disturbed land consists of the paved road and vegetated shoulders. This community is established on fill material placed in a brackish marsh to construct the existing causeway. The road shoulders support low herbs and grasses that are maintained by regular mowing.

Roadside/disturbed land is dominated by invasive grasses and herbs. Common species include: vasy grass (*Paspalum urvillei*), dandelion (*Taraxacum officinale*), foxtail grass (*Setaria geniculata*), spiny-leaved sow-thistle (*Sonchus asper*), seaside goldenrod (Solidago sempivirens), broomsedge (Andropogon virginicus), trumpet creeper (*Campsis radicans*), and pepper-vine (*Ampelopsis arborea*).

The following table indicates the amount of each plant community present within the projected cut/fill boundaries for Alternative G. From an ecological perspective, the impacts of bridge replacement in place are minimal relative to construction on a new alignment. Similarly, impacts of replacement utilizing staged construction while maintaining traffic during construction are substantially less than replacement utilizing a temporary detour.

Plant Community Totals within Cut/Fill Boundaries [acres (hectares)]

	Brackish Marsh Complex	Estuarine Fringe Loblolly Pine Forest	Roadside / Disturbed Land	Total
Cut/Filled	0.63 (0.25)	0.04 (0.02)	1.69 (0.68)	2.36 (0.96)
Bridged	0.03 (0.01)	0.00 (0.00)	0.00 (0.00)	0.03 (0.01)

Implementation of Alternate G will result in no new fragmentation of plant communities. Permanent impacts to plant communities as a result of reconstruction without a detour are restricted to narrow strips of roadside/disturbed land adjacent to the existing bridge and causeway approach segments. Approximately 72 percent of the Alternate G community coverage is disturbed and maintained as such (roadside/disturbed land), while 28 percent of community coverage is in a natural state (brackish marsh complex and maritime forest).

2. Wildlife

Within the brackish marsh complex, only species utilizing the upper levels of marsh vegetation and air space over the marsh are considered primarily terrestrial. The road causeway provides a travel corridor for terrestrial mammals and reptiles to access marsh resources. No mammal signs (tracks, scat, etc.) or sightings were noted during the investigation. However, opportunistic and characteristic species which are expected to frequent these habitats include: Virginia opossum (*Didelphis virginiana*), southeastern shrew (*Sorex longirostris*), least shrew (*Cryptotis parva*), little brown bat (*Myotis lucifugus*), eastern pipistrelle (Pipistrellus subflavus), red bat (*Lasiurus borealis*), marsh rabbit (*Sylvilagus palustris*), marsh rice rat (*Oryzomys palustris*), eastern harvest mouse (*Reithrodontomys humulis*), white-footed mouse (*Peromyscus leucopus*), meadow vole (*Microtus pinetorum*), Norway rat (*Rattus norvegicus*), raccoon (*Procyon lotor*), and white-tailed deer (*Odocoileus virginianus*).

Primarily terrestrial birds observed within or adjacent to the project corridor include: northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), fish crow (*Corvus ossifragus*), eastern meadowlark (*Sturnella magna*), red-winged blackbird (*Agelaius phoeniceus*), European starling (*Sternus vulgaris*), and savannah sparrow (*Passerculus sandwichensis*). Other species expected within these habitats include: barred owl (*Strix varia*), marsh wren (*Cistothorus palustris*), gray catbird (*Dumetella carolinensis*), eastern kingbird (*Tyrannus tyrannus*), tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), palm warbler (*Dendroica palmarum*) as a migrant, yellow-rumped warbler (*D. coronata*), common yellowthroat (*Geothlypis trichas*), boat-tailed grackle (*Quiscalus major*), song sparrow (*Melospiza melodia*), and seaside sparrow (*Ammosdrammus maritimus*).

Due to the time of year and weather conditions (cold and rainy) in which fieldwork was conducted, no reptiles and amphibians were documented. All reptiles expected to occur within the project corridor are aquatic oriented, and no amphibians are expected due to fluctuating saline conditions.

No scat or sign of primarily aquatic mammals was observed during field surveys. Mammals expected to utilize the brackish marshes and open water creeks and canals include: muskrat (*Ondatra zibethicus*), nutria (*Myocastor coypus*), mink (*Mustela vison*), and river otter (*Lutra canadensis*).

Aquatic-oriented birds observed during field surveys include: great black-billed gull (*Lurus marinus*), ring-billed gull (*L. delawarensis*), Boneparte's gull (*L. philadelphia*), and belted kingfisher (*Ceryle alcyon*). Other species expected to utilize the local aquatic habitats include: pied-billed grebe (*Podilymbus podiceps*), double-crested cormorant (*Phalacrocorax auritus*), great blue heron (*Ardea herodias*), osprey (*Pandion haliaetus*), little blue heron (*Egretta caerulea*), snowy egret (*E. thula*), tricolor heron (*E. tricolor*), great egret (*Casmerodius albus*), cattle egret (*Bubulcus ibis*), black-crowned night-heron (*Nycticorax nycticorax*), least bittern (*Ixobrychus exilis*), clapper rail (*Rallus longirostris*), American coot (*Fulica americana*), laughing gull (*Larus atricilla*), and herring gull (*L. argentatus*).

Reptiles expected within the project corridor include: snapping turtle (*Chelydra serpentina*), diamondback terrapin (*Malaclemys terrapin*), eastern mud turtle (*Kinosternum subrubrum*), yellow rat snake (*Elaphe obsoleta*), rainbow snake (*Farancia erytrogramma*), Carolina water snake (*Nerodia sipedon williamengelsi*), brown water snake (*N. taxipilota*), ribbon snake (*Thamnophis sauritus*), eastern cottonmouth (*Agkistrodon piscivorus*), and American alligator (*Alligator mississippiensis*).

Irregularly flooded, oligohaline waters and marshes are characterized by periodic fluctuations in water level, water chemistry (salinity, dissolved oxygen), and temperature. For this reason, aquatic species that occur in estuaries either migrate with the fluctuations or are adapted to the dynamic environment. Fishes expected in and adjacent to the project corridor include permanent resident estuarine or brackish species, migratory (anadromous, semianadromous, and catadromous) species, and larval forms of marine species that utilize estuarine and brackish marshes as nurseries. Limited sampling in Kitty Creek resulted in the identification of three permanent residents, oyster toadfish (*Opsanus tau*) and pinfish (*Lagodon rhomboides*) and American eel (*Anguilla rostrata*) (a catadromous species: one that breeds in the ocean and travels to fresh water to mature). Expected permanent residents include mosquitofish (*Gambusia holbrooki*), spotfin killifish (*Fundulus luciae*), Atlantic croaker (*Micropogon undulatus*), and sheepshead minnow (*Cyprinodon variegatus*). Anadromous fishes that may be found near the project corridor include alewife (*Alosa pseudoharengus*), blueback herring (*A. aestivalis*), American shad (*A. sapidissima*), hickory shad (*A. mediocris*), and striped bass (*Morone saxitilis*). Semi-anadromous fishes that may occur in the vicinity include white perch (*Morone americana*), yellow perch (*Perca flavescens*), and gizzard shad (*Dorosoma cepedianum*). The nursery utilizers include striped mullet (*Mugil cephalus*) and spot (*Leiostomus xanthrus*).

Aquatic invertebrates observed within the project corridor include blue crab (*Callinectes sapidus*) and brackish-water fiddler (*Uca minax*). Other notable invertebrates expected to occur within the project corridor include blue mussel (*Mytilus edulis*), Carolina marsh clam (*Polymesoda carolinana*), and penaeid and caridean shrimps. These organisms serve as prey items for fish and other wildlife.

Due to the limited extent of infringement on natural communities, the proposed bridge replacements will not result in substantial loss or displacement of known terrestrial populations. No substantial habitat fragmentation is expected, as most improvements will be restricted to roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns. 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. In addition, temporary impacts to downstream habitat from increased sediment during construction will be minimized by the implementation of stringent erosion control measures.

Loss of marsh and open-water habitat will occur within the proposed alternative. This disturbance is expected to have little effect on local wildlife populations. Construction of structures associated with these alternatives will result in substantial short-term disturbance to open-water habitats. The mobile nature of estuarine fish populations will allow them to vacate the project area during construction and return following completion of bridge replacement.

E. Special Topics

1. Waters of the United States

Surface waters within Kitty Creek and canals adjacent to the bridge access causeways are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR 328.3). The waters of the unnamed tributary and Kitty Creek exhibit characteristics of estuarine, subtidal, open-water streams that are permanently flooded, with unconsolidated bottoms (E1OWL) (Cowardin et al. 1979).

Wetlands subject to review under Section 404 of the Clean Water Act (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and wetland hydrology (COE 1987). According to these criteria, the brackish marsh complex is subject to jurisdictional review. The brackish marsh complex exhibits characteristics of estuarine, intertidal, emergent persistent vegetation, which is subject to irregular flooding (E2EM1P5) (Cowardin et al. 1979). Vegetative composition of these communities was previously characterized in section V.D.1. of this document.

The area (in acres [hectares]) of open waters and vegetated wetlands (brackish marsh complex and maritime forest) and the length (in feet [meters]) of open-waters (both Kitty Creek and roadside canal) which occur within the projected cut-and-fill limits for each alternative corridors are depicted in the table below.

Jurisdictional Totals within Cut/Fill Boundaries [acres (hectares)]

	Wetlands		Open Water		Total	CAMA Impacts*
	Brackish Marsh Complex	Estuarine Fringe Loblolly Pine Forest	Area	Distance [linear ft (m)]		
Cut/Filled	0.63 (0.25)	0.04 (0.02)	0.16 (0.06)	162 (49)	0.83 (0.33)	0.68 (0.28)
Bridged	0.03 (0.01)	0.00 (0.00)	0.16 (0.06)	72 (21)	0.19 (0.07)	0.19 (0.07

* Jurisdictional areas previously permitted for CAMA shoulder improvements. These areas are not included in impact totals and should not be included in permitting for bridge replacement.

Both surface waters and wetlands are considered to be high quality habitat and have been designated as Areas of Environmental Concern (AECs) by the N.C. Coastal Resources Commission. Consideration will be given to avoiding disturbances within these areas to the fullest extent practicable.

2. Permits

The proposed project will require a Coastal Area Management Act (CAMA) permit from the N.C. Division of Coastal Management (DCM) as a result of probable impacts to AECs. AECs proposed to be impacted by this project include coastal wetlands, estuarine waters, public trust areas, and estuarine shorelines. The proposed project will also require notification to the COE concerning Section 404 permitting and consultation with DWQ concerning Section 401 Water Quality Certification.

The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard bridge permits when the bridge project crosses non-tidal 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. Since Kitty Creek is a perennial, tidal stream, a Coast Guard Bridge Permit may be required for the replacement of Bridge 54. NCDOT may request an FHWA exception for this permit.

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

The North Carolina Environmental Management Commission has adopted rules to protect 50-foot (15.2 meter) wide riparian, or waterside, buffers along waterways in the Tar-Pamlico River Basin. These buffers remove nitrogen, phosphorus, and other pollutants from rainwater that flows into the basins' waterways, protecting the waterways from surrounding land uses. The rules are part of larger nutrient reduction strategies for each basin.

The main rule, referred to as the buffer protection rule, requires that up to 50 feet (15.2 meters) of riparian area be protected and maintained on the banks of waterways in the basin. This rule does not require establishment of new buffers unless the existing use of the buffer changes. Diffuse flow of storm water that runs into the buffer must be maintained.

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 lists 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, 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 practicable 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 practicable 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.

Bridges fall into the "Allowable" category. Alternative G is the only practicable alternative for the bridge replacements. Bridge 52 crosses a man-made channel and is not included in the Buffer Rules. The realignment of Bridge 54 and the approach roadway over and adjacent to Kitty Creek will result in buffer area impacts of approximately 0.01 acres (0.04 hectares) and new stream impacts of approximately 65.6 linear feet (20.0 linear meters).

4. Mitigation

Compensatory mitigation is not proposed for this project, due to the limited nature of project impacts. However, utilization of BMPs is recommended to minimize impacts. Temporary impacts to vegetated wetlands associated with construction activities will be mitigated by replanting disturbed areas with native wetland species and removal of temporary fill material upon project completion. A final determination regarding mitigation for impacts to waters of the U.S. rests with DCM, with input from COE and DWQ.

F. Rare and Protected Species

1. Federally-Protected Species

Species with the federal classification of Endangered (E) or Threatened (T), Proposed for such listing (P), Threatened due to Similarity of Appearance (T[S/A]), or Experimental (EXP) are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The following federal-protected and FSC species are listed for Hyde County (April 2001 FWS list):

Common Name	Scientific Name	Status
Leatherback sea turtle	*Dermochelys coriacea*	E
Hawksbill sea turtle	*Eretomochelys imbricata*	E
Kemp's Ridley sea turtle	*Lepidochelys kempii*	E
Red-cockaded woodpecker	*Picoides borealis*	E
Manatee	*Trichechus manatus*	E
Sensitive jointvetch	*Aeschynomene virginica*	T
Seabeach amaranth	*Amaranthus pumilus*	T
Loggerhead sea turtle	*Caretta caretta*	T

Piping plover	*Charadrius melodus*	T
Green sea turtle	*Chelonia mydas*	T*
Bald eagle	*Haliaeetus leucocephalus*	T
American alligator	*Alligator mississippiensis*	T (S/A)
Red wolf	*Canis rufus*	EXP
Black rail	*Laterallus jamaicensis*	FSC
Dune blue curls	*Trichostema* sp. *1*	FSC*

Note:

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)

T(S/A) Denotes Threatened due to Similarity of Appearance

EXP Denotes Experimental (a species that involves a local population which has been recently introduced into the species historic range and habitat).

FCS Denotes Federal Species of Concern (a species that may or may not be listed in the future, dependent on the information known about the species). FSC species receive no formal protection under the ESA.

* Historic record - the species was last observed in the county more than 50 years ago.

Leatherback sea turtle - The leatherback turtle is distinguished by its large size (46- to 70-inch [1.2 to 1.8 meters]) carapace, (650 to 1,500 pounds [295 to 682 kilograms]) and a shell of soft, leathery skin. This species is primarily tropical in nature, but the range may extend to Nova Scotia and Newfoundland (Martof *et al.* 1980). The leatherback is a powerful swimmer, often seen far from land; however, it has been known to move into shallow bays, estuaries, and even river mouths. Most living specimens of leatherback sea turtle observed in North Carolina were observed off shore of ocean beaches. Very few individuals have been documented in sounds and estuaries. Preferred food of the leatherback is jellyfish, although the diet includes other sea animals and seaweed. The leatherback generally nests on sandy, tropical beaches.

BIOLOGICAL CONCLUSION: NO EFFECT

The leatherback is primarily an oceanic species. The project corridor is located approximately 26 miles (41 kilometers) from the nearest ocean inlet (Hatteras Inlet) and up a restricted brackish marsh creek, so there is a low probability of the leatherback traveling to the project corridor. NHP records have no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor. Based on available information, this project will not result in an adverse impact to leatherback sea turtle.

Hawksbill sea turtle - The hawksbill is a medium-sized turtle (carapace length of 30 to 35 inches [76 to 89 centimeters]) and a maximum of 58 lbs. (127 kilograms) with a carapace characterized by red, yellow, brown, and black streaking. This is a primarily oceanic turtle whose population center is the Caribbean; it rarely ranges as far north as North Carolina (Martof *et al.* 1980). Of the eight recent records of hawksbill in North Carolina, only one was reported from inland waters - the Pamlico Sound. Preferred food of the hawksbill includes

marine plants and invertebrates (Palmer and Braswell 1995). The hawksbill generally nests on sandy tropical beaches.

BIOLOGICAL CONCLUSION: NO EFFECT

The hawksbill is primarily an oceanic species. The project corridor is located approximately 26 miles (41 kilometers) from the nearest ocean inlet (Hatteras Inlet) and up a restricted brackish marsh creek so there is a low probability of the hawksbill traveling to the project corridor. NHP records have no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor. Based on available information, this project will not result in an adverse impact to hawksbill sea turtle.

Kemp's Ridley sea turtle - The Kemp's Ridley sea turtle is the smallest of the sea turtles (23- to 30-inch [58.4 to 76.2 centimeter] carapace, 79 to 110 lb. [35.0 to 50 kilograms]), and is generally considered the most endangered species of sea turtle in the world (Palmer and Braswell 1995). This species ranges from the Gulf of Mexico and the east coast, to Nova Scotia and Europe. In addition to its small size, this species is discernible by the heart shaped carapace and gray coloration. Kemp's Ridley prefers shallow coastal waters, including sounds and the lower portions of large rivers, where it feeds on crabs, shrimp, snails, clams, and some saltwater plants. Nearly all members of this species are believed to nest on a short strand of ocean beach in the state of Tamaulipas, Mexico. Only a single nesting record exists for North Carolina - on Long Beach in Brunswick County (1992). The nearest suitable nesting habitat for this species is the Outer Banks ocean beaches.

BIOLOGICAL CONCLUSION: NO EFFECT

The Kemp's Ridley is primarily an oceanic species; however, it may also frequent high-saline waters of sounds near ocean inlets. The project corridor is located approximately 26 miles (41 kilometers) from the nearest ocean inlet (Hatteras Inlet) and up a restricted brackish marsh creek, so there is a low probability of the Kemp's Ridley traveling to the project corridor. NHP records have no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor. Based on available information, this project will not result in an adverse impact to Kemp's Ridley sea turtle.

Red-cockaded Woodpecker - This small woodpecker (7 to 8.5 inches [18 to 22 centimeters] long) 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. elliottii*), and pond (*P. serotina*) pines (Thompson and Baker 1971). Nest cavities are constructed in the heartwood of living pines (generally older than 70 years) that have been infected with red-heart disease. Nest cavity trees tend to occur in clusters, which are referred to as colonies (FWS 1985). The woodpecker drills

holes into the bark around the cavity entrance, resulting in a shiny, resinous buildup around the entrance, which allows for easy detection of active nest trees. Pine flatwoods or pine-dominated savannas, which have been maintained by frequent natural fires, serve as ideal nesting and foraging sites for this woodpecker. Development of a thick understory may result in abandonment of cavity trees.

BIOLOGICAL CONCLUSION: NO EFFECT

The red-cockaded woodpecker requires mature pine forest for foraging and reproduction - and the project corridor contains no pine forest of sufficient age. NHP records have no documentation of red-cockaded woodpecker within 2.0 miles (3.2 kilometers) of the project corridor. Based on available information, this project will not result in an adverse impact to red-cockaded woodpecker.

Manatee - The manatee is a large, gray or brown aquatic mammal that averages 10 to 13 feet (3 to 4 meters) in length and weighs up to 1,000 lbs. (455 kilograms). This species occurs from Brazil to the West Indies to the east coast of the United States. During summer month's manatees migrate from their Florida wintering areas as far north as coastal Virginia. Reported occurrences in North Carolina are greatest from June to October. These mammals inhabit warm waters, both fresh and salt, where their diet consists mostly of aquatic vegetation (Linzey 1998, Clark 1987, Webster *et al.* 1985).

BIOLOGICAL CONCLUSION: NO EFFECT

The manatee rarely occurs in North Carolina inland waters; although there have been recent sightings in the Cape Fear and Neuse Rivers. The project corridor is not expected to support forage sufficient for the manatee. NHP records have no documentation of manatee within 2.0 miles (3.2 kilometers) of the project corridor.

The FWS has developed recommendations for general construction activities in aquatic area, which may be used by the manatee (FWS memo dated July 2, 1995). The FWS directs that construction, which can be completed in several months, be scheduled during the seven-month period of November through May. The FWS also makes a series of recommendations pertaining to construction and the manatee, of which are summarized as follows: 1) construction managers should advise all construction personnel to be aware of the possibility of manatee appearance and the legal obligation to avoid harassment of the species; 2) construction personnel will watch for manatee sightings and be prepared to shut down equipment if one is made; 3) any sightings or contract with manatees will be reported to appropriate natural resource agencies (FWS, WRC); 4) a sign will be posted providing instructions to equipment operators in case a manatee is sighted; 5) special steps will be taken on

site concerning operations during the no-blast moratorium period, such as guidelines for operating water craft and placement of siltation barriers.

Based on available information, the manatee is not expected to be in the project area during the period of November to May and is unlikely to occur from June to October. However, any construction associated with the project will follow guidelines prepared by the FWS to avoid impacts to the manatee.

Sensitive Jointvetch - Sensitive jointvetch is a robust, bushy-branched, annual legume often exceeding 3.3 feet (1.0 meters) in height. Young stems have bristly hairs with large, swollen bases (Leonard 1985). The alternate, compound leaves are even-pinnate, approximately 1.3 to 2 inches (3.2 to 5.1 centimeters) wide, with 30 to 56 toothless leaflets (Radford *et al.* 1968). Flowers are bright greenish-yellow with red veins, about 0.5 inches (1.3 centimeter) long, and are subtended by bractlets with toothed margins (Leonard 1985). Flowers are produced on few-flowered racemes from July to October. The jointed legume (loment) is about 2 inches (5 centimeters) long, has 6 to 10 segments, and a 0.5- to 1.0-inch (1.3 to 2.5 centimeters) long stalk.

Sensitive jointvetch occurs in the intertidal zone near the upper limit of tidal fluctuation. It seems to prefer sparsely vegetated areas where annuals predominate (FWS 1995). Habitat for this species in North Carolina consists of moist to wet coastal roadside ditches and moist fields that are nearly tidal (FWS 1995), especially in full sun (Leonard 1985). Associated plants listed for this jointvetch in North Carolina are all fresh water species. Sensitive jointvetch is not expected to be found in association with salt-tolerant species such as saltmarsh cordgrass or giant cordgrass (Rouse 1994). This species seems to favor microhabitats where there is a reduction in competition from other plant species and usually some form of soil disturbance (FWS 1995). The traditional range of sensitive jointvetch is Atlantic coastal areas from New Jersey to the Savannah River. This species has been documented in Hyde and Beaufort Counties, North Carolina (Leonard 1985).

BIOLOGICAL CONCLUSION: NO EFFECT

Sensitive jointvetch occurs in intertidal areas, near the upper extent of tidal flooding, on open ground surfaces with sparse vegetation. The NHP has documented this species approximately 1.8 miles (2.7 kilometers) west of the project corridor near the intersection of SR 1311 and SR 1314. A visual search for this species during site surveys did not result in the identification of this species. Intertidal areas within the project corridor are brackish in nature and densely vegetated, and therefore do not provide appropriate habitat for this species. Based on available information, the proposed project will not result in an adverse impact to sensitive jointvetch.

Seabeach Amaranth - Seabeach amaranth is a low-growing, fleshy, annual herb. The spatula-shaped leaves are pink and range from 0.5 to 1.0 inch (1.3 to 2.5 centimeters) in diameter. The leaves are clustered near the end of the stem and are notched apically. Flowers and fruits are inconspicuous and occur along the stem. This plant is primarily found on foredunes and sand spits of Atlantic coast barrier beaches and inlets in areas where periodic overwash eliminates vegetative competition. Some of the largest remaining populations of this species occur in North Carolina (FWS 1993). This species has been documented on sand spits and ocean-fronting beaches of the Outer Banks.

BIOLOGICAL CONCLUSION: NO EFFECT

Seabeach amaranth prefers the open sand of foredunes, overwash fans, and inlet spits associated with ocean-fronting barrier islands. Potential habitat for seabeach amaranth does not exist within the project corridor. NHP records indicate no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor, and this species was not observed during field surveys. Based on available information, the proposed project will not result in an adverse impact to seabeach amaranth.

Loggerhead sea turtle - The loggerhead sea turtle is the most common sea turtle on the coast of the Carolinas; this species occurs along the coast of North America from Texas to Nova Scotia. This species averages 31 to 47 inches (79 to 120 centimeters) in length and weighs from 170 to 500 lbs. (77 to 227 kilograms). (Martof *et al.* 1980). The loggerhead is basically temperate or subtropical in nature, and is primarily oceanic, but may also be found in estuarine bays, sounds, and large coastal rivers. This species occurs along the coast of North Carolina from late April to October. Preferred nesting habitat is ocean beaches, generally south of Cape Lookout. Traditionally, the largest concentration of loggerhead nests each year occurs on Smith Island, located at the mouth of the Cape Fear River (Palmer and Braswell 1995).

BIOLOGICAL CONCLUSION: NO EFFECT

The loggerhead primarily occurs south of Cape Lookout in North Carolina; however, it may also wander into estuarine waters of coastal sounds such as the Pamlico. The project corridor is located approximately 26 miles (41 kilometers) from the nearest ocean inlet (Hatteras Inlet), so there is a low probability of the loggerhead traveling to the project corridor. NHP records have no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor. Based on available information, this project will not result in an adverse impact to loggerhead sea turtle.

Piping plover - Piping plovers are the smallest of the plovers found in the Carolinas, measuring only 6 to 8 inches (15 to 20 centimeters) in length (Golder and Parnell 1987). This species is characterized by a white head and back and

white breast and belly, yellow legs, narrow black neck band, a narrow band above the eyes, and a black bill in the winter and yellow and black bill in the summer (Potter *et al.* 1980). These small Nearctic birds occur along beaches above the high tide line, sand flats at the ends of sand spits and barrier islands, gently sloping foredunes, blowout areas behind primary dunes, and washover areas cut into or between dunes (Dyer *et al.* 1987). Nests most often occur on open, wide, sandy stretches of beach similar to those associated with inlets and capes.

BIOLOGICAL CONCLUSION: NO EFFECT

The piping plover occurs along beaches, sand flats, sand spits, and among dunes. No plover habitat exists within the project corridor. NHP records have no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor. Based on available information, this project will not result in an adverse impact to piping plover.

Green sea turtle - The green sea turtle is a medium to large turtle 30 to 60 inches (76 to 152 centimeters) long, 220 to 650 lbs. (100 to 295 kilograms) in weight with a smooth, heart-shaped shell (Martof *et al.* 1980). Adults are believed to be primarily herbivorous (including jellyfish) while the young are believed to be primarily carnivorous. The green sea turtle is most commonly found in the Caribbean where it breeds, although individuals (usually immatures) are occasionally found as far north as the North Carolina coast. Preferred nesting habitat occurs on ocean-fronting beaches. The FWS has listed the green sea turtle for Hyde County based on a historic record, which means the species was last observed in the County more than 50 years ago.

BIOLOGICAL CONCLUSION: NO EFFECT

The green sea turtle rarely occurs in North Carolina waters, and then primarily in ocean waters. The project corridor is located approximately 26 miles (41 kilometers) from the nearest ocean inlet (Hatteras Inlet) up a restricted brackish marsh creek, so there is a low probability of the green sea turtle traveling to the project corridor. NHP records have no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor, and no evidence of this species has been reported in Hyde County during the last 50 years. Based on available information, this project will not result in an adverse impact to the green sea turtle.

Bald Eagle - The bald eagle is a large raptor with a wingspan greater than 6 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. The bald eagle typically feeds on fish, but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980). The bald eagle typically nests 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 (229 to 457 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 1.0 miles (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 (457 meters) of known roosting sites.

BIOLOGICAL CONCLUSION: NO EFFECT

The bald eagle typically nests in large trees near open water. The project corridor includes open water but no large trees. Although there are large trees within 1 mile (1.6 kilometers) of the project corridor, NHP records have no documentation of this species in the project corridor vicinity, and no individuals were observed during recent field surveys. Based on available information, this project will not result in an adverse impact to the bald eagle.

2. Federal Species of Concern

Federal Species of Concern (FSC) are not legally protected under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Species designated as FSC are defined as taxa, which may or may not be listed in the future. These species were formally Candidate 2 (C2) species or species under consideration for listing as Endangered, Threatened, or Special Concern by the NCNHP database of rare plant and animal species and are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. The following are listed as Federal Species of Concern in Hyde County.

Black rail - FSC species do not receive protection under federal law, but should be considered during project planning. The black rail is a rare, permanent resident of coastal North Carolina. This species requires dense, herbaceous cover characteristic of marshes and wet meadows where it nests and feeds on small invertebrates, seeds, and vegetation (Hamel 1992). The project corridor supports appropriate habitat for this species; however, NHP records have no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor. Due to the mobility of this species, and the extensive marshes in the project vicinity, the proposed project will not result in an adverse impact to black rail.

Dune blue curls - FSC species do not receive protection under federal law, but should be considered during project planning. Dune blue curls are a perennial, profusely branching herbaceous member of the mint family that grows to 1.0 foot (30 centimeters) high. This species is endemic to barrier islands from just north

of Cape Hatteras south to Cape Romain, South Carolina. Habitat consists of barrier island dunes vegetated with perennial grasses and openings in maritime shrub (Weakley unpublished). The project corridor does not support appropriate habitat for this species. NHP records have no documentation of this species within 2.0 miles (3.2 kilometers) of the project corridor, and this species was not observed during site surveys. Based on available information, the proposed project will not adversely affect dune blue curls.

3. State Protected Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), or Special Concern (SC) (Amoroso 1997, LeGrand and Hall 1997) 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 only one state-listed species has been documented in the immediate vicinity of the project: Carolina saltmarsh snake (Nerodia sipedon williamengelsi). The Carolina saltmarsh snake is listed as a species of Special Concern. The documented sighting of this species occurred approximately 2000 feet (610 meters) south of the project bridge in an expansive brackish marsh east of the community of Engelhard. Potential impacts due to the proposed project will be short lived and localized in the immediate vicinity of the bridge, and are therefore not expected to adversely affect the Carolina saltmarsh snake.

4. Rare and Unique Natural Areas

The vegetated area northeast of Bridge No. 54 has been designated an Identified Priority Area (IPA) by the NHP. This IPA is known as the Long Shoal River Marshes/Pocosins. An IPA receives no formal protection, but is recognized as a unique area and may come under protection in the future. Potential impacts due to the proposed project will be short lived and localized to the immediate vicinity of the bridge; and therefore are not expected to adversely affect the Long Shoal River Marshes/Pocosins IPA.

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 that for federally funded, licensed, or permitted projects having an effect on a property listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given an opportunity to comment.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted and structures within the APE were photographed, and later reviewed by the State Historic Preservation Office (HPO). In a concurrence form dated January 28, 1999, and a memorandum dated March 17, 2000, the State HPO concurred that there are no historic architectural resources either listed in or eligible for listing in the National Register of Historic places within the APE. A copy of the concurrence form and the memorandum are included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated March 17, 2000, stated that they were aware of no properties of archaeological significance, which would be affected by the project. A copy of the SHPO memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

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

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

The bridge replacement will not have an adverse effect on the quality of the human or natural environments with the use of current North Carolina Department of Transportation standards and specifications.

The project does not conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from construction of this project. Therefore, no secondary impacts are anticipated.

No adverse impact on families or communities is anticipated. The construction of the project will require temporary construction easements and right of way will be required at the relocated intersection of SR 1315 and the public boat ramp access road. No relocatees are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is expected. However, there may be some temporary disruption to the public boat ramp access road during construction. The road entrance and the adjacent land is not part of a publicly owned park, recreation area, or wildlife and waterfowl refuge. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

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

Bridge No. 52 is located on US 264 over a canal and Bridge No. 54 is located over Kitty Creek in Hyde County. The four spans of Bridge No. 52 and the three spans of Bridge No. 54 are composed of reinforced concrete caps on timber piles supporting timber joist and a reinforced concrete deck. None of the substructure is located in the water. The bridge will be removed without dropping any component into Waters of the U.S. during construction.

The project has been coordinated with the United States Natural Resources Conservation Service. The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. There are no soils classified as prime, unique, or having state or local importance in the vicinity of the project. Therefore, the project will not involve the direct conversion of farmland acreage within these classifications.

This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

This project is located in Hyde 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 in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area

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 Environmental Management, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

Hyde County is a participant in the National Flood Insurance Regular Program. According to the Flood Insurance Rate Map, the bridge crosses a canal within the 100-year flood elevations. Since the proposed bridge is an in-kind replacement, it is anticipated that this project will not have any adverse effect or impact on the existing floodplain or the adjacent properties and existing structures.

There are no practicable alternatives to crossing in the floodplain area. Any shift in alignment will result in a crossing of about the same magnitude. All reasonable measures will be taken to minimize any possible harm.

The project will not increase the upstream limits of the 100-year floodplain.

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

VIII. PUBLIC INVOLVEMENT

Throughout the project development process, citizen and agency participation was encouraged. A scoping letter was mailed in February of 2000, to the Chair of the Hyde County Commission, the Hyde County Manager, the Superintendent of Hyde County Schools, and to state and Federal environmental regulatory resource agencies to request input into the project development process. Copies of the responses are included in the Appendix. No interagency meetings were held as part of this project.

IX. AGENCY COMMENTS

The following comments were received:

1. US Department of Interior – Fish and Wildlife Service, December 29, 1998

   Comment - "Habitat requirements for any federally-listed species that occur in the project impact areas should be compared with the available habitat at the project site. If suitable habitat is present within the action area of the project, field surveys for the species should be performed. Note that a listed species, the sensitive joint-vetch (*Aeschynomene virginica*), is known to occur in the vicinity of bridges B-3348 and B-3349 in Hyde County."

   Reply – *A comprehensive Natural Systems report was prepared for this project, which included field investigations and searches for all listed species and potential habitat. Sensitive jointvetch occurs in intertidal areas, near the upper extent of tidal flooding, on open ground surfaces with sparse vegetation. The NHP has documented this species approximately 1.8 miles west of the project corridor near the intersection of SR 1311 and SR 1314. A visual search for this species during site surveys did not result in the identification of this species. Intertidal areas within the project corridor are brackish in nature and densely vegetated, and therefore do not provide appropriate habitat for this species. Based on available information, the proposed project will not affect the sensitive jointvetch.*

2. US Department of the Army – Corps of Engineers, Wilmington District, February 24, 1999

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

   Reply –*So noted. See Project Commitments, Green Sheet.*

3. NC Department of Environment and Natural Resources – Division of Marine Fisheries, January 13, 1999

   Comment - "Both these bridges are located in Primary Nursery Areas (PNA) and the surrounding habitat is almost identical. Because of the importance of PNA's to the initial development of post larval fish and shellfish species, NCDMF must stress our concerns relating to construction activities at these two sites. NCDMF requests that replacement of these bridges occur between October 1 and April 1 in order to minimize negative effects..."

   Reply – *See comment 5, North Carolina Wildlife Resources Commission.*

4. NC Department of Environment and Natural Resources – Division of Water Quality, January 15, 1999

   Comment – "Identify the linear feet of stream channelization/relocations. If the original stream banks were vegetated, it is requested that the channelized/relocated stream banks be revegetated.

   Reply – *So noted. See page 16 of this report.*

   Comment - "Borrow/waste areas should avoid wetlands to the maximum extent practicable. Prior to the approval of any borrow/waste site in a wetland, the contractor shall obtain a 401 Water Certification from DWQ."

   Reply – *Use of wetlands for borrow/waste areas will be avoided to the maximum extent practicable. Prior to use of these areas for borrow/waste, a 401 Water Certification will be obtained from DWQ.*

   Comment - "DWQ is also concerned about secondary wetland impacts."

   Reply – *See Environmental Effects (page 26) section of this report.*

5. North Carolina Wildlife Resources Commission, January 25, 1999

   Comment – "Live concrete should not discharge directly into the stream."

   Reply – *So noted.*

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

   Reply – *So noted.*

   Comment – "If possible, when using temporary structures the area should be cleared but not grubbed."

   Reply – *So noted.*

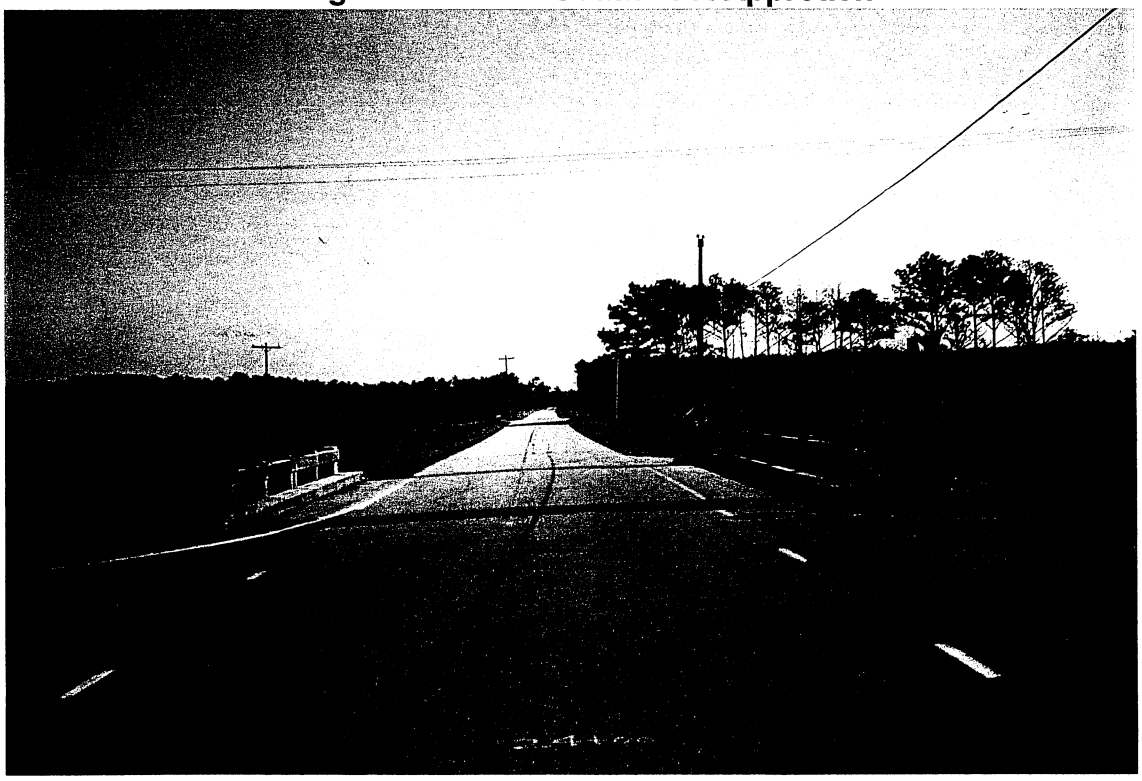
6. NC Department of Environment and Natural Resources – Division of Coastal Management, July 14, 1999

   Comment – "As proposed, these projects would require CAMA Major Permits."

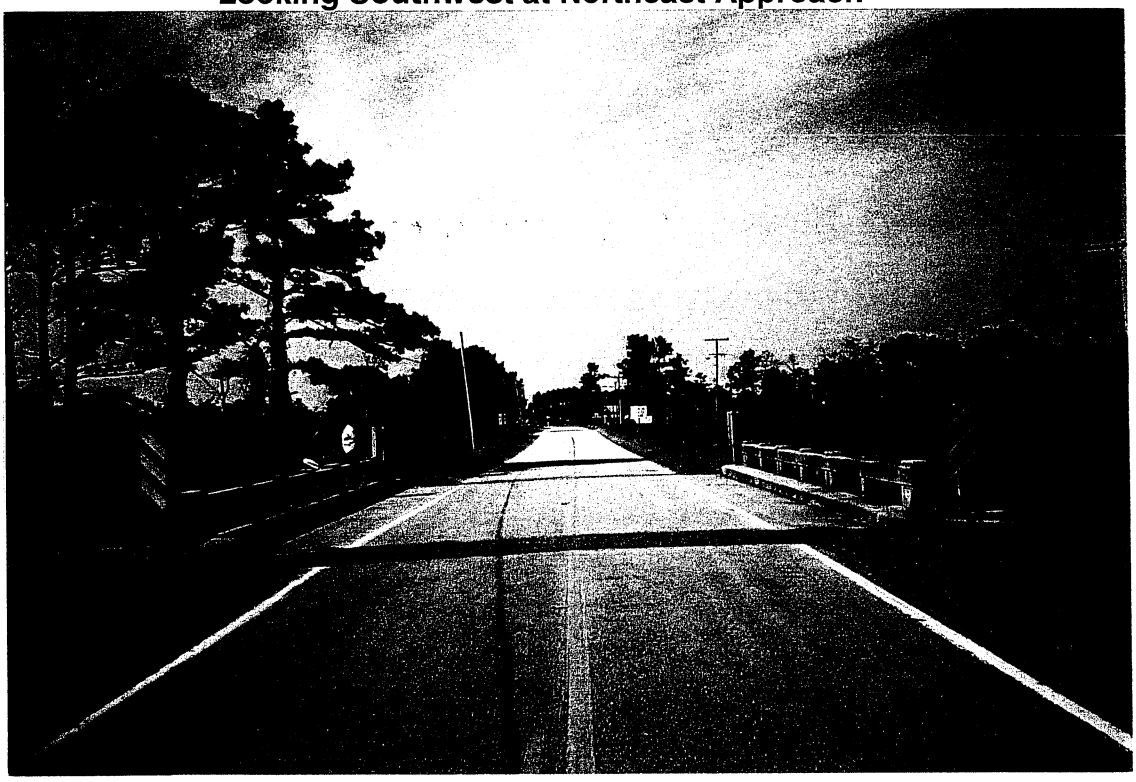
   Reply – *So noted.*

B-3348
Bridge No. 52
Looking Southwest at Northeast Approach

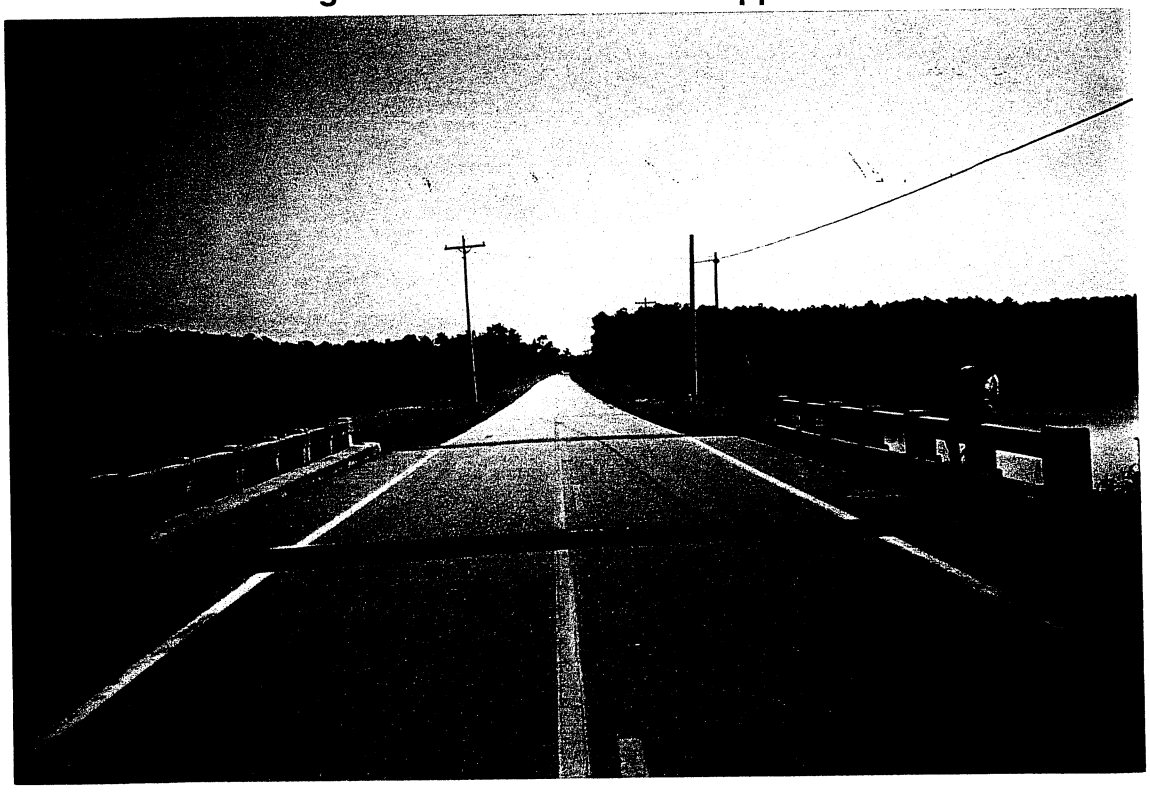
B-3348
Bridge No. 52
Looking Northeast at Southwest Approach

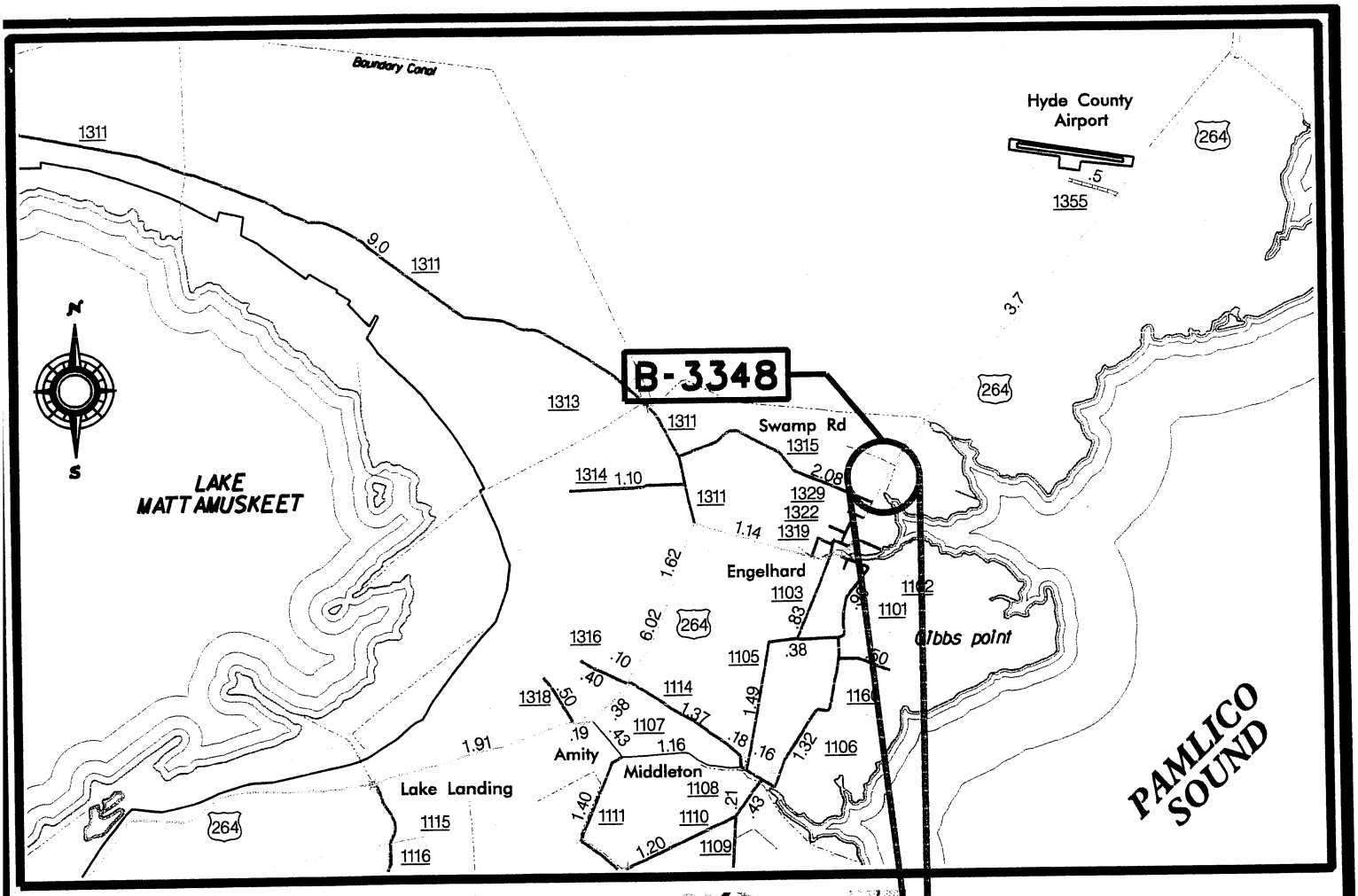


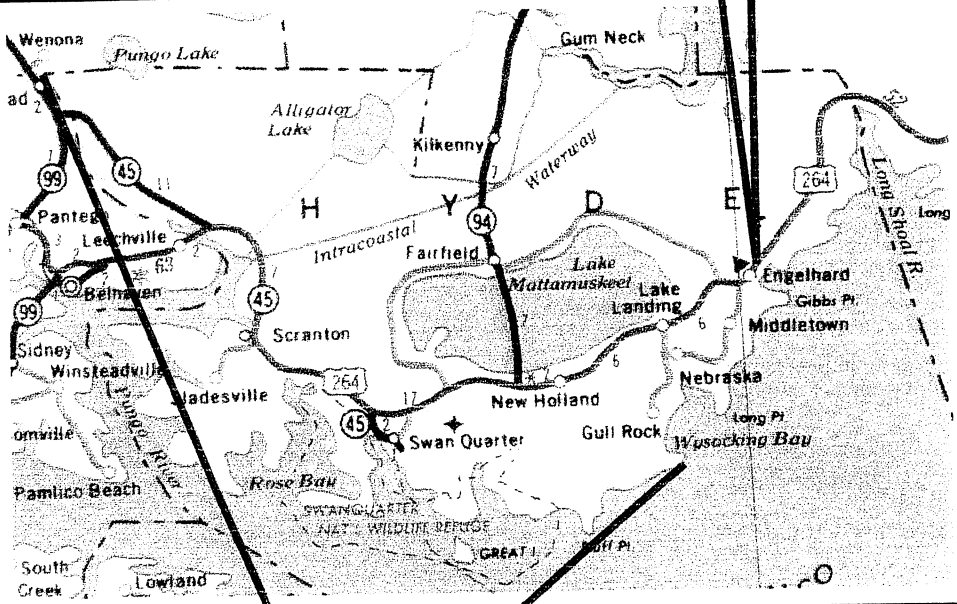
B-3348
Bridge No. 54
Looking Southwest at Northeast Approach



B-3348
Bridge No. 54
Looking Northeast at Southwest Approach







NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND ENVIRONMENTAL BRANCH

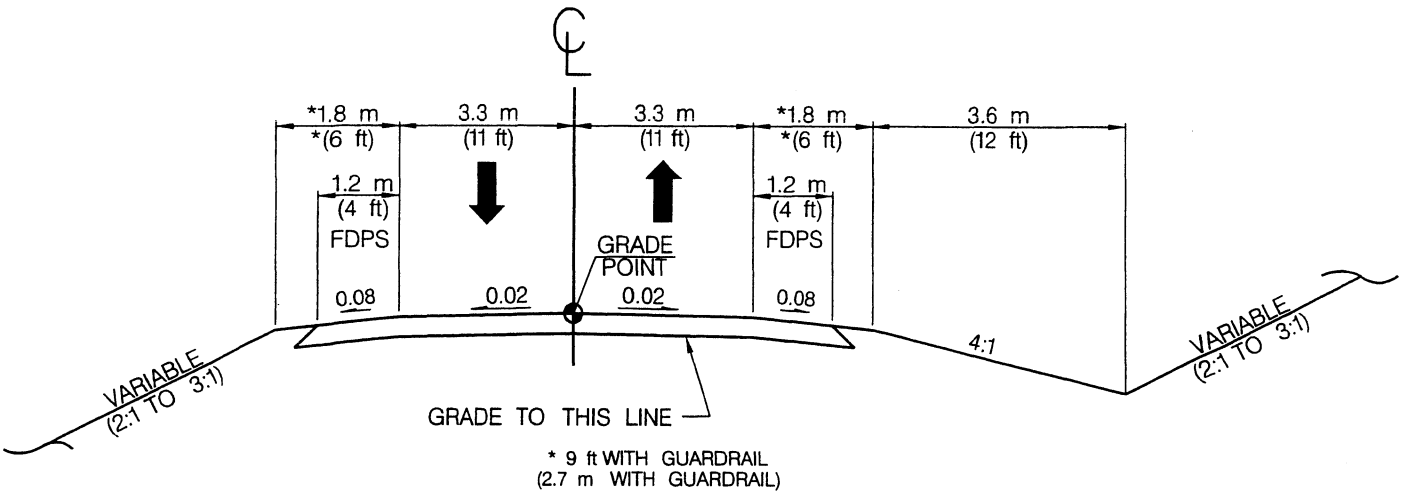
HYDE COUNTY
BRIDGE NUMBER 52 AND NUMBER 54
ON US 264 OVER CANAL
ON PAMLICO SOUND
B-3348

FIGURE 1

1.6 0 1.6 3.2 4.8 6.4 KILOMETERS
1 0 1 2 3 4 MILES

BRIDGE REPLACEMENT GROUP XIX

B-3348 (HYDE COUNTY)
US 264 OVER CANAL

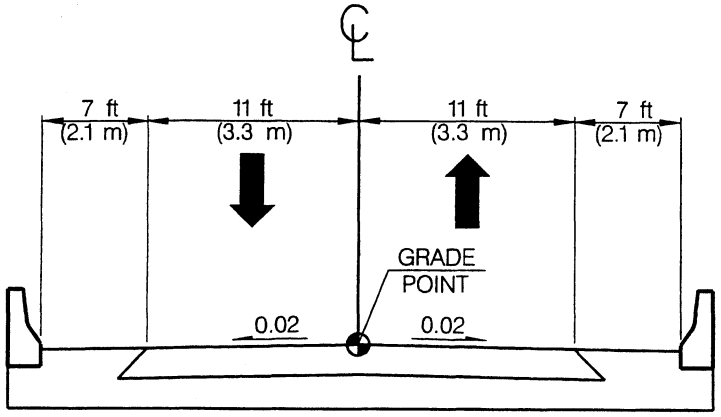


TYPICAL SECTION FOR ROADWAY APPROACH

DESIGN DATA

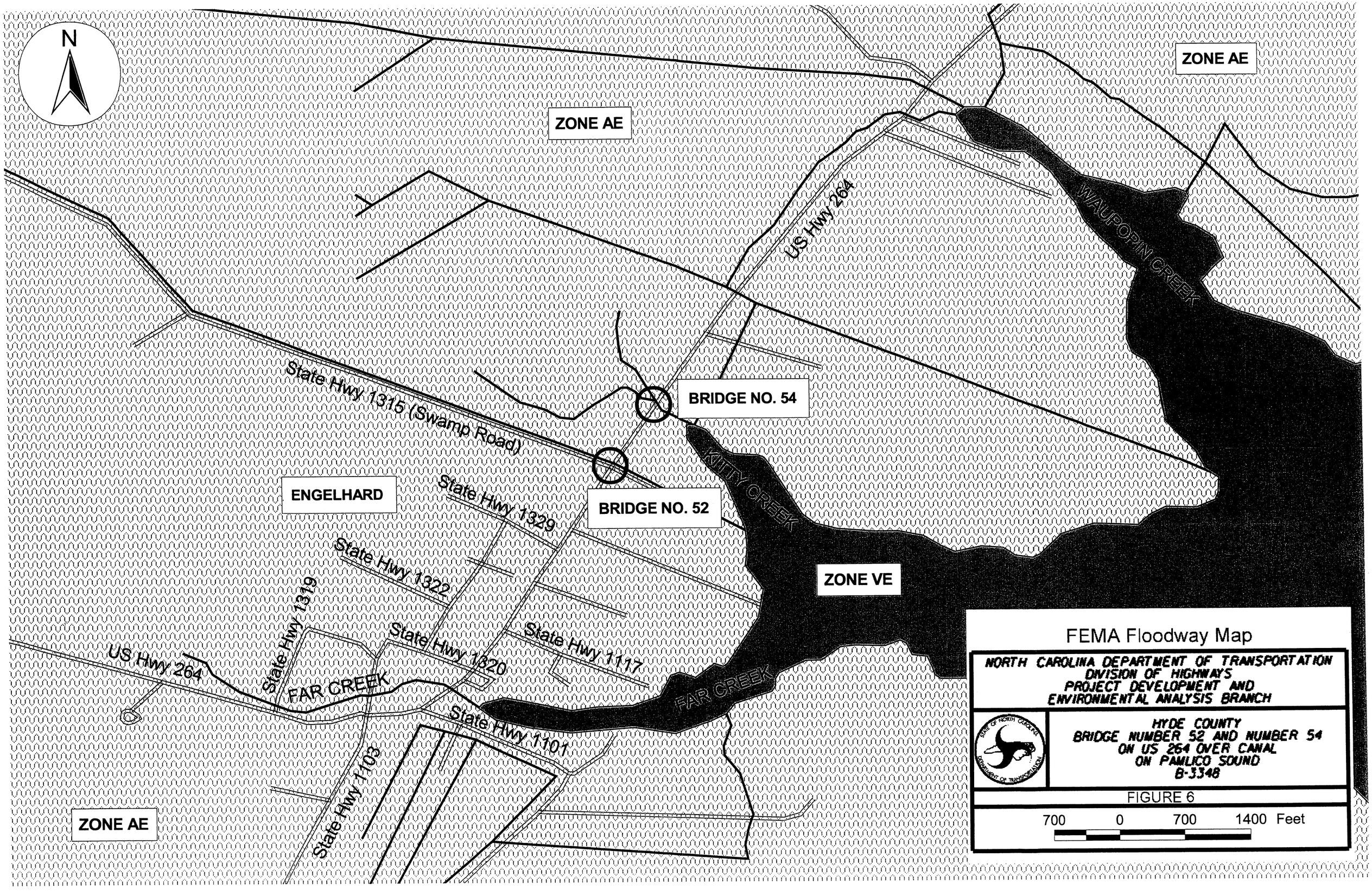
2001 ADT – 1050 (LOS A)
2025 ADT – 1400 (LOS A)

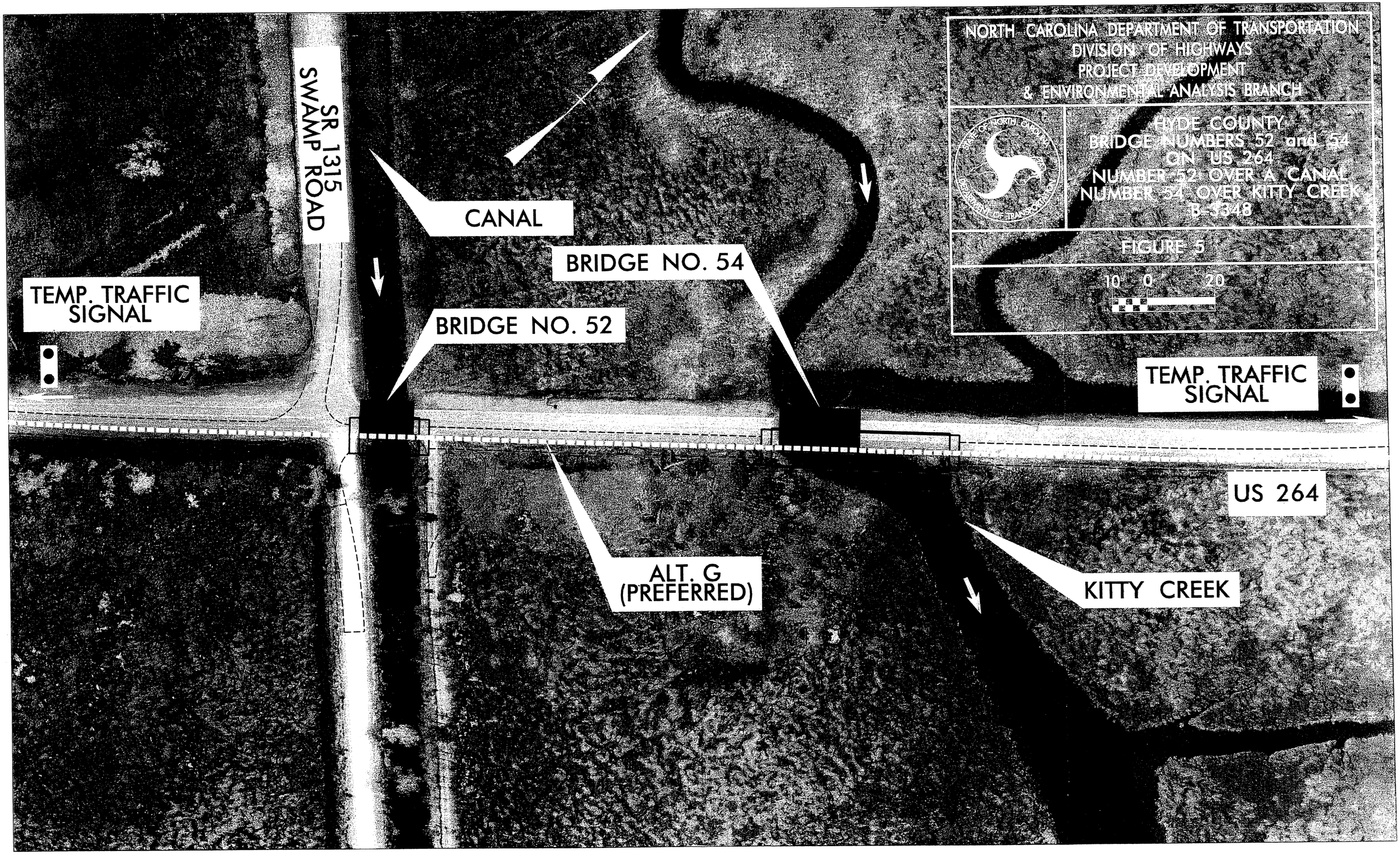
LOS = Level of Service



TYPICAL SECTION FOR PROPOSED STRUCTURE

FIGURE 2


N
ZONE AE
ZONE AE
US Hwy 264
WAUPOPIN CREEK
State Hwy 1315 (Swamp Road)
BRIDGE NO. 54
KITTY CREEK
ENGELHARD
BRIDGE NO. 52
State Hwy 1329
State Hwy 1322
ZONE VE
State Hwy 1319
State Hwy 1320
State Hwy 1117
US Hwy 264
FAR CREEK
FAR CREEK
State Hwy 1101
State Hwy 1103
ZONE AE
FEMA Floodway Map
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH
HYDE COUNTY
BRIDGE NUMBER 52 AND NUMBER 54
ON US 264 OVER CANAL
ON PAMLICO SOUND
B-3348
FIGURE 6
700 0 700 1400 Feet


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT
& ENVIRONMENTAL ANALYSIS BRANCH
HYDE COUNTY
BRIDGE NUMBERS 52 and 54
ON US 264
NUMBER 52 OVER A CANAL
NUMBER 54 OVER KITTY CREEK
B-3348
FIGURE 5
10 0 20
SR 1315
SWAMP ROAD
CANAL
BRIDGE NO. 54
BRIDGE NO. 52
TEMP. TRAFFIC SIGNAL
TEMP. TRAFFIC SIGNAL
US 264
ALT. G
(PREFERRED)
KITTY CREEK

Mattamuskeet Bike Route

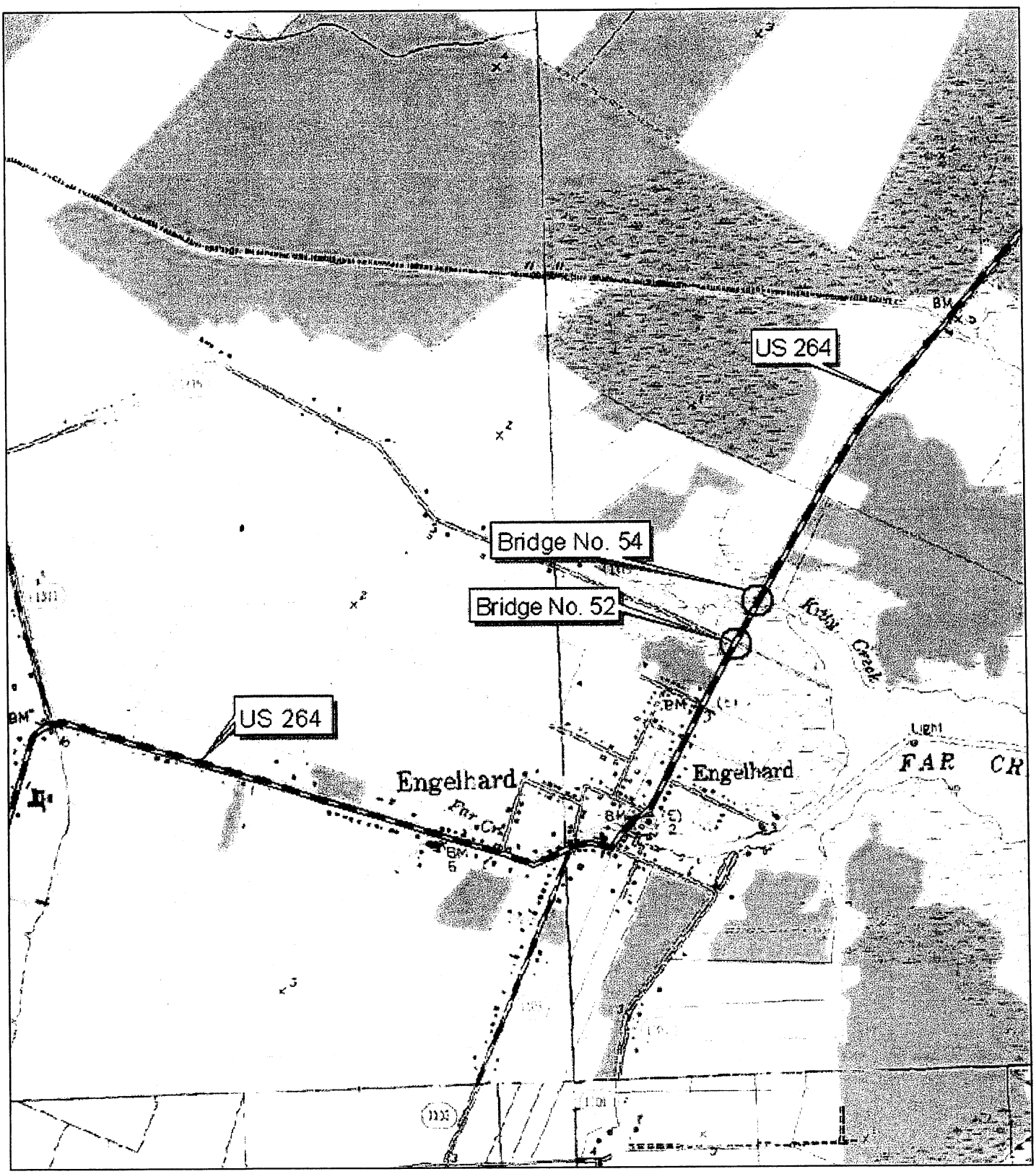


Figure 7

Source: Carter & Burgess Inc, 2001

APPENDIX

USDA

nited States
epartment of
griculture

tural
esources
nservation
rvice

05 Bland Rd.
ite 205
leigh, NC 27609

9) 873-2134

December 18, 1998

Mr. William D. Gilmore, P. E. Manager
Planning and Environmental Branch
NCDOT
P. O. Box 25201
Raleigh, NC 27611-5201

Dear Mr. Gilmore:

Thank you for the opportunity to provide comments on Group XIX Bridge Replacement Projects:

1. B-3348, Hyde County, Bridge No. 54 on US 264 over Canal on Pamlico Sound,
2. B-3349, Hyde County, Bridge No. 32 on US 264 over Rose Bay Canal,
3. B-3442, Cumberland County, Bridge No. 224 on SR 1006 (Person Street) over Locks Creek,
4. B-3443, Cumberland County, Bridge No. 219 on SR 1006 (Person Street) over the Cape Fear River,
5. B-3445, Currituck County, Bridge No. 7 on NC 615 over northern canal between Back Bay and Currituck Sound,
6. B-3524, Wake County, Bridge No. 259 on SR 1370 (Tryon Road) over Norfolk Southern Railroad,
7. B-3537, Wayne County, Bridge No. 62 on NC 581 over the Little River.

The Natural Resources Conservation Service does not have any comments at this time.

Sincerely,

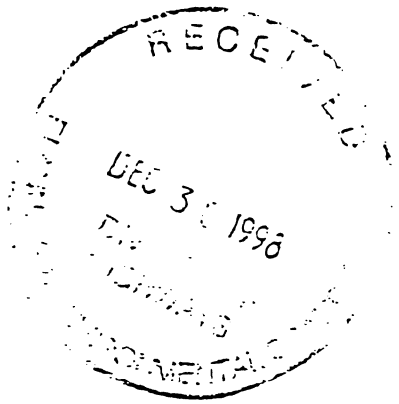
Mary T. Kollstedt

Mary T. Kollstedt
State Conservationist

United States Department of the Interior

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

December 29, 1998



Mr. William D. Gilmore, P.E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
Division of Highways
P.O. Box 25201
Raleigh, NC 27611-520

Attention: Ms. Stacy Baldwin, P.E.

Dear Mr. Gilmore:

Thank you for your letter of December 8, 1998, requesting information from the U.S. Fish and Wildlife Service (Service) for the purpose of evaluating the potential environmental impacts of the following proposed bridge replacement projects:

1. B-3348, Hyde County, Bridge No. 54 on US 264 over Canal on Pamlico Sound;

2. B-3349, Hyde County, Bridge No. 32 on US 264 over Rose Bay Canal;

3. B-3442, Cumberland County, Bridge No. 224 on SR 1006 (Person Street) over Locks Creek;

4. B-3443, Cumberland County, Bridge No. 219 on SR 1006 (Person Street) over the Cape Fear River;

5. B-3445, Currituck County, Bridge No. 7 on NC 615 over northern canal between Back Bay and Currituck Sound,

6. B-3524, Wake County, Bridge No. 259 on SR 1370 (Tryon Road) over Norfolk Southern Railroad; and,

7. B-3537, Wayne County, Bridge No. 62 on NC 581 over the Little River.

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 these projects.

The mission of the Service is to provide leadership in the conservation, protection, and enhancement of fish and wildlife, and their habitats, for the continuing benefit of all people. Due to staffing limitations, we are unable to provide you with detailed site-specific comments at this time. However, 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/or 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/or 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 appropriate 7.5 Minute Quadrangles for each site should be consulted to determine if wetlands may be impacted by the respective projects. 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.

We reserve the right to review any required federal or state permits that may be required for these projects at the public notice stage. We may have no objection, provide recommendations for modification of the project, or recommend denial. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation.

In addition to the above guidance, we recommend that the environmental documentation for each project include the following in sufficient detail to facilitate a thorough review of the action:

1. A clearly defined purpose and need for each proposed project, including a discussion of the projects's independent utility;

2. A description of the proposed action with an analysis of all alternatives being considered, including the upgrading of existing bridges, new bridges on existing alignments, new bridges on new alignments, and a "no action" alternative;

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

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

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

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

7. Design features, construction techniques, and/or any other mitigation measures which would be employed at wetland crossings and stream channel relocations to avoid or minimize impacts to waters of the United States; and,

8. 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 attached pages identify the federally-listed endangered, threatened, and candidate species that are known to occur in the respective counties. Habitat requirements for any federally-listed species that occur in the project impact areas should be compared with the available habitat at the project site. If suitable habitat is present within the action area of the project, field surveys for the species should be performed. Note that a listed species, the sensitive joint-vetch (*Aeschynomene virginica*), is known to occur in the vicinity of bridges B-3348 and B-3349 in Hyde County.

Habitat for sensitive joint-vetch is a rare and specialized community known as a freshwater tidal marsh. These communities are close enough to the coast to be influenced by tidal fluctuations, yet far enough upstream to consist of fresh or only slightly brackish water.

Environmental documentation should include survey methodologies and results. In addition to this guidance, the following information should be included in the document regarding protected species:

1. A map and description of the specific area used in the analysis of direct, indirect, and cumulative impacts;

2. A description of the biology and status of the listed species and the habitat of the species that may be affected by the action, including the results of any onsite inspections;

3. An analysis of the "effects of the action" on the listed species and associated habitat which includes consideration of:

   a. The environmental baseline which is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species and its habitat;

   b. The impacts of past and present federal, state, and private activities in the project area and cumulative impacts area;

   c. The direct and indirect impacts of the proposed action. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur;

   d. The impacts of interrelated actions (those that are part of a larger action and depend on the larger action for their justification) and interdependent actions (those that have no independent utility apart from the action under consideration); and,

   e. The cumulative impacts of future state and private activities (not requiring federal agency involvement) that will be considered as part of future Section 7 consultation,

4. A description of the manner in which the action may affect any listed species or associated habitat including project proposals to reduce/eliminate adverse effects. Direct mortality, injury, harassment, the loss of habitat, and/or the degradation of habitat are all ways in which listed species may be adversely affected;

5. A summary of evaluation criteria to be used as a measure of potential effects. Criteria may include post-project population size, long-term population viability, habitat quality, and/or habitat quantity; and,

6. Based on evaluation criteria, a determination of whether the project is not likely to adversely affect or may affect threatened and endangered species.

Candidate species are those plant and animal species for which the Service has sufficient information on their biological status and threats to their survival to propose them as endangered or threatened under the ESA. Although candidate species receive no statutory protection under the ESA, Federal agencies are required to informally confer with the Service on actions likely to jeopardize the continued existence of these species or that may destroy or modify proposed critical habitat.

Federal species of concern (FSC) include those species for which the Service does not have enough scientific information to support a listing proposal or species which do not warrant listing at the present time. These species receive no statutory protection under the ESA, but could become candidates in the future if additional scientific information becomes available indicating that they are endangered or threatened. Formal listing places the species under the full protection of the ESA, and necessitates a new survey if its status in the project area is unknown. Therefore, it would be prudent for the North Carolina Department of Transportation (NCDOT) to avoid any adverse impacts to candidate species or their habitat. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

The Service appreciates the opportunity to comment on these projects. 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,

John M. Hefner
Ecological Services Supervisor

Enclosures

FWS/R4:TmcCartney:TM:12/28/98:919/856-4520 extension 32:\7-bridge:rep

cc:
Michael Bell, COE, Washington, NC
Eric Alsmeyer, COE, Raleigh, NC
Scott McLendon, COE, Wilmington, NC
David Cox, DNR, Creedmoor, NC
Cyndi Bell, NCDWQ, Raleigh, NC
Nicholas Graf, FHWA, Raleigh, NC
Ted Bisterfield, EPA, Atlanta, GA

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

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
A. Preston Howard, Jr., P.E., Director

NCDENR

January 15, 1999

MEMORANDUM

TO: William D. Gilmore Manager
Planning and Environmental Branch

FROM: Gloria Putnam, DWQ SEPA Coordinator

RE: Comments on DOT Scoping Sheets, DWQ# 12307
Group XIX Bridge Replacement Projects

The Division of Water Quality (DWQ) requests that the following topics be discussed in the environmental review document (s):

A. Identify the streams potentially impacted by the project. The current stream classifications and use support ratings for these streams should be included. This information is available from DWQ through the following contacts:

Liz Kovasckitz - Classifications - 919-733-5083, ext. 572
Andrea Leslie - Use Support Ratings - 919-733-5083, ext. 577

B. Identify the linear feet of stream channelization/relocations. If the original stream banks were vegetated, it is requested that the channelized/relocated stream banks be revegetated.

C. Identify the number and locations of all proposed stream crossings.

D. Will permanent spill catch basins be utilized? DWQ requests that these catch basins be placed at all water supply stream crossings. Identify the responsible party for maintenance.

E. Identify the stormwater controls (permanent and temporary) that will be used.

F. Please ensure that sediment and erosion control measures are not placed in wetlands.

P.O. Box 29535, Raleigh, North Carolina 27626-0535 Telephone 919-733-5083 FAX 919-715-6048

G. Wetland Impacts

i) Identify the federal manual used for identifying and delineating jurisdictional wetlands.
ii) Have wetlands been avoided as much as possible?
iii) Have wetland impacts been minimized?
iv) Mitigation measures to compensate for habitat losses.
v) Wetland impacts by plant communities affected.
vi) Quality of wetlands impacted.
vii) Total wetland impacts.
viii) List the 401 General Certification numbers requested from DWQ.

H. Borrow/waste areas should avoid wetlands to the maximum extent practicable. Prior to the approval of any borrow/waste site in a wetland, the contractor shall obtain a 401 Certification from DWQ.

I. Please provide a conceptual wetland mitigation plan to help the environmental review. The mitigation plan may state the following:

1. Compensatory mitigation will be considered only after wetland impacts have been avoided and minimized to the maximum extent possible.
2. On-site, in-kind mitigation is the preferred method of mitigation. In-kind mitigation within the same watershed is preferred over out-of-kind mitigation.
3. Mitigation should be in the following order: restoration, creation, enhancement, and lastly preservation.

J. The EA should discuss in detail project alternatives that alleviate traffic problems without road widening, such as mass transit and traffic congestion management techniques.

DWQ is also concerned about secondary wetland impacts. For DWQ to concur with an alternative in the mountains or the piedmont, DOT will need to commit to full control of access to the wetland parcels or DOT to purchase these parcels for wetland mitigation.

Written concurrence of 401 Water Quality Certification may be required for this project. Applications requesting coverage under our General Certification 14 or General Permit 31 (with wetland impact) will require written concurrence. Please be aware that 401 Certification may be denied if wetland or water impacts have not been avoided and minimized to the maximum extent practicable.

Please have the applicant call Cyndi Bell at 919-733-1786 if they have any questions on these comments.

mek:\12307; NCDOT Scoping

cc: Cyndi Bell - DWQ- ESB, Ecological Assessment Group

7

North Carolina Wildlife Resources Commission

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

MEMORANDUM

TO: Stacy Baldwin, Project Planning Engineer
Planning & Environmental Branch, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: January 25, 1999

SUBJECT: NCDOT Group XIX Bridge Replacement Projects. TIP Nos. B-3348, B-3349, B-33442, B-3443, B-3445, B-3524, and B-3537.

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

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

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

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. 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.

If corrugated metal pipe arches 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 will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, baffle systems are required to trap gravel and provide resting areas for fish and other aquatic organisms.

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-3348 – Hyde County - Bridge # 54 is located on an unnamed canal connected to Pamlico Sound. The shallow water habitat in this canal is used by numerous species of anadromous and resident fish as spawning, rearing, feeding, and escape areas. This location likely supports migrating populations of blueback herring (*Alosa aestivalis*) and alewife (*Alosa pseudoharengus*). Populations of these species in northeastern North Carolina are currently classified as depressed. Increased turbidity in these areas results in the destruction of spawning habitat, and greatly diminishes egg and fry survival. To avoid adverse impacts to spawning populations of fish species at the project site, NCDOT should follow the "Stream Crossing Guidelines for Anadromous Fish Passage". We specifically request that this structure be replaces with a spanning structure. No in-water work should be conducted between March 1 and September 30.

2. B-3349 – Hyde County – Bridge # 54 is located over Rose Bay Canal. The shallow water habitat in Rose Bay Canal is used by numerous species of anadromous and resident fish as spawning, rearing, feeding, and escape areas. This location is especially important for migrating populations of blueback herring (*Alosa aestivalis*) and alewife (*Alosa pseudoharengus*) into Lake Mattamuskeet. Populations of these species in northeastern North Carolina are currently classified as depressed. Increased turbidity in these areas results in the destruction of spawning habitat, and greatly diminishes egg and fry survival. To avoid adverse impacts to spawning populations of fish species at the project site, NCDOT should follow the "Stream Crossing Guidelines for Anadromous Fish Passage". We specifically request that this structure be replaces with a spanning structure. No in-water work should be conducted between March 1 and September 30.

3. B-3442 & B-3443 – Bridge # 224 is located over Locks Creek and Bridge # 219 is over the Cape Fear River. Both of these projects cross in locations known to support anadromous fish. Therefore, we recommend NCDOT follow the "Stream Crossing Guidelines for Anadromous Fish Passage". Coffer dams or turbidity curtains may be required to reduce sediment during construction of in-stream bridge supports. No in-water work should be performed from February 1 to June 15. Any work involving utility lines should be restricted to the north or upstream side of the bridge as there is a cleared construction corridor on this side of the bridge.

4. B-3445 – Currituck County - Bridge # 7 is located over Northern Canal which runs between Currituck Sound and Back Bay. Tributaries and canals of Currituck Sound and Back Bay provide important spawning refugia for many freshwater fish species especially during periods of high salinity. The shallow

water habitat in this canal also provides, rearing, feeding, and escape areas for many fish species. Increased turbidity in these areas results in the destruction of spawning habitat, and greatly diminishes egg and fry survival. To avoid adverse impacts to spawning populations of fish species at the project site, no in-water work should be conducted between March 31 and September 30.

5. B-3524 – Wake County – No specific concerns.

6. B-3537 – Wayne County – Bridge # 62 is located over the Little River. The Little River is known to support populations of anadromous fish at this site. We request that this bridge be replaced with a spanning structure. NCDOT should follow the "Stream Crossing Guidelines for Anadromous Fish Passage". No in-water work should be conducted between February 15 and June 15.

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.

Baldwin

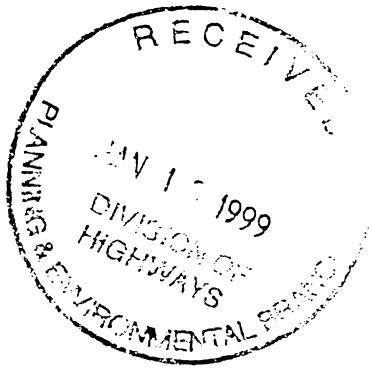
North Carolina Department of Cultural Resources

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

Division of Archives and History
Jeffrey J. Crow, Director

January 13, 1999

MEMORANDUM



TO: William D. Gilmore, P.E., Manager
Planning and Environmental Branch
Division of Highways
Department of Transportation

FROM: David Brook
Deputy State Historic Preservation Officer

SUBJECT: Bridge Group XIX, Bridge 54 on US 264 over Canal on Pamlico Sound, Hyde County, B-3348, ER 99-7920

Thank you for your memorandum of December 8, 1998, concerning the above project.

We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area. We look forward to meeting with an architectural historian from the North Carolina Department of Transportation to review the aerial and photographs of the project area so we can make our survey recommendation.

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

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:slw

cc: N. Graf
B. Church
L. Novick

Federal Aid # BRSTP-264(9) TIP # B-3348 County: HYDE

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

Brief Project Description Replace Bridge No. 54 on US 264 over canal on Pamlico Sound

On 1/7/1999, representatives of the

- ✓ North Carolina Department of Transportation (NCDOT)
- ___ Federal Highway Administration (FHwA)
- ✓ North Carolina State Historic Preservation Office (SHPO)
- ___ Other ___

reviewed the subject project at

- ___ A scoping meeting
- ✓ Historic architectural resources photograph review session/consultation
- ___ Other ___

All parties present agreed

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

Signed:

Mary Pope Furr — 1/7/99
Representative, NCDOT — Date

Wendy D. Travis — 1/25/99
FHwA, for the Division Administrator, or other Federal Agency — Date

Deluak Bevins — 1/7/99
Representative, SHPO — Date

David Brook, Deputy — 1/28/99
State Historic Preservation Officer — Date

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

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Archives and History
Jeffrey J. Crow, Director

March 17, 2000

MEMORANDUM

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

FROM: David Brook (Sig for David Brook)
Deputy State Historic Preservation Officer

SUBJECT: Replacement of Bridges No. 52 and No. 54 on US 264 over a canal and tributary to Far Creek, Hyde County, TIP No. B-3348

Thank you for your memorandum of February 8, 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.

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	109 E. Jones St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4950
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342
RESTORATION	109 E. Jones St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-6547
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545

COUNTY OF HYDE

SWAN QUARTER, NORTH CAROLINA 27885

December 29, 1998

Ms. Stacy Baldwin
State of North Carolina
Department of Transportation
PO Box 25201
Raleigh, NC 27611-5201

December 29, 1998

Dear Ms. Baldwin:

I am writing on behalf of the Hyde County Board of Commissioners to comment on the proposed bridge replacements on U.S. 264 in Hyde County.

The bridges to be replaced are #54 and #32 and both are the main corridors for transportation in and out of Hyde County.

We hereby request the use of temporary bridges during these replacements because the detour to get around these areas is in excess of 90 miles and this is not feasible. It would be devastating to our economy if these two areas were impassable during the replacements.

We appreciate the Department of Transportation giving us the opportunity for comment and we hope that temporary bridges can be utilized in this project.

Please contact us if you need any further information or assistance.

Sincerely,

JEFF CREDLE
Hyde County Manager

United States Department of Agriculture

Natural Resources Conservation Service

4405 Bland Rd.
Suite 205
Raleigh, NC 27609

(919) 873-2134

April 4, 2000

Ms. Stacy Harris, P. E.
Planning & Environmental Branch
North Carolina Department of Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

Dear Ms. Harris:

Thank you for the opportunity to provide comments on Replacement of Bridges No. 52 and No. 54 on US 264 over a Canal and Tributary to Far Creek, Hyde County, TIP No. 3348.

The Natural Resources Conservation Service does not have any comments at this time.

Sincerely,

Mary T. Kollstedt
State Conservationist

Harris

HYDE COUNTY SCHOOLS
March 7, 1878

Hyde County Schools

1430 Main Street
P. O. Box 217
Swan Quarter, NC 27885
Office (252) 926-3281 Fax (252) 926-3083

DR. RONALD MONTGOMERY
Superintendent

February 29, 2000

Mr. William D. Gilmore, P. E., Manager
Planning and Environmental Branch
State of North Carolina
Department of Transportation
PO Box 25201
Raleigh, NC 27611-5201

Dear Mr. Gilmore:

Subject: Replacement of Bridges No. 52 and No. 54 on US 264 over a Canal and Tributary to Far Creek, Hyde County, TIP No. B-3348.

Dear Mr. Gilmore:

In response to your letter dated February 8, 2000, we have one school bus that travels over the bridges in question twice a day. Only one student attending our schools lives across the bridge.

If I can be of future assistance, please give me a call.

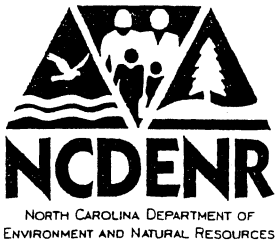
Sincerely,

Ronald L. Montgomery

C: Chester Spencer, HCS Transportation Director

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

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
Preston P. Pate, Jr., Director



MEMORANDUM:

TO: Stacy Baldwin

FROM: Katy West KW

DATE: January 13, 1999

SUBJECT: Comments for Group XIX Bridge Replacement; Project B-3348 and B-3349

The following comments by the North Carolina Division of Marine Fisheries (NCDMF) on the subject permit are offered pursuant to G.S. 113-131. Both of these bridges are located in Primary Nursery Areas (PNA) and the surrounding habitat is almost identical. Because of the importance of PNA's to the initial development of post larval fish and shellfish species, NCDMF must stress our concerns relating to construction activities at these two sites. NCDMF requests that replacement of these bridges occur between October 1 and April 1 in order to minimize negative effects on the early stage development of the marine organisms found in each of these PNA's. Hyde County PNA's are some of the most productive and diverse in the State and need to be impacted as little as possible.

These comments by NCDMF are made under the assumption that these bridges will be replaced with like structures. If replacement plans call for culverts instead of bridges, NCDMF would ask to be informed so that further comments and concerns could be addressed.

dsd/KW

943 Washington Square Mall, Washington, NC 27889-3532 Telephone 919-946-6481 FAX 919-946-3967

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF COASTAL MANAGEMENT

14 July 1999

Mr. William Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Gilmore:

This letter is in reference to your 3 June 1999 request to review two bridge replacement projects in Hyde County to determine if CAMA jurisdiction is warranted.

Bridges No. 52 and 54 on US 264 over a canal and Kitty Creek, and Bridge No. 32 on U.S. 264 over Rose Bay Creek, were inspected on 30 June 1999. It was determined that these areas do fall within the definition of Estuarine Waters as described in Subchapter 7H.0206, and Public Trust Areas as described in Subchapter 7H.0207 of the North Carolina Administrative Code. Therefore, CAMA permits are required from this Division for development at these sites. As proposed, these projects would require CAMA Major Permits. There is not enough information included in this package to allow a complete assessment of the proposed alternatives.

I appreciate your concern and effort to comply with the permit requirements of this Division and encourage you to continue to consult representatives of this Division for future questions regarding CAMA jurisdiction. If you have any questions about this or any other matter, please call me at (252) 946-6481, ext. 299.

Sincerely,

Tracey L. Wheeler

Tracey L. Wheeler
Coastal Management Representative

cc: Terry Moore- District Manager, Washington Regional Office, DCM

WASHINGTON REGIONAL OFFICE
943 WASHINGTON SQUARE MALL, WASHINGTON, NC 27889
PHONE 252-946-6481 FAX 252-975-3716

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 23, 2004

Division of Coastal Management
1367 U.S. 17 South
Elizabeth City, NC 27909

ATTENTION: Ms. Lynn Mathis
NCDOT Coordinator

Dear Madam:

Subject: **CAMA Major Permit Application** for the Replacement of Bridge No. 52 over an unnamed canal and Bridge No. 54 over Kitty Creek on US 264, Hyde County. Federal Aid Project No. BRSTP-264(9), State Project No. 8.1080601, TIP Project No. B-3348. Debit work Order 8.1080601, WBS Element 33006.1.1 for $400.00.

Please find enclosed the Coastal Area Management Act (CAMA) major permit application, Categorical Exclusion (CE), permit drawings, half-size plans, and copies of the green cards for the above-mentioned project. Work Order 8.1080601 will be debited for $400.00 for the application of the subject project. Bridge No. 52 over an unnamed canal and Bridge No. 54 over Kitty Creek (DEM Index # 29-70-3, Class SC HQW) on US 264 in Hyde County will be replaced with new bridges approximately 17 feet southeast of the existing bridges. The proposed structures for Bridge Nos. 52 and 54 will provide a 22-foot travel-way with seven-foot shoulders for a total clear structure width of 36 feet. The bridge approach will have a 22-foot travel-ways with six-foot shoulders of which four feet would be paved for bicyclists. The design speed will be 55 mph. The preferred alternative involves staged, simultaneous construction. This will allow one-lane, two-way traffic during construction.

The slight shift to the southeast will allow the proper approach width and construction area necessary to utilize staged construction and maintain traffic without a temporary on-site detour. As a result of the shift, there will be 0.26 acres of permanent impacts to brackish marsh and 0.48 acres of fill in surface water.

Kitty Creek is located in the Tar-Pamlico River Basin. The Division of Water Quality (DWQ) has assigned Kitty Creek a Stream Index Number of 29-70-3. DWQ has assigned a best usage classification **SC HQW**. There is also an unnamed canal that crosses Bridge No. 52. The unnamed tributary takes the best usage classification as Kitty Creek.

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794
WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Class **SC** waters are defined as saltwaters protected for aquatic life propagation and survival, wildlife, and secondary recreation. The **HQW** (High Quality Waters) are waters which are rated as excellent based on biological and chemical/physical characteristics.

Bridge Demolition

Bridge Demolition: Bridges Nos. 52 and 54 are two lane structures with reinforced concrete caps on timber piles supporting a reinforced concrete deck on timber joists. Bridge No. 52 is 34 feet long with a 26.1-foot clear roadway width. Bridge No. 54 is 53 feet long with a 26.1-foot clear roadway width. Due to the structural components of the bridges, there is the possibility of 41.6 cubic yards for Bridge No. 52 and 56.8 cubic yards being dropped into the "Waters of the United States". All measures will be taken to avoid any temporary fill from entering Waters of the U.S. Best Management Practices for Bridge Demolition and Removal will be implemented.

As noted in the project's CE document, NCDOT will observe an in-stream construction moratorium from March 1 to September 30.

Avoidance and Minimization

Due to the location of this project and the juxtaposition of adjacent wetlands and surface waters, total avoidance of the surrounding marsh and surface water is not possible. NCDOT has taken steps to minimize the impacts to this resource.

Bridges No. 52 and 54 are on a primary U. S. Route. Therefore, traffic flow must be maintained throughout construction. Road closure during construction is unfeasible due to the lack of a suitable off-site detour. A temporary on-site detour that would have affected a brackish marsh complex was rejected in favor of staged construction. Staged construction will allow one lane to remain open to traffic during construction while minimizing necessary encroachment into the surrounding wetlands and surface waters.

Bridge No. 54 has been lengthened from 85 feet to 180 feet, allowing approximately 95 feet of former causeway to be restored to wetland elevation. Additionally, the abandoned causeway (from the 17-foot shift) will be restored to wetland elevation and replanted with native brackish marsh plants.

Minimum width for the approaches and structure has been utilized.

Summary of Impacts

Wetlands: The total amount of wetland impacted is 0.26 acres from roadway fill and undercut.

Surface Waters: The amount of fill in surface waters is 0.46 acres and fill in a pond is 0.02 acres.

Buffer Impacts: The amount of impacts to Zone 1 is 1675 sq. ft. and the amount of impacts to Zone 2 is 1000 sq. ft.

Mitigation: Due to the amount of wetland created by the 17-foot shift, NCDOT is not requesting the EEP to provide mitigation. The shift in alignment to the southeast will allow 0.64 acres of previously filled wetlands to be restored. The net gain in wetlands for this project is 0.44 acres.

Protected Species

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to co-exist with human activities. Federal law (under the provisions of the Endangered Species Act (ESA) of 1973, as amended) requires that any action likely to adversely affect a species classified as federally protected be subject to review by the United States Fish and Wildlife Service (USFWS). Other species may receive additional protection under separate state laws. Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of ESA §§7 and 9, as amended.

As of January 29, 2003, the US Fish and Wildlife Service (USFWS) lists 13 federally protected species for Hyde County. Table 1 depicts these species. The biological conclusion of **No Effect** remains valid.

Table 1. Federally Protected Species in Hyde County.

Common Name	Scientific Name	Status	Bio. Conclusion
Leatherback sea turtle	*Dermochelys coriacea*	E	No Effect
Hawksbill sea turtle	*Eretomochelys imbricata*	E	No Effect
Kemp's Ridley sea turtle	*Lepidochelys kempii*	E	No Effect
Red-cockaded woodpecker	*Picoides borealis*	E	No Effect
Manatee	*Trichecus manatus*	E	No Effect
Sensitive joint-vetch	*Aeschynomene virginica*	T	No Effect
Seabeach amaranth	*Amaranthus pumilus*	T	No Effect
Loggerhead sea turtle	*Caretta caretta*	T	No Effect
Piping plover	*Charadrius melodus*	T	No Effect
Green sea turtle	*Chelonia mydas*	T	No Effect
Bald Eagle	*Haliaeetus leucocephalus*	T	No Effect
American alligator	*Alligator mississippiensis*	T	No Effect
Red wolf	*Canis rufus*	EXP	N/A

Regulatory Approval

NCDOT requests that the proposed work be authorized under a Coastal Area Management Act Major Development Permit. Copies of the green cards are attached. NCDOT has also applied for the issuance of a United States Army Corps of Engineers NWP 23, a 401 Water Quality Certification, and a Riparian Buffer Authorization under separate cover.

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 Chris Underwood at (919) 715-1451.

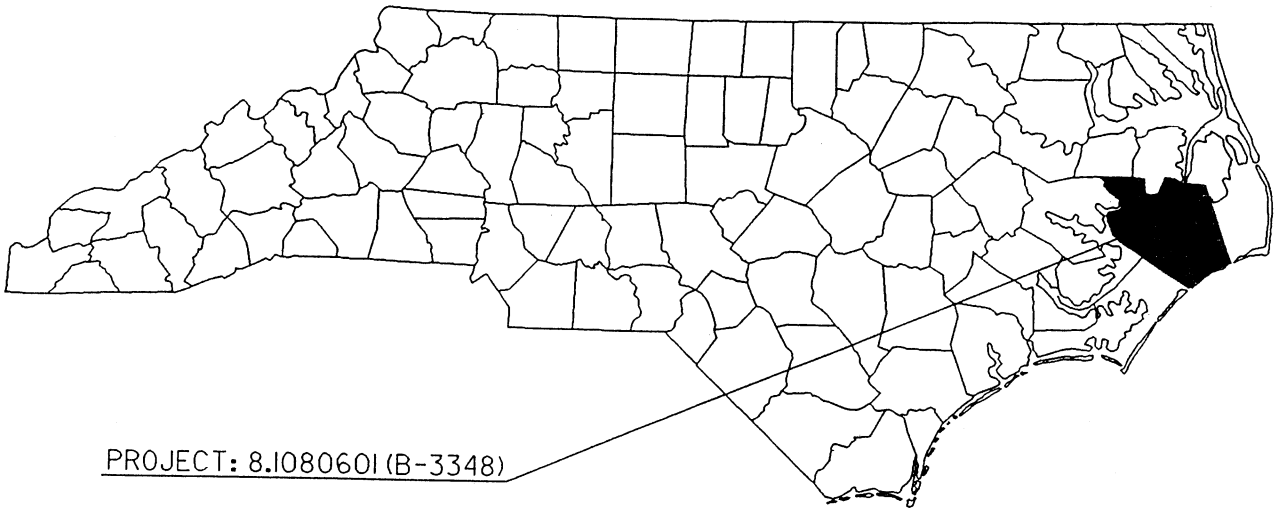
Sincerely,

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

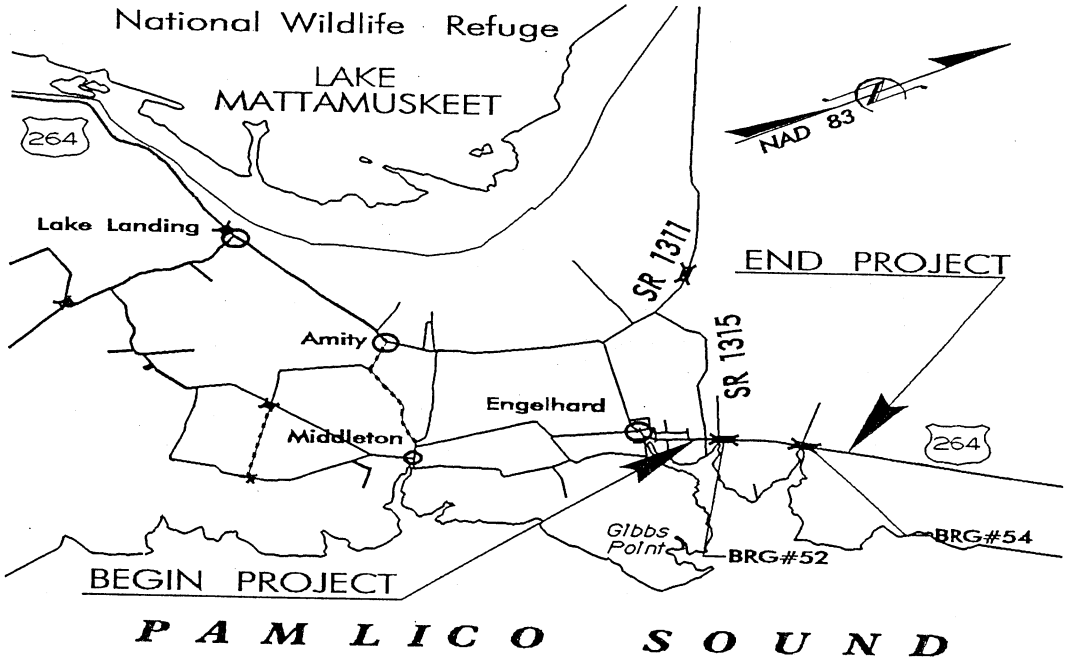
w/ attachment:

Mr. Bill Biddlecome, USACE
Ms. Cathy Brittingham, DCM
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
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. John Sullivan, FHWA
Mr. D.R. Conner, P.E., Division Engineer
Mr. Clay Willis, DEO
Mr. David Franklin, USACE, Wilmington
Ms. Stacy Baldwin, P.E., Project Planning Engineer

NORTH CAROLINA



PROJECT: 8.1080601 (B-3348)



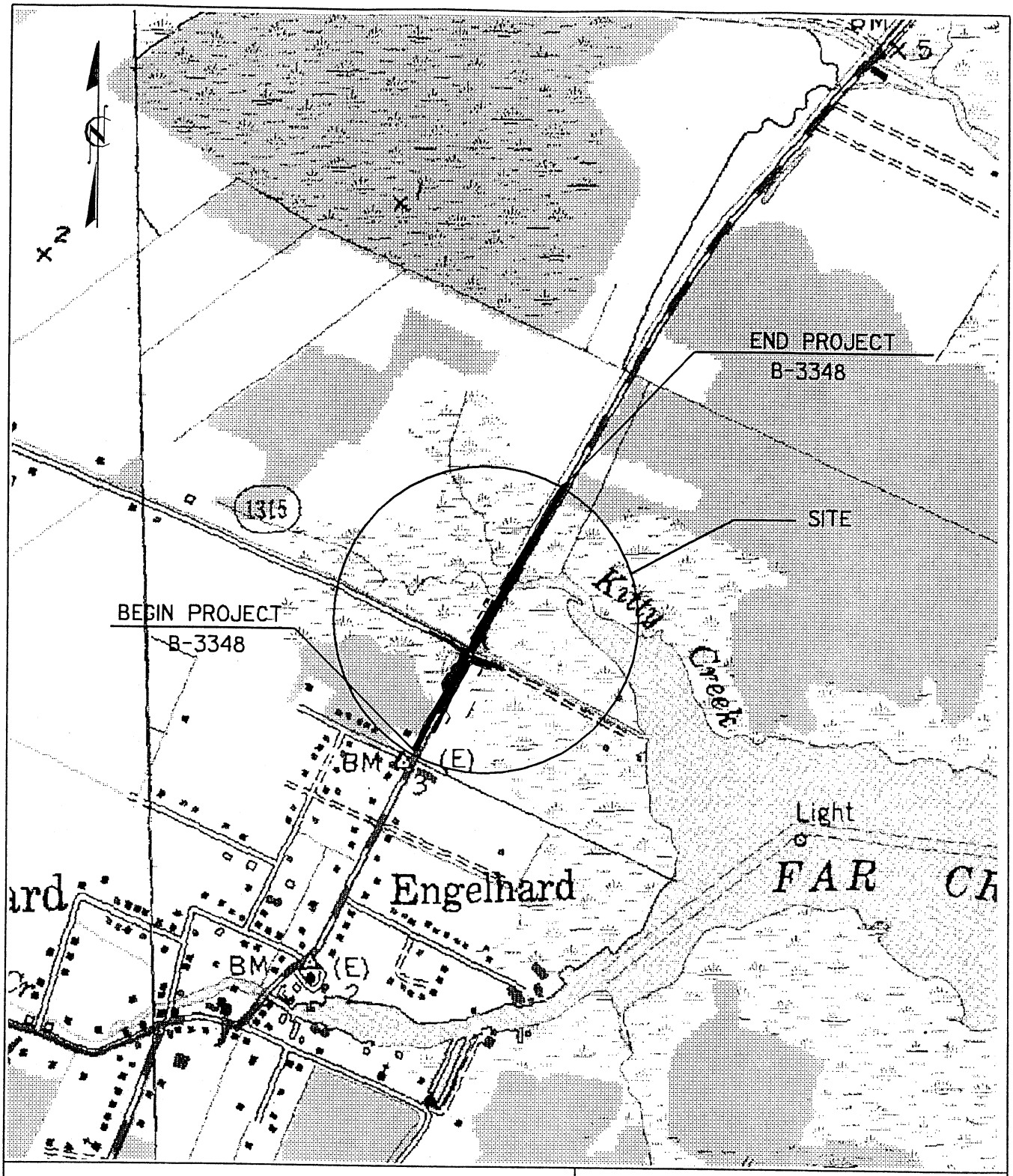
VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
HYDE COUNTY
PROJECT: 8.1080601 (B-3348)

REPLACE BRG#52, BRG#54 OVER WALLACE CANAL AND KITTY CREEK ON US 264

SHEET 1 OF 7 09/03/03



LOCATION MAP

NCDOT

DIVISION OF HIGHWAYS
HYDE COUNTY

PROJECT: 8.1080601 (B-3348)

REPLACE BRG#52, BRG#54 OVER
WALLACE CANAL AND KITTY CREEK
ON US 264

SHEET 2 OF 7 09/03/03

WETLAND LEGEND

WLB WETLAND BOUNDARY

WETLAND

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES FILL IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

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

(DASHED LINES DENOTE EXISTNG STRUCTURES)

12"-48" PIPES

54" PIPES & ABOVE

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

NCDOT

DIVISION OF HIGHWAYS

HYDE COUNTY

PROJECT: 8.1080601 (B-3348)

REPLACE BRG#52, BRG#54 OVER WALLACE CANAL AND KITTY CREEK ON US 264

SHEET 3 OF 7 09/03/03

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	50' Bridge	21+50-24+20-L-	X		625.0	1000.0	1625.0			0.0		
		29+00-31+00-L-		X	1050.0		1050.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
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							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
							0.0			0.0		
TOTAL:					1675.0	1000.0	2675.0	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HYDE COUNTY
PROJECT: 8.1080601 (B-3348)

9/10/03
SHEET 6 OF 7

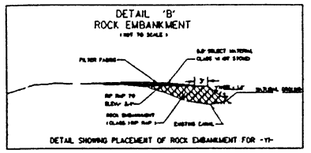
8.17.43

PROJECT REFERENCE NO.	SHEET NO.
B-3348	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

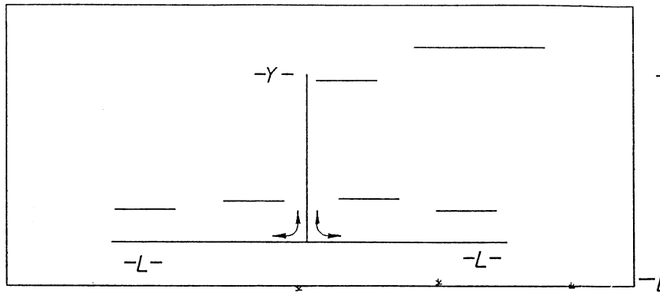
DETAIL 'B'
ROCK EMBANKMENT
(NOT TO SCALE)



DETAIL SHOWING PLACEMENT OF ROCK EMBANKMENT FOR -Y1-

FROM STA. 10+50-Y1- TO 12+00-Y1- RT.

R/W REVISION 9/03/03 JCL
INCREASED TEMP.CONST.EASEMENT
ON PARCEL 1



-DR-

PI Sta 11+08.84
Δ = 87° 21' 28.8" (LT)
D = 114° 35' 29.6"
L = 76.23'
T = 47.75'
R = 50.00'
SE = NC

PI Sta 10+43.99
Δ = 88° 05' 28.0" (RT)
D = 190° 59' 09.4"
L = 46.12'
T = 29.02'
R = 30.00'
SE = NC

-L-

PI Sta 12+95.86
Δ = 5° 07' 21" (RT)
D = 1° 08' 45.3"
L = 447.03'
T = 223.66'
R = 5,000.00'
SE = 0.03
RO = 78'

PI Sta 16+37.71
Δ = 1° 21' 27.5" (LT)
D = 0° 34' 22.6"
L = 236.95'
T = 118.48'
R = 10,000.00'
SE = NC

POT Sta. 13+18.54 -Y-

-Y-

PI Sta 11+23.53
Δ = 13° 55' 09" (LT)
D = 8° 00' 07.9"
L = 173.94'
T = 87.40'
R = 716.00'
SE = NC

N 62° 59' 42.9" W

+10.07 -Y-
Exist. R/W

C. GILBERT GIBBS

5

PT Sta. 12+10.07 -Y-
End Construction

POT Sta. 10+00.00 -Y1-
POT Sta. 17+63.63 -L-

+40.00 -Y-
30.00', 40.00'

NATHAN PAUL GIBBS

2

PRC Sta. 15+19.23 -L-

PC Sta. 10+36.13 -Y-

PT Sta. 17+56.18 -L-

+30.00 -L-
70.00'

Exist R/W
Corner
(not set)

POT Sta. 10+00.00 -DR- =
POT Sta. 19+50.13 -L-

BEGIN STATE PROJECT No.B-3348
-L- POT Sta. 10+00.00

+00.00 -L-
Exist. R/W, 40.00'

+50.00 -L-
Exist. R/W, 40.00'

+00.00 -L-
Exist. R/W

N 26° 01' 43.4" E

RETAIN EXISTING R/W

US 264 26' BST

TO ENGELHARD

+00.00 -L-
Exist. R/W

+72.20 -L-
Exist. R/W

BM-9 R/R SPIKE IN 18" PINE
ELEV. = 4.43'
99.9' RT OF -BL- 4+82.7

+00.00 -L-
Exist R/W, 65.00'

+19.23 -L-
65.00'

POT Sta. 10+00.00 -Y- =
POT Sta. 17+57.69 -L-

+56.18 -L-
65.00'

PC Sta. 10+72.20 -L-

PC Sta. 10+74.97 -DR-

PRC Sta. 10+61.09 -DR-

PT Sta. 11+37.33 -DR-

End Construction
-DR- Sta. 11+40.00

+20.00 -L-
30.00'

+90.00 -L-
45.00'

+00.00 -L-
90.00', 110.00'

4

DORTHEA LONG QUINN

POT Sta. 11+50.00 -DR-
-Y1-

PCSta. 11+07.58 -Y1-

PI Sta 11+83.65
Δ = 8° 41' 59.2" (RT)
D = 5° 43' 46.5"
L = 151.84'
T = 76.07'
R = 1,000.00'
SE = NC

GEORGE AUBREY LONG

+00.00 -Y1-
30.00'

PT Sta. 12+59.42
END GRADING

+65.00
30.00'

+65.00 -Y1-
30.00'

EASEMENT TO:
STATE OF NORTH CAROLINA
(NC WILDLIFE RESOURCES COMMISSION)

3

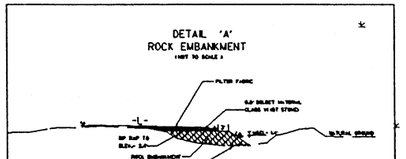
BM-10 BRIDGE NAIL IN 8" PINE
ELEV. = 2.68'
320.8' RT OF -BL- 11+49

End Construction
POT Sta. 15+60.00 -Y1-

+60.00 -Y1-
25.00'

+60.00 -Y1-
25.00'

DETAIL 'A'
ROCK EMBANKMENT
(NOT TO SCALE)



DETAIL SHOWING PLACEMENT OF ROCK EMBANKMENT FOR -L-

FROM STA. 13+00-L- TO STA. 17+25-L- RT.

1

C. GILBERT GIBBS

50 0 25 50
SCALE: 1" = 60' HORIZ.

NC GRID
NAD 83

DENOTES FILL IN SURFACE WATER (POND)

DENOTES FILL IN WETLAND

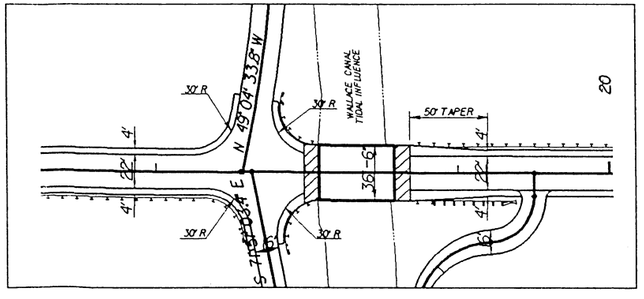
DENOTES FILL IN SURFACE WATER

CREATED WETLANDS

PROPERTY OWNERS

3 KENNETH W. PHIPPS

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH



GRADING FOR PROP. WETLAND

PAVEMENT REMOVAL

BRIDGE APPROACH SLAB

MATCH LINE SHEET 5

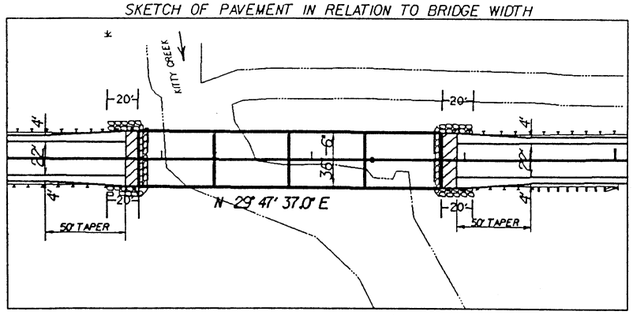
R/W REVISION 5/16/03 JCL
EXPANDED TEMP.CONST.EASEMENT
ON PARCEL 4 AND 7 RT.OF -L-

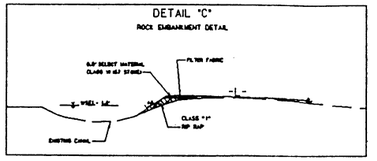
PROJECT REFERENCE NO.	SHEET NO.
B-3348	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH

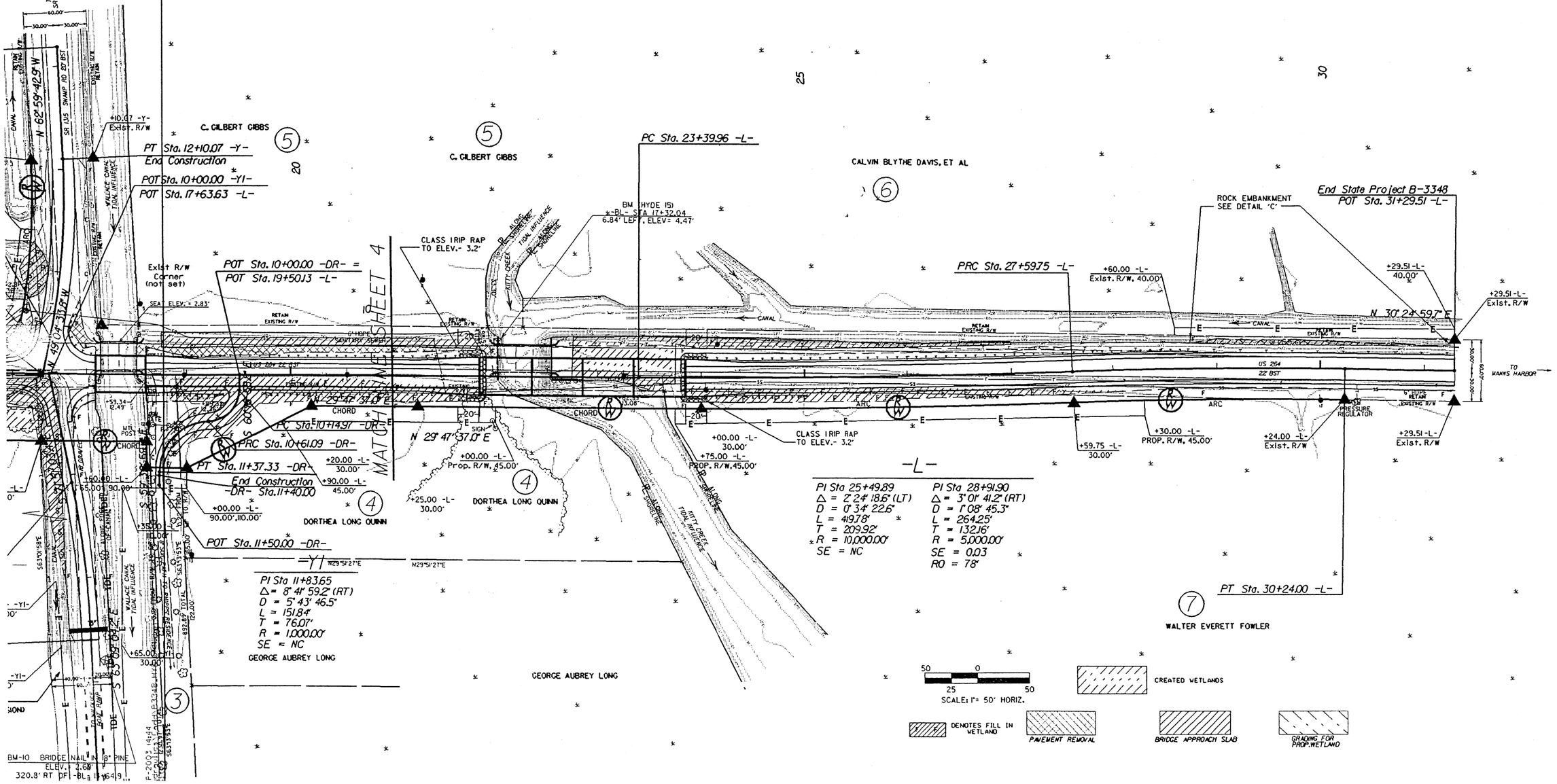




FROM STA. 29+25-L- TO 31+25-L- LT.
FROM STA. 10+70 -Y- TO 11+30 -Y- LT.

NC GRID NAD 83

NOTE: SEE SHEET No.6 FOR -L- PROFILE
NOTE: SEE S- THRU S- FOR STRUCTURE PLANS



Site No.	Station (From/To) (-L-)	Structure Size / Type	Roadway Undercut (ac)	Berm Restoration (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Total) (ac)	Fill In SW (Pond) (ac)	Fill In Wetland (ac)	Created Wetland (ac)	
1	11+50 - 31+00		0.06		0	0	0.46				
	11+80- 17+70			0.25							
	11+00 -Y- LT.							0.02			
	18+80- 21+85								0.2		
	11+50- 31+00									0.64	
TOTALS:			0.06	0.25	0	0	0.46	0.02	0.2	0.64	0

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HYDE COUNTY

PROJECT: 8.1080601 (B-3348)

SHEET 7 OF 7 (02/09/04)

Form DCM-MP-1

APPLICATION

(To be completed by all applicants)

1. APPLICANT

a. Landowner:

Name N. C. Department of Transportation

Address 1548 Mail Service Center

City Raleigh State NC

Zip 27699-1548 Day Phone 919-733-3141

Fax 919-733-9794

b. Authorized Agent:

Name Phil Harris, PE

Address Same as above

City State

Zip Day Phone

Fax

c. Project name (if any) **B-3348 Brg. #52 & Brg. #54 over Kitty Creek on US 264**

NOTE: Permit will be issued in name of landowner(s), and/or project name.

2. LOCATION OF PROPOSED PROJECT

a. County:Hyde

b. City, town, community or landmark Englehard

c. Street address or secondary road number US 264

d. Is proposed work within city limits or planning jurisdiction? _ Yes x No

e. Name of body of water nearest project (e.g. river, creek, sound, bay)Pamlico Sound

3. DESCRIPTION AND PLANNED USE OF PROPOSED PROJECT

a. List all development activities you propose (e.g. building a home, motel, marina, bulkhead, pier, and excavation and/or filling activities.

Replace existing bridges with new ones with a slight alignment change to the southeast

b. Is the proposed activity maintenance of an existing project, new work, or both? **New Work**

c. Will the project be for public, private or commercial use? Public

Give a brief description of purpose, use, methods of construction and daily operations of proposed project. If more space is needed, please attach additional pages. To replace old structures and re-align road. A pond will be filled in to create wetlands.

4. LAND AND WATER CHARACTERISTICS

a. Size of entire tract N/A

b. Size of individual lot(s) N/A

c. Approximate elevation of tract above MHW or NWL
1.8' (existing bridge)

d. Soil type(s) and texture(s) of tract
Sand, clayey sand

e. Vegetation on tract Brackish marsh, maritime forest

f. Man-made features now on tract
Existing bridges, roadway,and utilities

g. What is the CAMA Land Use Plan land classification of the site? *(Consult the local land use plan.)*

x Conservation	____ Transitional
____ Developed	____ Community
x Rural	____ Other

h. How is the tract zoned by local government?
N/A

i. Is the proposed project consistent with the applicable zoning? X Yes ____ No
(Attach zoning compliance certificate, if applicable)

j. Has a professional archaeological assessment been done for the tract? X Yes ____ No
If yes, by whom? NCDOT

k. Is the project located in a National Registered Historic District or does it involve a National Register listed or eligible property?
____ Yes x No

l. Are there wetlands on the site? x Yes ____ No
Coastal (marsh) x Other x
If yes, has a delineation been conducted? yes
(Attach documentation, if available)

m. Describe existing wastewater treatment facilities.
N/A

n. Describe location and type of discharges to waters of the state. (For example, surface runoff, sanitary wastewater, industrial/commercial effluent, "wash down" and residential discharges.) Surface runoff

o. Describe existing drinking water supply source.
N/A

5. ADDITIONAL INFORMATION

In addition to the completed application form, the following items must be submitted:

- **A copy of the deed** (with state application only) or other instrument under which the applicant claims title to the affected properties. If the applicant is not claiming to be the owner of said property, then forward a copy of the deed or other instrument under which the owner claims title, plus written permission from the owner to carry out the project.

- **An accurate, dated work plat** (including plan view and cross-sectional drawings) drawn to scale in black ink on an 8 1/2" by 11" white paper. (Refer to Coastal Resources Commission Rule 7J.0203 for a detailed description.)

  Please note that original drawings are preferred and only high quality copies will be accepted. Blue-line prints or other larger plats are acceptable only if an adequate number of quality copies are provided by applicant. (Contact the U.S. Army Corps of Engineers regarding that agency's use of larger drawings.) A site or location map is a part of plat requirements and it must be sufficiently detailed to guide agency personnel unfamiliar with the area to
  the site. Include highway or secondary road (SR) numbers, landmarks, and the like.

- **A Stormwater Certification**, if one is necessary.

- A list of the **names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail.** Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Upon signing this form, the applicant further certifies that such notice has been provided.

  Name See attached list
  Address _____
  Phone _____

  Name _____
  Address _____
  Phone _____

  Name _____
  Address _____
  Phone _____

- **A list of previous state or federal permits** issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

  _____

- **A check for $400** made payable to the Department of Environment, Health, and Natural Resources (DEHNR) to cover the costs of processing the application.

- **A signed AEC hazard notice** for projects in oceanfront and inlet areas.

- **A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A - 1 to 10)** If the project involves the expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

6. CERTIFICATION AND PERMISSION TO ENTER ON LAND

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to conditions and restrictions contained in the permit.

I certify that to the best of my knowledge, the proposed activity complies with the State of North Carolina's approved Coastal Management Program and will be conducted in a manner consistent with such program.

I certify that I am authorized to grant, and do in fact, grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

This is the 24 day of February, ~~19~~ 2004.

Print Name Philip S. Harris III

Signature _____
Landowner or Authorized Agent

Please indicate attachments pertaining to your proposed project.

____ DCM MP-2 Excavation and Fill Information
____ DCM MP-3 Upland Development
____ DCM MP-4 Structures Information
____ DCM MP-5 Bridges and Culverts
____ DCM MP-6 Marina Development

NOTE: *Please sign and date each attachment in the space provided at the bottom of each form.*

Form DCM-MP-5

BRIDGES AND CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM-MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project.

1. BRIDGES

a. Public ___X___ Private _____

b. Type of bridge (construction material)
Concrete prestressed girder

c. Water body to be crossed by bridge
Unnnamed Canal, Kitty Creek

d. Water depth at the proposed crossing at MLW or +/- 6.0 feet

e. Will proposed bridge replace an existing bridge?
__x__ Yes ____ No
If yes,
(1) Length of existing bridge 34 ft. 53 ft.
(2) Width of existing bridge 29.4 ft. 28.2ft.
(3) Navigation clearance underneath existing bridge +/- 2.0 ft.
(4) Will all, or a part of, the existing bridge be removed? (Explain)
All the existing bridges will be removed and replaced with new bridges

f. Will proposed bridge replace an existing culvert(s)?
____ Yes __x__ No
If yes,
(1) Length of existing culvert _____
(2) Width of existing culvert _____
(3) Height of the top of the existing culvert above the MHW or NWL _____
(4) Will all, or a part of, the existing culvert be removed? (Explain) _____

g. Length of proposed bridge 50 ft. 200 ft.

h. Width of proposed bridge 36 ft. 36 ft.

i. Height of proposed bridge above wetlands
2-3 ft.

j. Will the proposed bridge affect existing water flow?
____ Yes __x__ No
If yes, explain _____

k. Navigation clearance underneath proposed bridge
+/- 3 ft.

l. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? __x__ Yes ____ No
If yes, explain Navigable opening will be increased.

m. Will the proposed bridge cross wetlands containing no navigable waters? ____ Yes __x__ No
If yes, explain _____

n. Have you contacted the U.S. Coast Guard concerning their approval?
____ Yes ____ No
If yes, please provide record of their action.

2. CULVERTS

a. Water body in which culvert is to be placed _____

b. Number of culverts proposed _____

c. Type of culvert (construction material, style) _____

d. Will proposed culvert replace an existing bridge?
___ Yes ___ No
If yes,
(1) Length of existing bridge _____
(2) Width of existing bridge _____
(3) Navigation clearance underneath existing bridge _____
(4) Will all, or a part of, the existing bridge be removed? (Explain) _____

e. Will proposed culvert replace an existing culvert?
___ Yes ___ No
If yes,
(1) Length of existing culvert _____
(2) Width of existing culvert _____
(3) Height of the top of the existing culvert above the MHW or NWL _____
(4) Will all, or a part of, the existing culvert be removed? (Explain) _____

f. Length of proposed culvert _____

g. Width of proposed culvert _____

h. Height of the top of the proposed culvert above the MHW or NWL _____

i. Will the proposed culvert affect existing water flow?
___ Yes ___ No
If yes, explain _____

j. Will the proposed culvert affect existing navigation potential? ___ Yes ___ No
If yes, explain _____

3. EXCAVATION AND FILL

a. Will the placement of the proposed bridge or culvert require any excavation below the MHW or NWL?
___ Yes __x__ No
If yes,
(1) Length of area to be excavated _____
(2) Width of area to be excavated _____
(3) Depth of area to be excavated _____
(4) Amount of material to be excavated in cubic yards _____

b. Will the placement of the proposed bridge or culvert require any excavation within: NO
___ Coastal Wetlands ___ SAVs ___ Other Wetlands
If yes,
(1) Length of area to be excavated _____
(2) Width of area to be excavated _____
(3) Amount of material to be excavated in cubic yards _____

c. Will the placement of the proposed bridge or culvert require any highground excavation?
__x__ Yes ___ No
If yes,
(1) Length of area to be excavated 157 ft.
(2) Width of area to be excavated 40 ft.
(3) Amount of material to be excavated in cubic yards 700

d. If the placement of the bridge or culvert involves any excavation, please complete the following:
(1) Location of the spoil disposal area
To be determined by contractor
(2) Dimensions of spoil disposal area
N/A
(3) Do you claim title to the disposal area?
___ Yes __x__ No
If no, attach a letter granting permission from the owner.
(4) Will the disposal area be available for future maintenance? ___ Yes __x__ No
(5) Does the disposal area include any coastal wetlands (marsh), SAVs, or other wetlands?
___ Yes __x__ No
If yes, give dimensions if different from (2) above. _____

(6) Does the disposal area include any area below the MHW or NWL? ___ Yes _x_ No
If yes, give dimension if different from No. 2 above. _____

e. Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d. above) to be placed below MHW or NWL? _x_ Yes ___ No
If yes,
(1) Length of area to be filled 1385 ft.
(2) Width of area to be filled 20 ft.
(3) Purpose of fill To create wetlands

f. Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d. above) to be placed within:
_x_ Coastal Wetlands ___ SAVs ___ Other Wetlands If yes,
(1) Length of area to be filled 719 ft.
(2) Width of area to be filled 16 ft.
(3) Purpose of fill Roadway fill

g. Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d. above) to be placed on highground? _x_ Yes ___ No
If yes,
(1) Length of area to be filled 2130 ft.
(2) Width of area to be filled 56 ft.
(3) Purpose of fill Roadway fill

4. GENERAL

a. Will the proposed project involve any mitigation?
___ Yes ___ No
If yes, explain in detail _____

b. Will the proposed project require the relocation of any existing utility lines? ___ Yes ___ No
If yes, explain in detail _____

c. Will the proposed project require the construction of any temporary detour structures?
___ Yes _x_ No
If yes, explain in detail _____

d. Will the proposed project require any work channels? ___ Yes _x_ No
If yes, complete Form DCM-MP-2

e. How will excavated or fill material be kept on site and erosion controlled? NCDOT High Quality Waters Erosion Control Methods will be used

f. What type of construction equipment will be used (for example, dragline, backhoe or hydraulic dredge)? Heavy highway construction equipment

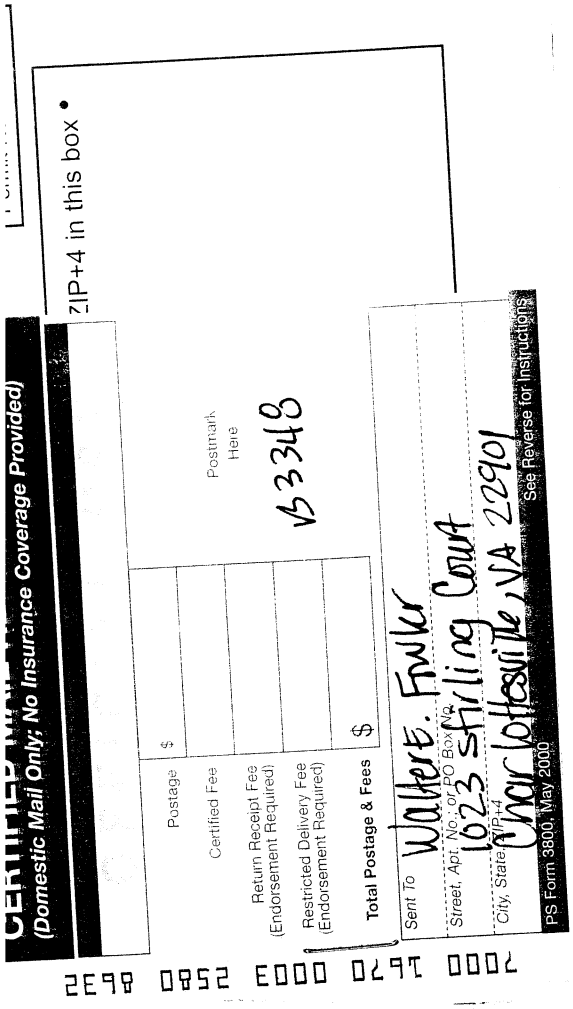
g. Will wetlands be crossed in transporting equipment to project site? ___ Yes _x_ No
If yes, explain steps that will be taken to lessen environmental impacts. _____

h. Will the placement of the proposed bridge or culvert require any shoreline stabilization?
___ Yes _x_ No
If yes, explain in detail _____

NCDOT
Applicant or Project Name

Signature

2/24/04
Date



U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
B3348

Sent To: Walthere. Fowler
Street, Apt. No.; or PO Box No.: 1023 Stirling Court
City, State, ZIP+4: Chesapeake, VA 22901

PS Form 3800, May 2000 — See Reverse for Instructions

7000 1670 0003 2580 8632

ZIP+4 in this box •

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

UNITED STATES POSTAL SERVICE

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
B3348

Sent To: C. Gilbert Gibbs
Street, Apt. No.; or PO Box No.: P.O. Box 39
City, State, ZIP+4: Engelhard NC 27824

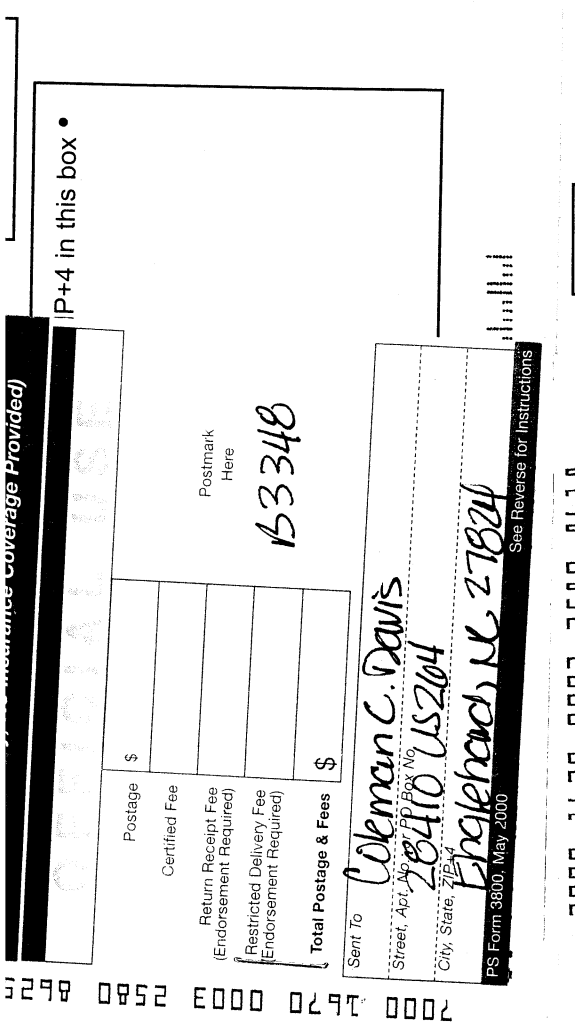
PS Form 3800, May 2000 — See Reverse for Instructions

7000 1670 0003 2580 8595

ZIP+4 in this box •

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

UNITED STATES POSTAL SERVICE



U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
B3348

Sent To: Coleman C. Davis
Street, Apt. No.; or PO Box No.: 28410 US 264
City, State, ZIP+4: Engelhard, NC 27824

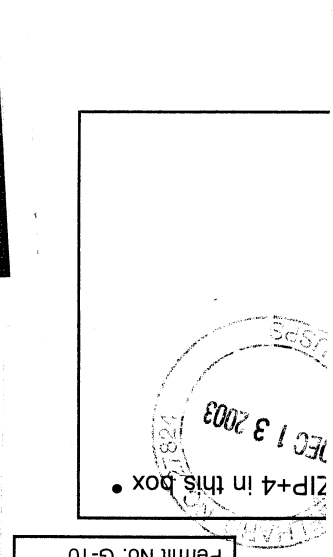
PS Form 3800, May 2000 — See Reverse for Instructions

7000 1670 0003 2580 8632

ZIP+4 in this box •

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

UNITED STATES POSTAL SERVICE



U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
B3348

Sent To: Nathan P. Gibbs
Street, Apt. No.; or PO Box No.: P.O. Box 498
City, State, ZIP+4: Engelhard NC 27824

PS Form 3800, May 2000 — See Reverse for Instructions

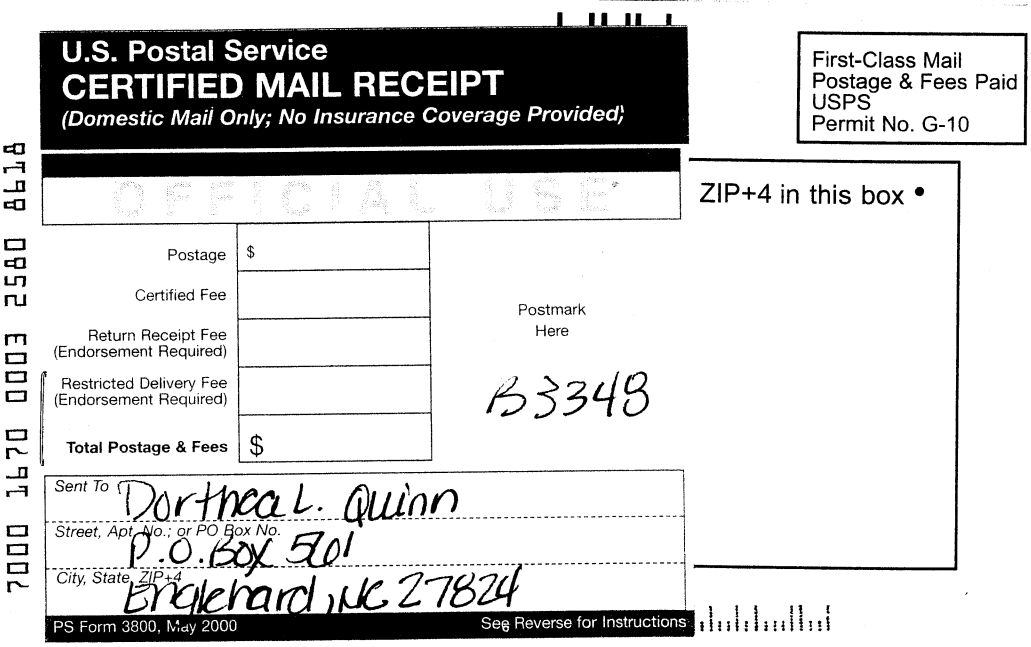
7000 1670 0003 2580 8601

ZIP+4 in this box •

DEC 13 2003

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

UNITED STATES POSTAL SERVICE



U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
B3348

Sent To: Dortnea L. Quinn
Street, Apt. No.; or PO Box No.: P.O. Box 501
City, State, ZIP+4: Engelhard, NC 27824

PS Form 3800, May 2000 — See Reverse for Instructions

7000 1670 0003 2580 8618

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

ZIP+4 in this box •

- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Coleman C. Davis
28410 US 264
Englehard, NC 27824

X Ruth F. Davis ☐ Addressee

B. Received by (Printed Name) Ruth F. DAVIS | C. Date of Delivery 12/13/02

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7000 1670 0003 2580 8625

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-1540

- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Walter E. Fowler
1023 Stirling Court
Charlottesville, VA 22901

X ☐ Addressee

B. Received by (Printed Name) MARGARET FOWLER | C. Date of Deliv 12/22

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchand
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7000 1670 0003 2580 8632

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

C. Gilbert Gibbs
P. O. Box 39
Englehard, NC 27824

COMPLETE THIS SECTION ON DELIVERY

A. Signature X Received by A. Gibbs ☐ Agent ☐ Address

B. Received by (Printed Name) | C. Date of Deliv 12-11-0

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchand
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7000 1670 0003 2580 8695

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Nathan P. Gibbs
P. O. Box 498
Englehard, NC 27824

COMPLETE THIS SECTION ON DELIVERY

A. Signature X ☐ Agent ☐ Address

B. Received by (Printed Name) | C. Date of Deliv

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Sewice Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandi
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7000 1670 0003 2580 8601

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Dorthea L. Quinn
P. O. Box 561
Englehard, NC 27824

COMPLETE THIS SECTION ON DELIVERY

A. Signature X ☐ Agent

B. Received by (Printed Name) E Quinn | C. Date of Deli 12-11-0

D. Is delivery address different from item 1? ☒ Yes
If YES, enter delivery address below: ☐ No

P O Box 368

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchan
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

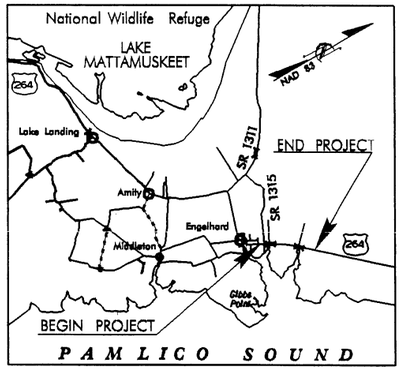
2. Article Number (Transfer from service label) 7000 1670 0003 2580 8618

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-

09/08/99

CONTRACT: TIP PROJECT: B-3348

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HYDE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3348	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
32594.1.1	BRSTP-264 (9)	P.E.
32594.2.1	BRSTP-264 (9)	R/W, UTIL.
32594.3.1	BRSTP-264 (26)	CONSTRUCTION

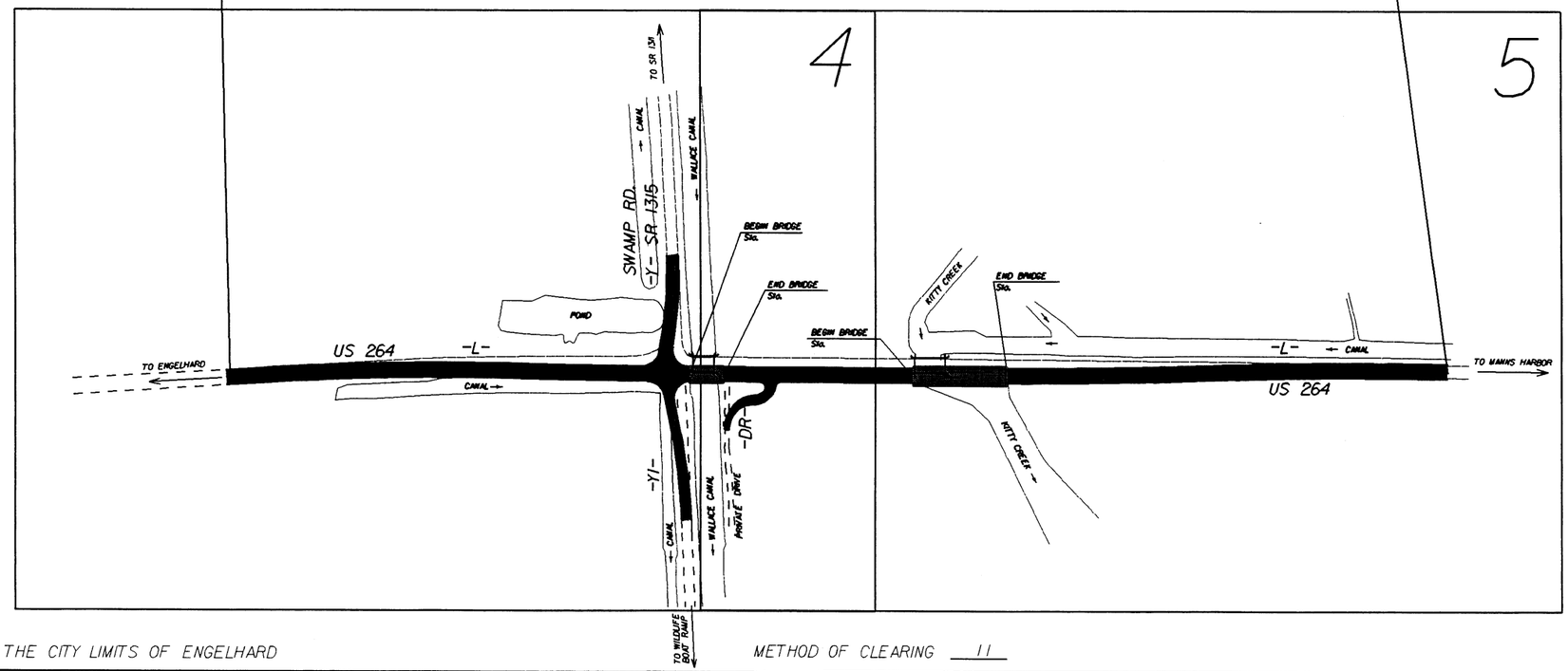
LOCATION: BRIDGE No. 52 OVER WALLACE CANAL AND BRIDGE No. 54 OVER KITTY CREEK ON US 264 EAST OF ENGELHARD

TYPE OF WORK: GRADING, PAVING, DRAINAGE, GUARDRAIL, STRUCTURES, TEMPORARY SIGNALS

NAD 83

BEGIN TIP PROJECT B-3348
-L- POT Sta. 10+00

END TIP PROJECT B-3348
-L- POT Sta. 31+29.54



THIS PROJECT IS NEAR THE CITY LIMITS OF ENGELHARD

METHOD OF CLEARING II

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2002 = 1060 VPD
ADT 2025 = 1400 VPD
DHV = 12 %
D = 60 %
T = 3 % *
V = 55 MPH

* TTST 2 % DUAL 1 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3348 = MILES
LENGTH STRUCTURES TIP PROJECT B-3348 = MILES
TOTAL LENGTH TIP PROJECT B-3348 = 0.403 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., NC, 27610

1995 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: *FEBRUARY 7, 2003*

LETTING DATE: *JUNE 15, 2004*

JAMES A. SPEER, P.E.
PROJECT ENGINEER

JOHN C. LANSFORD, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

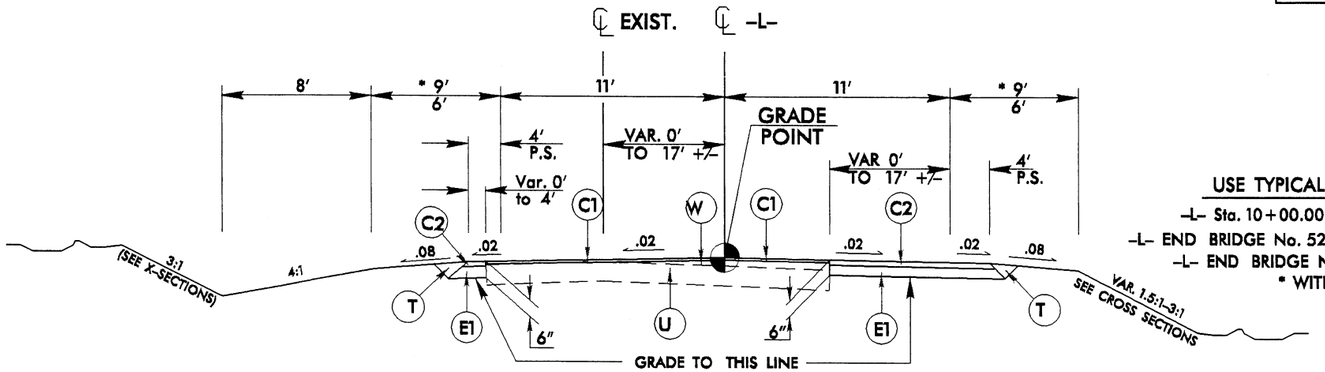
PROJECT REFERENCE NO.	SHEET NO.
B-3348	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

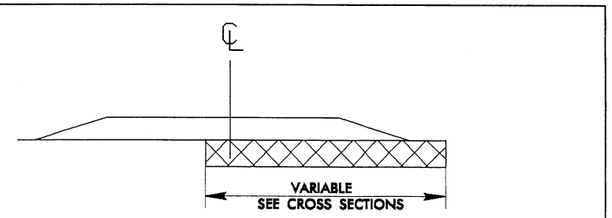
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 3½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

NOTE: ALL SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



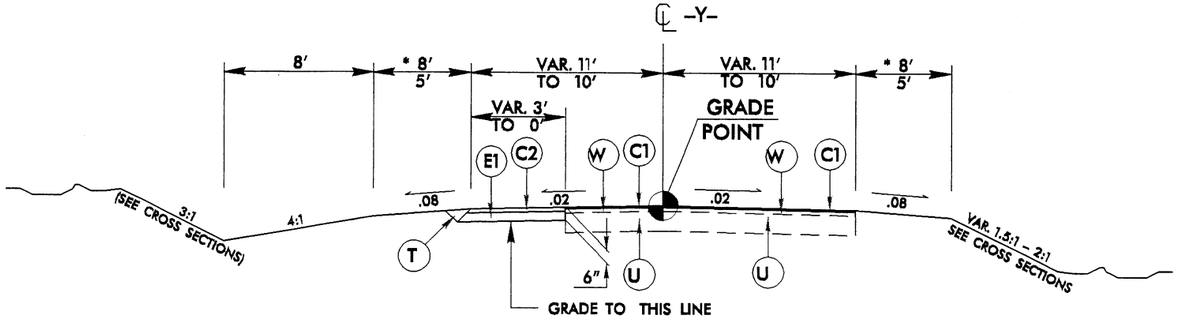
USE TYPICAL SECTION NO. 1
-L- Sta. 10+00.00 TO BEG. BRIDGE No. 52
-L- END BRIDGE No. 52 TO BEG. BRIDGE No. 54
-L- END BRIDGE No. 55 TO Sta. 31+29.54
* WITH GUARDRAIL

TYPICAL SECTION NO. 1



Sta. 11+99 to 17+80 -L-
Sta. 18+80 to 21+93 -L-
Sta. 23+79 to 28+20 -L-
Sta. 10+20 to 11+51 -Y1-

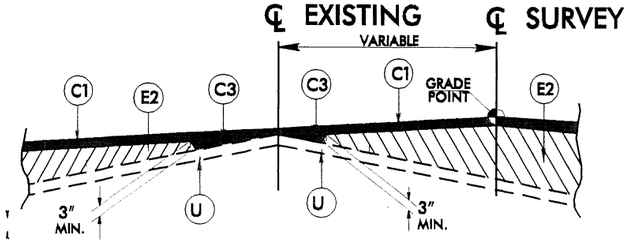
Detail of Undercut Excavation



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-Y- Sta. 10+11.221 TO Sta.11+97.35

* WITH GUARDRAIL

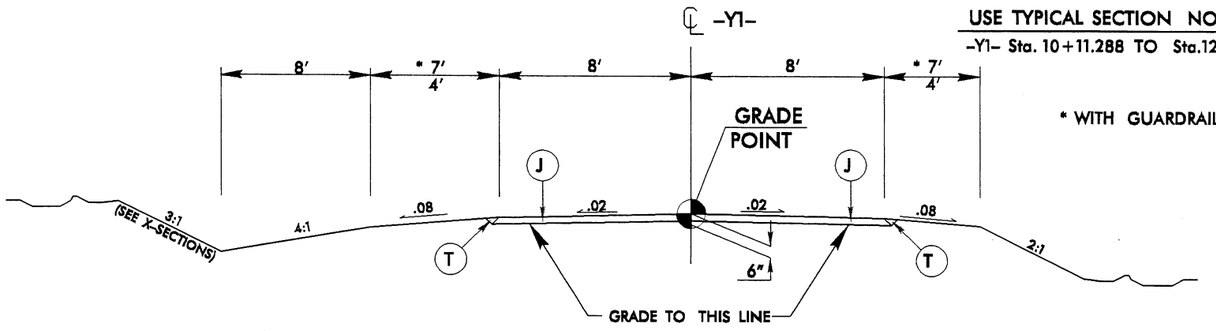


Detail Showing Method Of Wedging

PROJECT REFERENCE NO.	SHEET NO.
B-3348	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

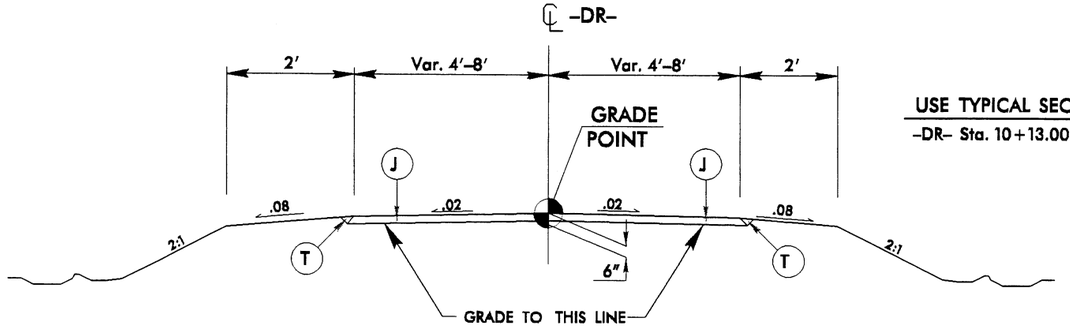
C1	PROP. 1.25" S9.5A	J	PROP. 6" AGGREGATE BASE COURSE
C2	PROP. 2.5" S9.5A	T	EARTH MATERIAL
C3	VARIABLE DEPTH S9.5A	U	EXISTING PAVEMENT
E1	PROP. 3.5" B25.0B	W	ASPHALT WEDGING
E2	VARIABLE DEPTH B25.0B		



USE TYPICAL SECTION NO. 3
-Y1- Sta. 10+11.288 TO Sta.12+34.53

* WITH GUARDRAIL

TYPICAL SECTION NO. 3



USE TYPICAL SECTION NO. 4
-DR- Sta. 10+13.00 TO Sta. 11+40.00

TYPICAL SECTION NO. 4

PROJECT REFERENCE NO.	SHEET NO.
B-3348	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "CUTHRELL" WITH NAD 83 STATE PLANE GRID COORDINATES OF

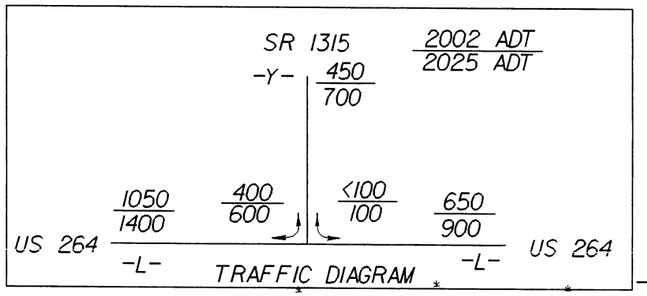
NORTHING: 654262.2184(ft) EASTING: 2893025.5492(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.9998828

THE NC LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "CUTHRELL" TO -L- Sta. 10+00.00 IS

N 53°54'48.87" E 1917.57'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29



R/W REVISION 5/16/03 JCL
EXPANDED TEMP.CONST.EASEMENT
ON PARCEL 4

-DR-

PI Sta 11+08.84
Δ = 87° 21' 28.8" (LT)
D = 114° 35' 29.6"
L = 76.23'
T = 47.75'
R = 50.00'
SE = NC

PI Sta 10+43.99
Δ = 88° 05' 28.0" (RT)
D = 190° 59' 09.4"
L = 46.12'
T = 29.02'
R = 30.00'
SE = NC

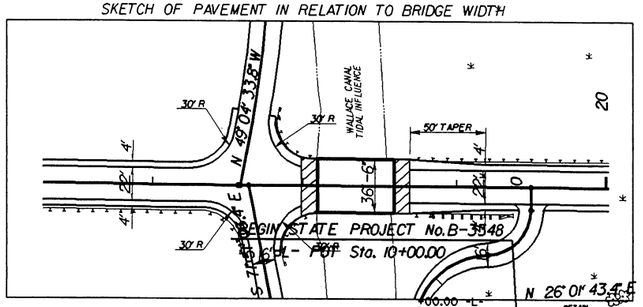
PI Sta 12+95.86
Δ = 5° 07' 21.1" (RT)
D = 1° 08' 45.3"
L = 447.03'
T = 223.66'
R = 5,000.00'
SE = 0.03
RO = 78'

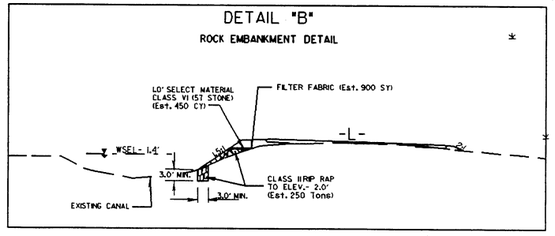
PI Sta 16+37.71
Δ = 1° 21' 27.5" (LT)
D = 0° 34' 22.6"
L = 236.95'
T = 118.48'
R = 10,000.00'
SE = NC

PI Sta 11+23.53
Δ = 13° 55' 09.1" (LT)
D = 8° 00' 07.9"
L = 173.94'
T = 87.40'
R = 716.00'
SE = NC

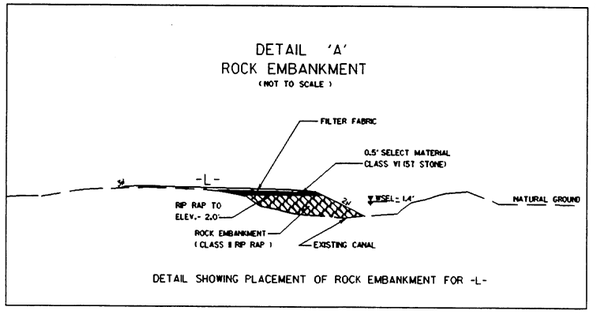
NOTE: SEE SHEET No.6 FOR -L- PROFILE
NOTE: SEE SHEET No.7 FOR -Y- PROFILE
NOTE: SEE SHEET No.7 FOR -Y1- PROFILE
NOTE: SEE SHEET No.7 FOR -DR- PROFILE
NOTE: SEE SHEET S-1 THRU S- FOR STRUCTURE PLANS

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH





FROM STA. 10+70 TO 11+30 -Y- LT.



FROM STA. 13+25 TO 17+50 -L- RT.

NATHAN PAUL GIBBS
NO DEED FOUND
(2)

C. GILBERT GIBBS
NO DEED FOUND
(1)

C. GILBERT GIBBS
NO DEED FOUND
(5)

DORTHEA LONG QUINN
DB 82, PG. 527
PC-B, SL.83-B
(4)

GEORGE AUBREY LONG
PC-B, SL.83-B
NO DEED FOUND

PROPERTY OWNERS

(3)	KENNETH W. PHIPPS DB 146, PG. 746 PC-C, SL. 181

EASEMENT TO:
STATE OF NORTH CAROLINA
(NC WILDLIFE RESOURCES COMMISSION)
DB 78, PG. 145

NOTE: Place inverts of equilizer pipes at a maximum elevation of 1.00', on a 0.00% grade, and a minimum 0.75' cover over pipe.

SPECIAL SHOP CURVED ANCHOR UNIT

BM-9 R/R SPIKE IN 18" PINE
ELEV. = 4.43'
99.9' RT OF -BL- 4+82.7

BM-10 BRIDGE NAIL IN 16" PINE
ELEV.= 2.69'
320.8' RT OF -BL- 13+44.9

POT Sta. 13+18.54 -Y-
PRC Sta. 15+19.23 -L-
PC Sta. 10+36.13 -Y-
PT Sta. 17+56.18 -L-
PC Sta. 10+72.20 -L-
POT Sta. 10+00.00 -Y- = POT Sta. 17+57.69 -L-
PC Sta. 11+07.58 -Y1-
PT Sta. 12+59.43 -Y1-
End Construction Sta. 12+60.00 -Y1-
POT Sta. 12+82.36 -Y1-
POT Sta. 12+10.07 -Y-
End Construction
POT Sta. 10+00.00 -Y1- = POT Sta. 17+63.63 -L-
BL-6 PINC 13+30.83 = BY-6 POT 10+53.05 = -L- POT 18+01.17 47.03' Lt.
POT Sta. 10+00.00 -DR- = POT Sta. 19+50.13 -L-
PC Sta. 10+14.97 -DR-
PRC Sta. 10+61.09 -DR-
PT Sta. 11+37.33 -DR-
End Construction -DR- Sta. 11+40.00
POT Sta. 11+50.00 -DR-

PI Sta 11+83.65
Δ = 8° 41' 59.9" (RT)
D = 5° 43' 46.5"
L = 151.84'
T = 76.07'
R = 1,000.00'
SE = NC

BL-5
POT 5+00.00

GRADING FOR PROP. WETLAND
PAVEMENT REMOVAL
BRIDGE APPROACH SLAB

MATCH LINE SHEET 5

8/17/99

28 AUG 2003 15:50
E:\projects\3348\roadway\sht\3348_sht04.dgn
ft_anstrand
dp HP0075020A

8/17/99

R/W REVISION 5/16/03 JCL
EXPANDED TEMP.CONST.EASEMENT
ON PARCEL 4 AND 7 RT.OF -L-

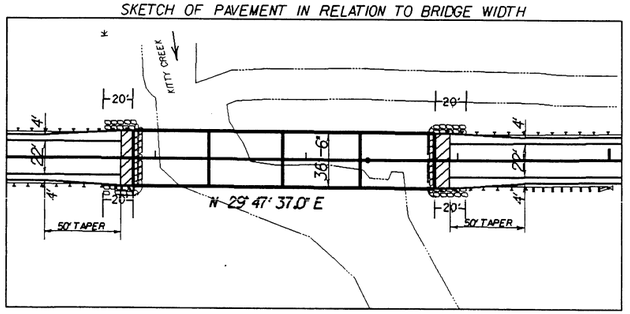
PROJECT REFERENCE NO.	SHEET NO.
B-3348	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

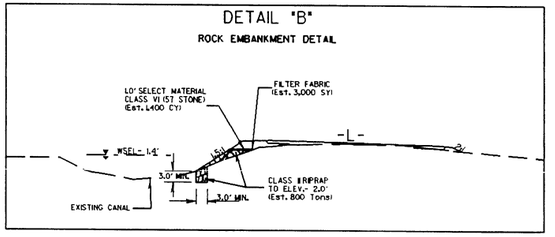
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NC GRID NAD 83

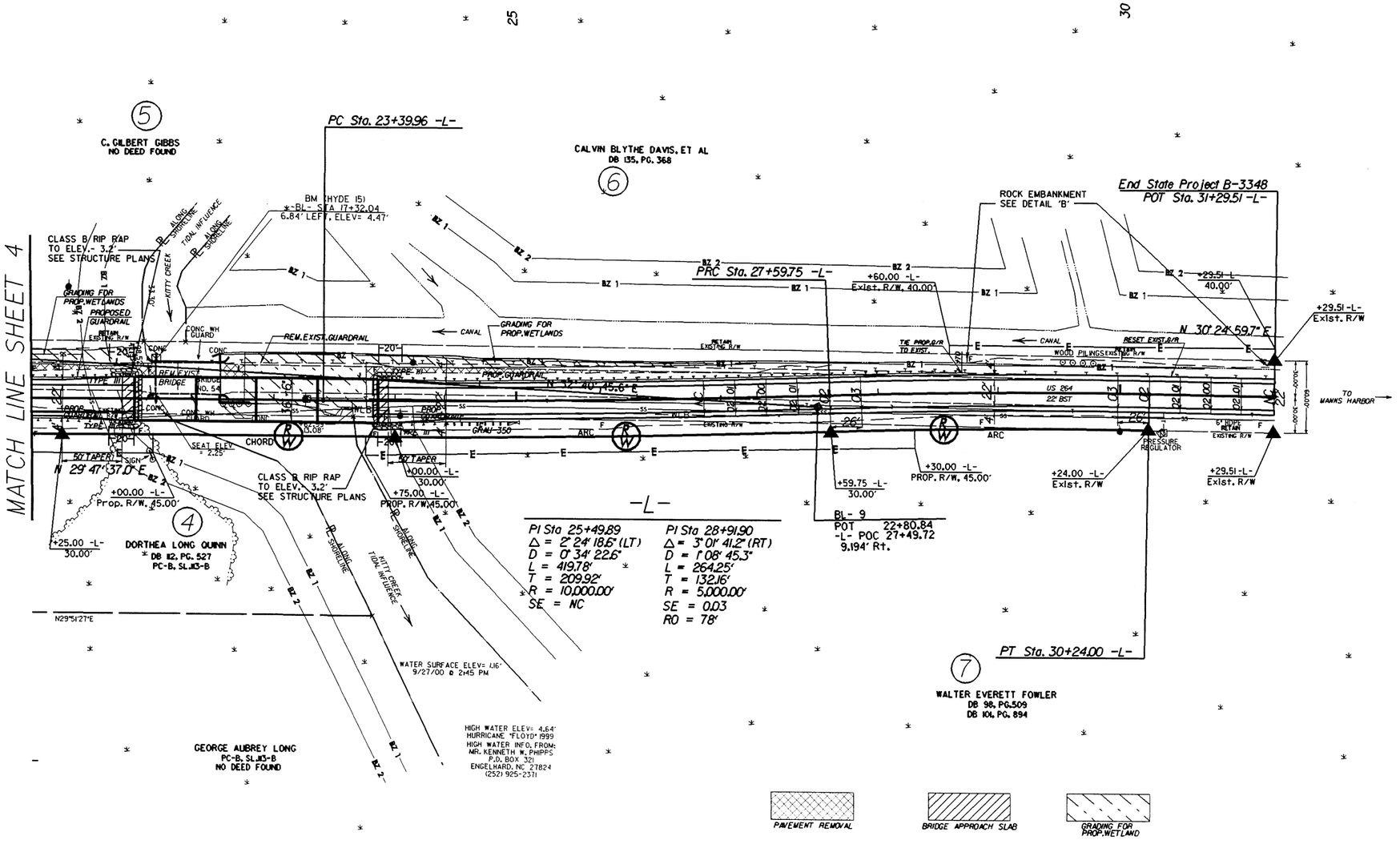
NOTE: SEE SHEET No.6 FOR -L- PROFILE
NOTE: SEE S- THRU S- FOR STRUCTURE PLANS

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH





FROM STA. 29+25 -L- TO 31+25 -L- LT.

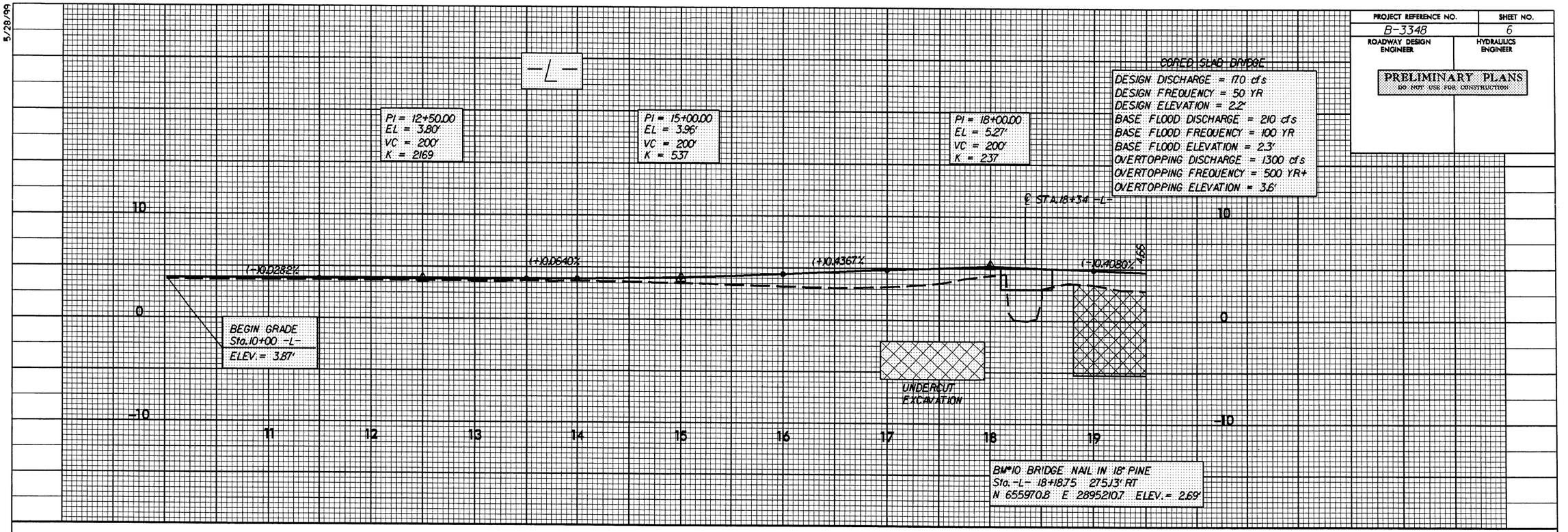


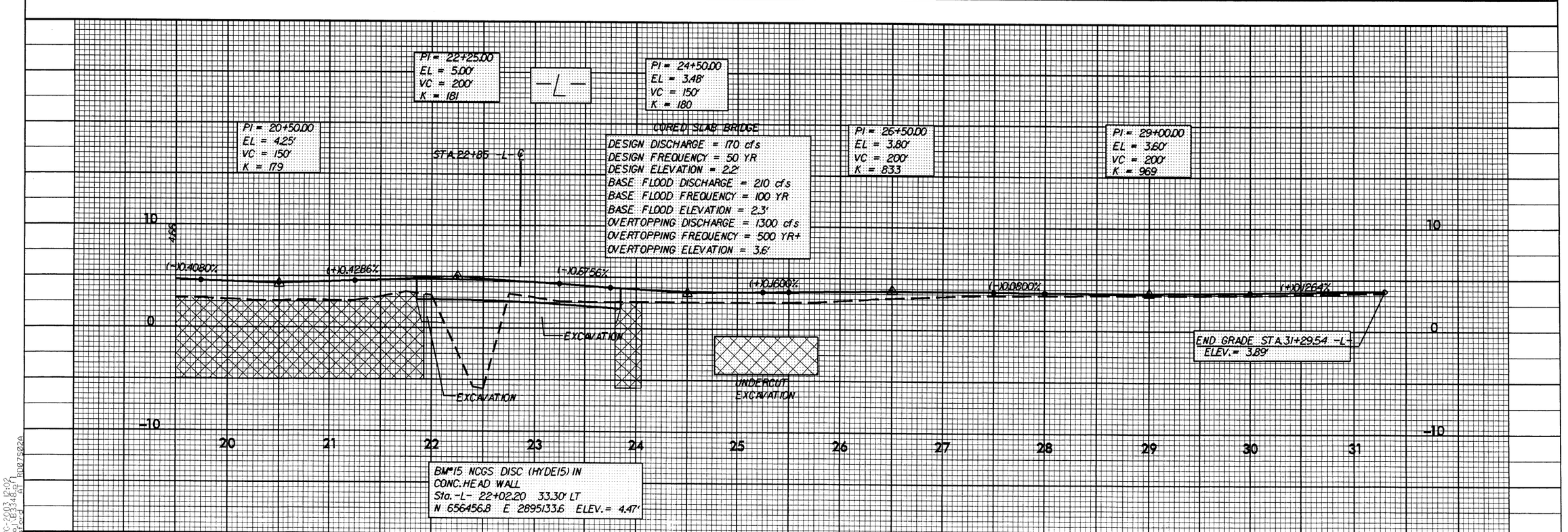
28-AUG-2003 12:01
N:\Proj\b3348\pdn\
Transport 6.1 RE007s02a

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3348	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





29-AUG-2002 12:02
ti ansi_a 44 R1.0 7.5022

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3348	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION