



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 30, 2004

D.E.N.R. Division of Water Quality
1621 Mail Service Center
Raleigh, NC 27699-1621

ATTENTION: Mr. John Hennessy
NCDOT Coordinator

SUBJECT: **Buffer Certification Application** for the proposed replacement of Bridge No. 246 over Little Arm Branch on SR 2564 (Creech Road) in Wake County, Division 5. Federal Aid Project No. BRSTP-2564(1), State Project No. 8.2406901, T.I.P. B-3376.

Dear Sir:

Please find the enclosed 7 copies of the Categorical Exclusion, project site map, Pre-Construction Notification (PCN) form, EEP compensatory mitigation request, permit drawings, and roadway design plan sheets. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 246 over Little Arm Branch with a new bridge at approximately the same location and roadway elevation. The proposed bridge would be approximately 105 feet in length and 35 feet in width, with a 24 foot travel way and with 4 - 7 foot offsets. Traffic would be detoured onsite, using a temporary bridge located upstream of the existing bridge during construction. The detour bridge will be approximately 80 feet in length. The temporary bridge may be placed as much as one meter lower than the existing bridge.

Project History

A Section 404 Regional General Permit (GP) 31 was issued 12-31-02 by Mr. Eric Alsmeyer of the USACE. The previous design involved replacing existing Bridge No. 246 with a culvert on a new alignment to the west of the existing structure. This project was later redesigned from a culvert to a bridge. Soil structural stability issues have been identified at the site, which would make constructing a culvert in that location unfeasible. In addition, changing to a bridge minimized impacts to natural resources.

A General Water Quality Certification 3375 was also applied for in conjunction with the aforementioned GP 31 permit. This General Certification 3375 application was not issued and was placed on hold for reasons explained in a Division of Water Quality letter (see attached) dated January 6, 2003. The "on hold" letter's issues are addressed and summarized below.

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH NC 27604

- 1.) The first concern deals with a new location segment and stream crossing. Since the design of this project has changed to a bridge replacement at the same location, the concern raised does not apply to this Buffer Certification Application.
- 2.) The second concern is for a Pre-construction Notification (PCN) form, which is included with this application.
- 3.) The next issue relates to natural stream design. Since there is no in stream work being done and no culvert is being installed, the concern raised does not apply to this Buffer Certification Application.
- 4.) The next concern is for culvert installation, no culvert is being installed, the concern raised does not apply to this Buffer Certification Application.
- 5.) The last issue is concerning stormwater design standards. The project has been redesigned and the permit drawings and plans now contain the proper stormwater controls at appropriate outlets (see Roadway plans page 3, Details B & D).

On June 24, 2004, a Buffer Certification application was submitted to Division of Water Quality for their review. Upon reviewing, Ms. Nikki Thompson requested additional information that will be covered in this application. The additional information requested includes the above mentioned "hold letter" issues and the inclusion of a PCN form.

IMPACTS TO WATERS OF THE UNITED STATES

Little Arm Branch is a perennial stream that comprises the single water resource within the project area. The stream is located within the Neuse River Drainage Basin and is designated as Subbasin 03-04-03 according to the NC Department of Water Quality (NCDWQ) system for cataloging drainage basins, and USGS Hydrologic Unit 03020201 according to the federal system for cataloging drainage basins.

No jurisdictional streams or wetlands will be affected by the proposed project. NCDOT's Best Management Practices (BMP) or the Protection of Surface Waters and Sedimentation Control guidelines in Sensitive Watersheds will be strictly enforced during the construction stage of the project. Provisions to preclude contamination by toxic substances during the construction interval will also be strictly enforced. The construction of the bridge will not require the use of impervious dikes (sand bags), work pads, causeways or workbridges.

Bridge Demolition: Bridge No. 246 is located on SR 2564 (Creech Road) over Little Arm Branch in Wake County. The existing bridge is composed of a combination of various timber, steel, and reinforced concrete components, with an overlaid asphalt wearing surface. The asphalt wearing surface will be removed prior to demolition, without dropping it into the water. The timber and steel components will also be removed in their sequence without dropping them into the water. The reinforced concrete components of the bridge will not enter the Waters of the United States during demolition. During construction, Best Management Practices for Bridge Demolition and Removal will be followed.

Restoration Plan: Upon completion of the new bridge, the temporary bridge will be removed. The temporary approach fill will be removed to natural grade and the area will be planted with native grasses and or tree species as appropriate.

Utility Impacts: Utility impacts associated with this project include:

- 1.) Installation of a sewer line causing a parallel impact in the Neuse river buffer of 1,219 ft² at L Sta. 12+77-12+93 (see permit drawing sheet 5 of 8).
- 2.) The second parallel utility impact will involve the filling and plugging of 2 sewer manhole at L Sta. 12+38-12+48 equaling 523 ft² (see permit drawing sheet 7 of 8).

Both impacts are considered allowable with mitigation (see Table 1) according to the NCDENR Division of Water Quality Administrative Code Section: 15A NCAC 2B .0100 Procedures for Assignment of Water Quality Standards 15A NCAC 2B .0200 Classifications of Water Quality Standards.

Schedule: All steps will be taken to minimize stream impacts to Little Arm Branch. The project schedule calls for a production letting of 12/21/04 with a date of availability of 02/01/05.

AVOIDANCE, MINIMIZATION AND MITIGATION

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional stages; minimization measures were incorporated as part of the project design. Redesigning the project from a culvert to a bridge avoided impacts associated with culvert design including construction of impervious dikes and causeways likely to be in place for 12 or more months.

Neuse River Basin Rules

This project is located in the Neuse River Basin; therefore the regulations pertaining to the Neuse River Rules will apply. The buffer impacts to Zone 1 and Zone 2 are broken out in Table 1. According to the buffer rules, temporary roads for bridge construction are ALLOWABLE. Uses designated as allowable may proceed within the riparian buffer provided that there are no practical alternatives to the requested use pursuant to Item (8) of this Rule. These uses require written authorization from the Division or the delegated local authority. Therefore, NCDOT requests written authorization for a Buffer Certification from the Division of Water Quality (DWQ).

Non-electric (sewer) utility lines with impacts other than perpendicular crossings in Zone 2 only and impacts other than perpendicular crossings in Zone 1 are ALLOWABLE WITH MITIGATION. Uses designated as allowable with mitigation may proceed within the riparian buffer provided that there are no practical alternatives to the requested use pursuant to Item (8) of this Rule and an appropriate mitigation strategy has been approved pursuant to Item (10) of this Rule. These uses require written authorization from DWQ. Mitigation is required from the North Carolina Ecological Enhancement Program (EEP) to provide compensatory mitigation. Therefore, a request has been made to EEP to provide confirmation that they are willing to provide mitigation (see attached letter).

Table 1. Neuse River Buffer Impacts (Square Feet)

	Sewer Line/MH Parallel Impact	Bridge Construction
Zone 1 Impact (sq. ft.)	653	3,659
Zone 2 Impact (sq. ft.)	1,089	9,017
TOTAL IMPACTS	1,742	12,676
Mitigation requirements (exempt, allowable or allowable with mitigation)	Zone 1: Allowable with Mitigation Zone 2: Allowable with Mitigation	Allowable Allowable
Mitigable Impacts (using 3:1 ratio) for Zones 1	1,959	N/A
Mitigable Impacts (using 1:1.5 ratio) for Zones 2	1,633.50	N/A
TOTAL MITIGATION REQUIRED	3,592.50	N/A

Total mitigation required for buffer impacts: 3,592.50 sq. ft., 0.08 ac. (See attached EEP mitigation request.)

Federally Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the Fish and Wildlife (FWS) lists four federally protected species for Wake County (Table 2). The CE (dated March 14, 2001) rendered Biological Conclusions of "No Effect" for each of these due to lack of suitable habitat, except in the case of Michaux's sumac. A most recent plant by plant survey was conducted on May 11, 2004 of the suitable habitat for Michaux's sumac. No plants were discovered within the project area. To date, habitat conditions have not changed within the survey area. Additionally, a review of the NC Natural Heritage Program database of Rare and Unique Habitats of May 14, 2004, revealed that no known occurrences of any federally protected species occur within one mile of the project area. As Michaux's sumac habitat exists in the project area, the biological conclusion is May Affect, Not Likely to Adversely Affect. Concurrence with this conclusion was requested from the USFWS on June 4, 2004 (See attached letter).

Table 2. Federally-Protected Species for Wake County

Common Name	Scientific Name	Federal Status	Biological Conclusion
Dwarf wedge mussel	<i>Alasmidonia heterodon</i>	E	No Effect
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	No Effect
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	No Effect
Michaux's sumac	<i>Rhus michauxii</i>	E	May Affect Not Likely to Adversely Affect

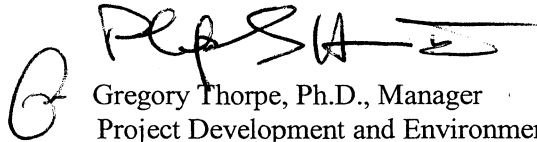
Summary

According to the buffer rules, temporary roads for bridge construction are ALLOWABLE. Non-electric (sewer) utility lines with impacts other than perpendicular crossings in Zone 2 only and impacts other than perpendicular crossings in Zone 1 are ALLOWABLE WITH MITIGATION. 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.

This project has been reviewed for jurisdiction under the Federal Clean Water Act (CWA). There are no impacts to Waters of the US, therefore none of the actions of this project fall under jurisdiction of the CWA. Therefore, no permits pursuant to the CWA are required.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Ms. Cheryl Knepp at (919) 715-1489.

Sincerely,



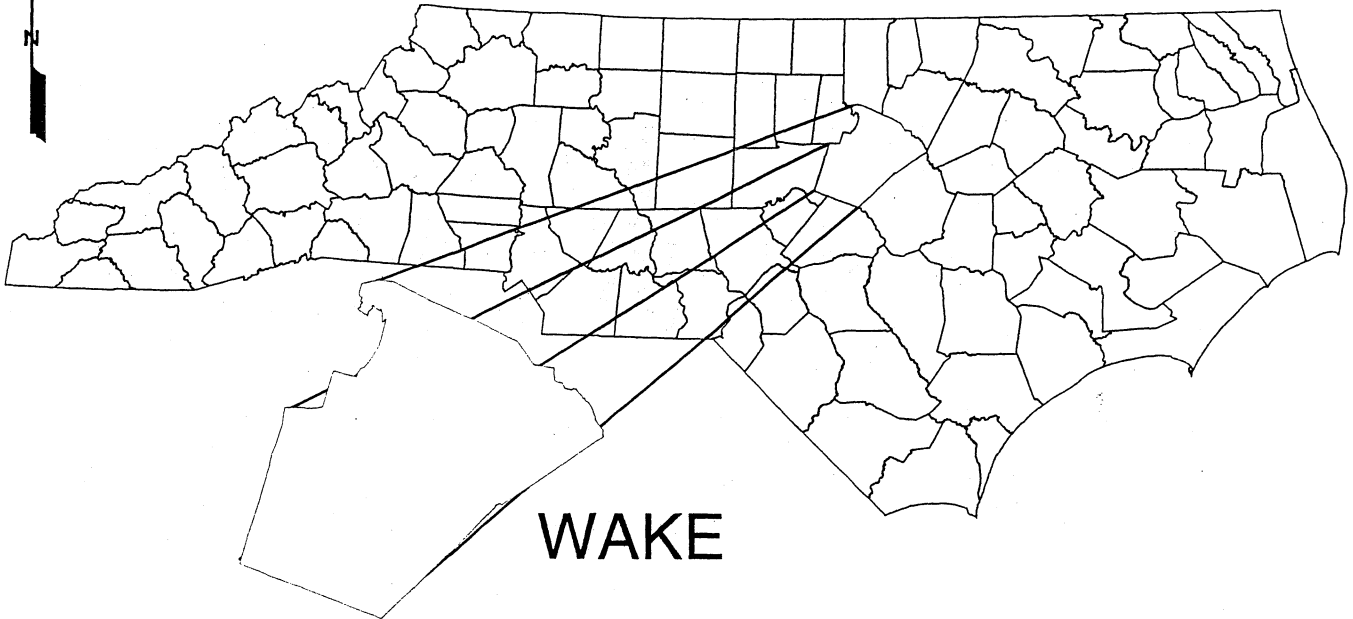
Gregory Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Branch

cc:

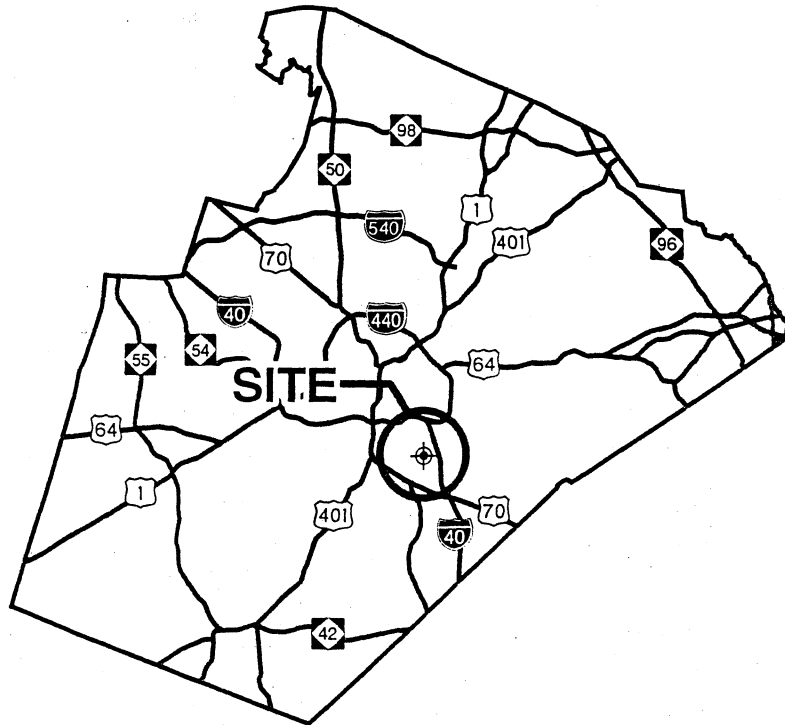
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design

Mr. Ron Hancock, P.E., Bridge Construction
Mr. Mark Staley, Roadside Environmental
Mr. Jon Nance, P.E., Division Engineer
Mr. Chris Murray, DEO
Mr. David Franklin, USACE, Wilmington
Mr. Bill Gilmore, Interim Manager, EEP

NORTH CAROLINA



WAKE



SITE

VICINITY MAPS

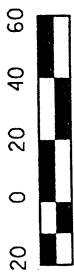
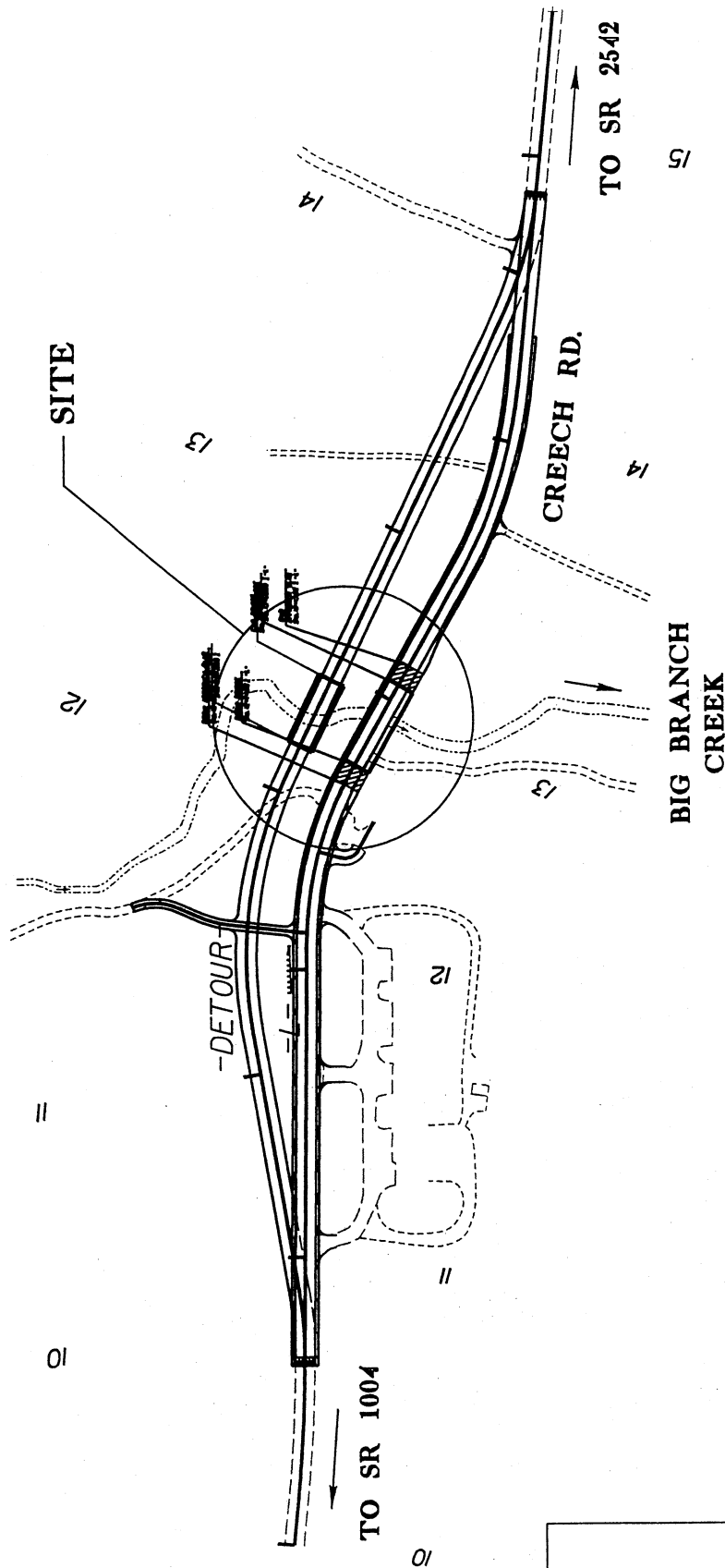
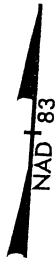
NCDOT

DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.2406301 (B-3376)
BRIDGE NO. 246 ON SR 2564
OVER BIG BRANCH CREEK

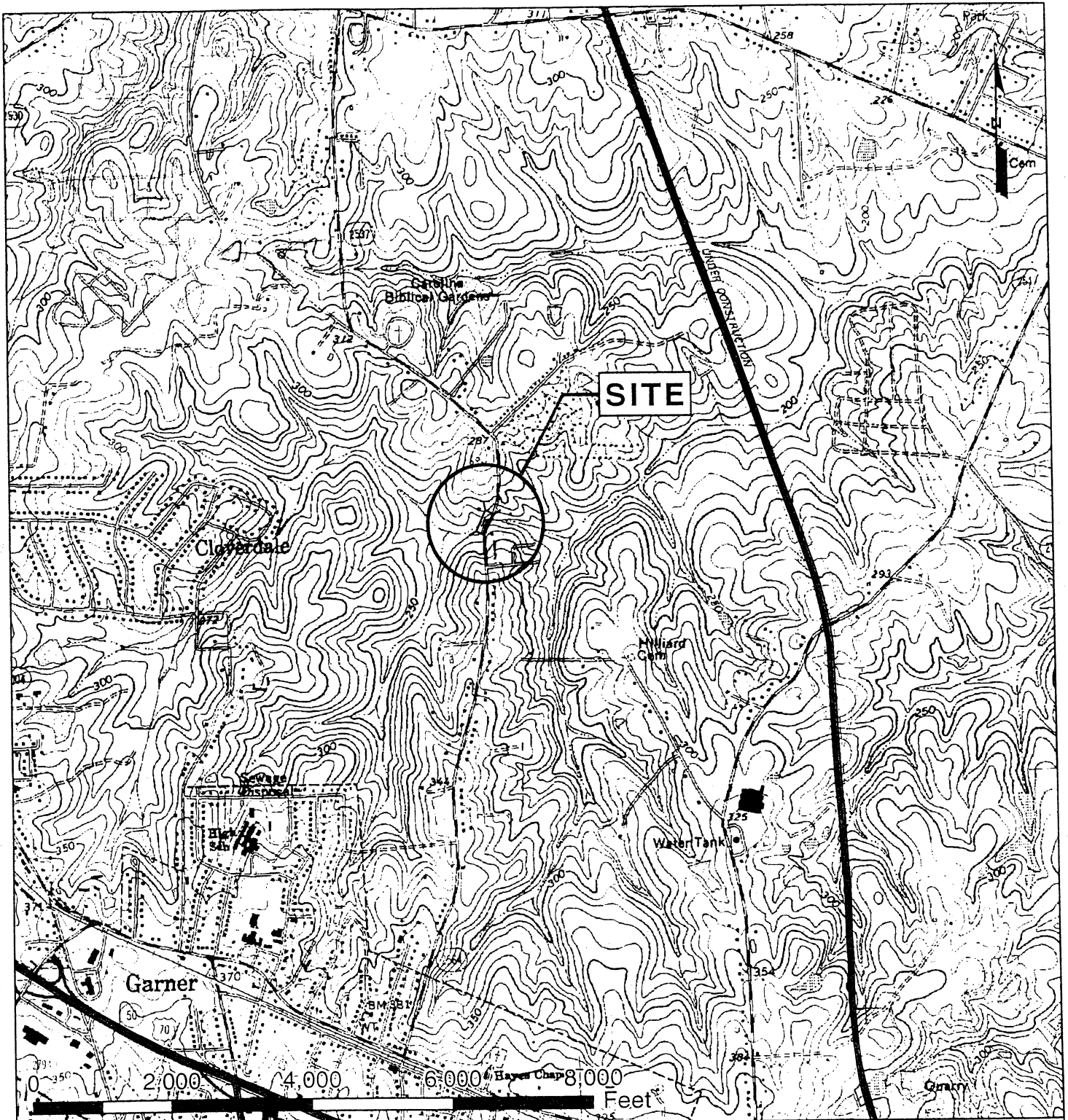
1 OF 8

4/06/04



SITE MAP

NCDOT
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8.2406301 (B-3376)
BRIDGE NO. 246 ON SR 2564
OVER BIG BRANCH CREEK



1 inch equals 2,000 feet

LOCATION

NCDOT
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 PROJECT: 8.2406301 (B-3376)
 BRIDGE NO. 246 ON SR 2564
 OVER BIG BRANCH CREEK

PROPERTY NO.	PROPERTY OWNER NAME	PROP. OWNER MAILING ADDRESS
(1Z)	BETTY C. & BILLY T. WILDER	3425 ARTHUR PIERCE RD APEX, NC 27539
(4Z)	MARC C. YOUNG	4127 8th ST. NW WASHINGTON D.C. 20011
(7)	MARGARET B. COLEMAN	4408 WILMINGTON RD GARNER, NC 27529
(8)	JOAN E. BUOL	1408 CREECH RD. GARNER, NC 2752

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

 PROJECT 8.2406301 (B-3376)

 BRIDGE NO.246 AND APPROACHES
 ON SR 2564 OVER BIG BRANCH CREEK

 08/18/04 SHEET 4 OF 8

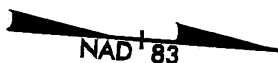
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT '83376-1' WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 218812.248 EASTING: 645890.488 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989708 THE NC LAMBERT GRID BEARING LOCALIZED HORIZONTAL GROUND DISTANCE FROM '83376-1' TO -L- STATION 12+00.000 IS N 4° 20' 37.11" E DISTANCE 582.673m ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

PROJECT REFERENCE NO. B-3376		SHEET NO. 5 of 8	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
CONST. REV.			
R/W REV.			

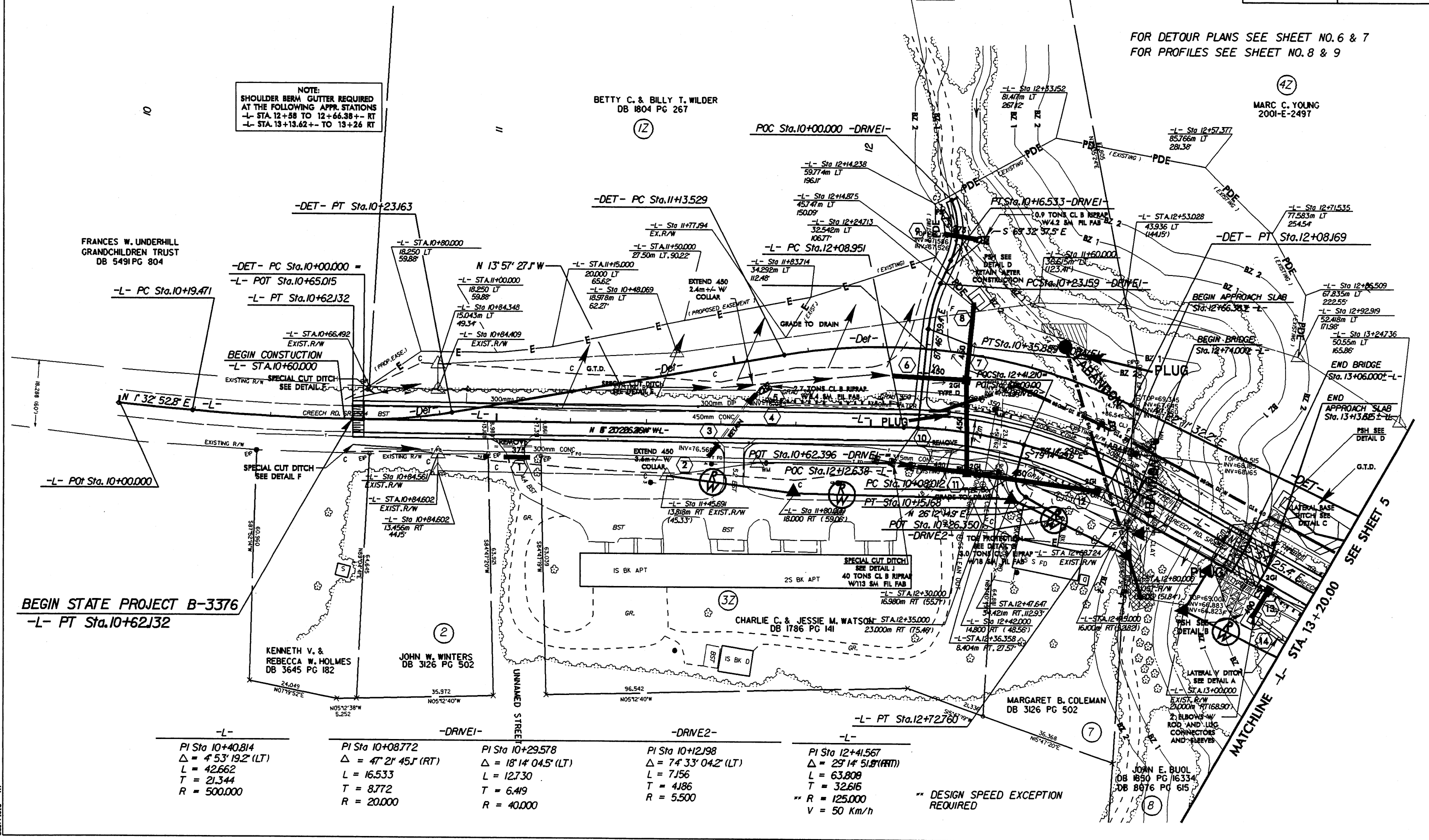
-DET-

PI Sta 10+11.615	PI Sta 11+62.483
$\Delta = 10' 37" 01.6' (LT)$	$\Delta = 36' 08" 59.6' (RT)$
L = 23.163	L = 94.640
T = 11.615	T = 48.955
R = 125.000	R = 150.000



	ALLOWABLE IMPACTS ZONE 1
	ALLOWABLE IMPACTS ZONE 2
	MITIGABLE ZONE 1
	MITIGABLE ZONE 2

FOR DETOUR PLANS SEE SHEET NO. 6 & 7
FOR PROFILES SEE SHEET NO. 8 & 9



NOTE:
SHOULDER BERM GUTTER REQUIRED AT THE FOLLOWING APPR. STATIONS
-L- STA 12+58 TO 12+66.38+- RT
-L- STA 13+13.62+- TO 13+26 RT

FRANCES W. UNDERHILL
GRANDCHILDREN TRUST
DB 5491 PG 804

BETTY C. & BILLY T. WILDER
DB 1804 PG 267

MARC C. YOUNG
2001-E-2497

BEGIN STATE PROJECT B-3376
-L- PT Sta. 10+62.132

-L-
PI Sta 10+40.814
 $\Delta = 4' 53" 19.2' (LT)$
L = 42.662
T = 21.344
R = 500.000

-DRIVE1-
PI Sta 10+08.772
 $\Delta = 47' 21" 45.1' (RT)$
L = 16.533
T = 8.772
R = 20.000

PI Sta 10+29.578
 $\Delta = 18' 14" 04.5' (LT)$
L = 12.730
T = 6.419
R = 40.000

-DRIVE2-
PI Sta 10+12.198
 $\Delta = 74' 33" 04.2' (LT)$
L = 7.156
T = 4.186
R = 5.500

-L-
PI Sta 12+41.567
 $\Delta = 29' 14" 51.8' (RT)$
L = 63.808
T = 32.616
R = 125.000
V = 50 Km/h

DESIGN SPEED EXCEPTION REQUIRED

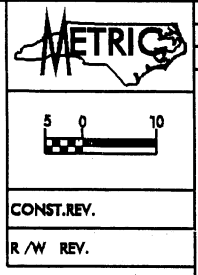
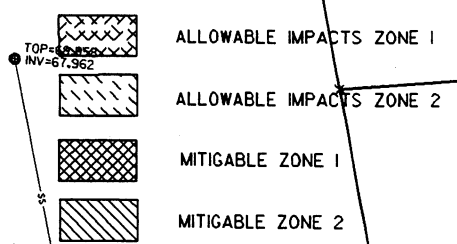
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DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT B3376-1 WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 218812.248 EASTING: 645890.488 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989708 THE NO LAMBERT GRID BEARING LOCALIZED HORIZONTAL GROUND DISTANCE FROM B3376-1 TO -L- STATION 12+00.000 IS N 4° 20' 37.11" E DISTANCE 582.673M ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

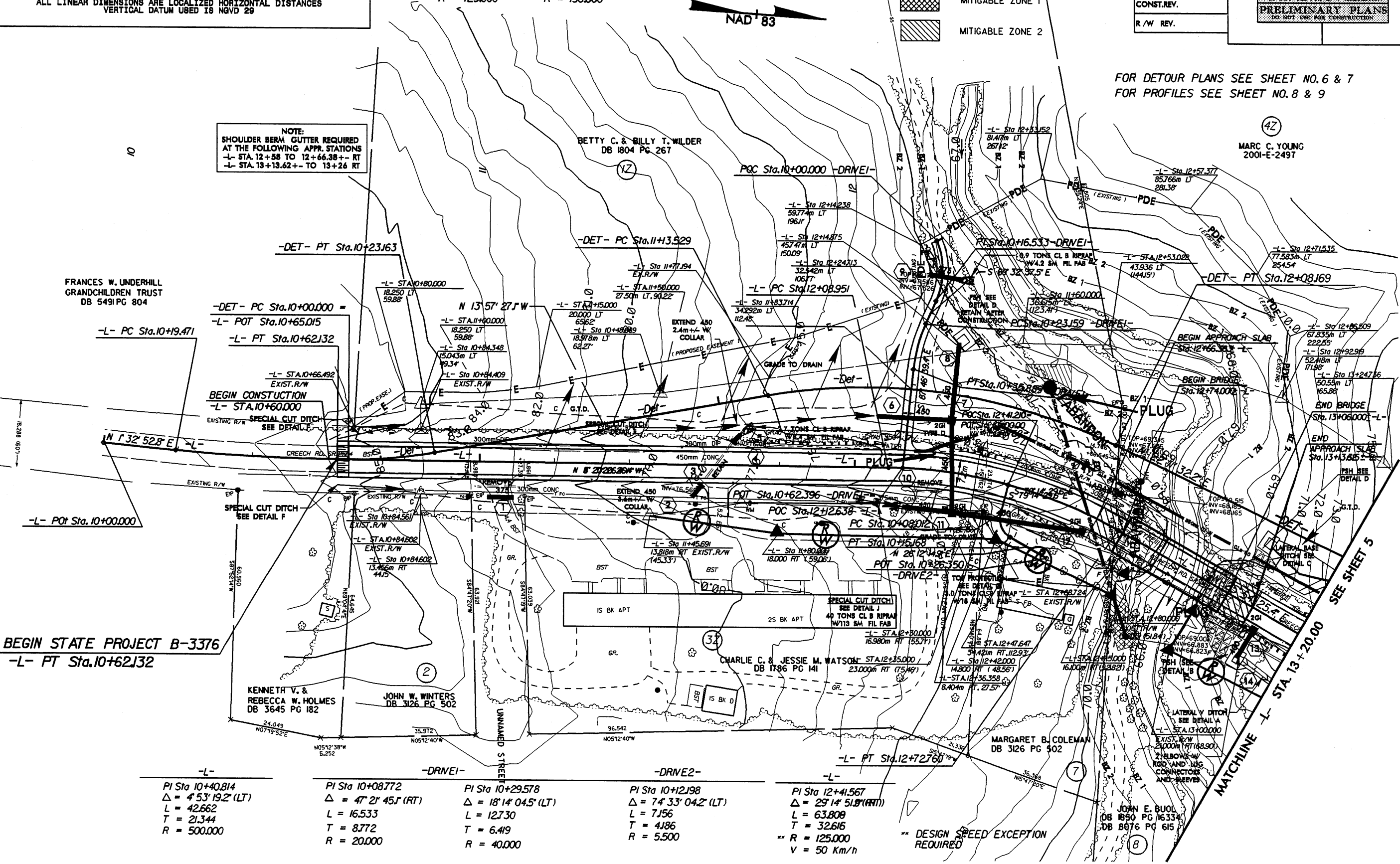
NOTE: SHOULDER BERM GUTTER REQUIRED AT THE FOLLOWING APPR. STATIONS -L- STA. 12+58 TO 12+66.38+- RT -L- STA. 13+13.62+- TO 13+26 RT

-DET- PI Sta 10+11.615 PI Sta 11+62.483 Δ = 10° 37' 01.6" (LT) Δ = 36° 08' 59.6" (RT) L = 231.63 L = 94.640 T = 11.615 T = 48.955 R = 125.000 R = 150.000



PROJECT REFERENCE NO. B-3376 SHEET NO. 6 OF 8 R/W SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER INCOMPLETE PLANS PRELIMINARY PLANS

FOR DETOUR PLANS SEE SHEET NO. 6 & 7 FOR PROFILES SEE SHEET NO. 8 & 9



-L- PI Sta 10+40.814 Δ = 4° 53' 19.2" (LT) L = 42.662 T = 21.344 R = 500.000

-DRIVE1- PI Sta 10+08.772 Δ = 47° 21' 45.1" (RT) L = 16.533 T = 8.772 R = 20.000

PI Sta 10+29.578 Δ = 18° 14' 04.5" (LT) L = 127.30 T = 6.419 R = 40.000

-DRIVE2- PI Sta 10+12.198 Δ = 74° 33' 04.2" (LT) L = 7.156 T = 4.186 R = 5.500

-L- PI Sta 12+41.567 Δ = 29° 14' 51.8" (RT) L = 63.808 T = 32.616 R = 125.000


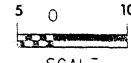
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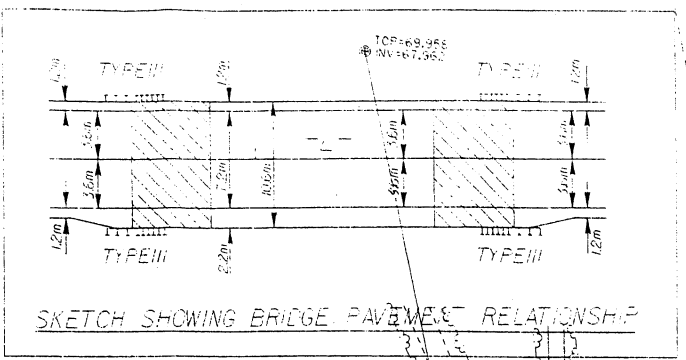
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ALL WATER AND SEWER LINES OWNED BY THE CITY OF RALEIGH

L = 23.63
 L = 11.615
 L = 125.20

L = 94.640
 L = 48.355
 L = 300.20

 SCALE 	PROJECT REFERENCE NO.	SHEET NO.
	B-3376	7628
DESIGNED BY: JH	NORTH CAROLINA PROFESSIONAL ENGINEER	
DRAWN BY: JH	23041	
CHECKED BY: CDB	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
APPROVED BY: CDB	THEODORE W. BROWN	
REVISED:	DB: 3074-P0:284	
DESIGN SERVICES UNIT	UTILITY CONSTRUCTION PLANS ONLY	
PHONE: (919) 250-4123	FAX: (919) 250-4119	



FOR PROFILE OF -L- SEE SHEET 6
FOR PROFILE OF DRIVE 1 SEE SHEET 6
 FOR DETOUR PLANS SEE SHEET NO. 8 & 7
 FOR PROFILES SEE SHEET NO. 8 & 9

PROP. FILL OR REMOVE 76M OF 450 MM ABANDONED SEWER PIPES

PROP. MANHOLE "EQ1"
 STA. 0+69.4 LINE 1
 STA. 0+00 LINE 2
 STA. 12+44.24, LINE -L- 28.21 LT

EXIST. MANHOLE "B2"
 STA. 0+24.8, LINE 2
 STA. 12+32.19, LINE -L- 7.51 LT

PROP. BREAK DOWN AND PLUG AND FILL 2 ABANDONED UTILITY MANHOLES

FRANCES W. UNDERHILL
 GRANDCHILDREN TRUST
 DB 5491 PG 804

BETTY C. & SILLY T. WILDER
 DB 1804 PG 267

BETTY C. & LEONODUS J. CLARK
 DB 1804 PG 267

THEODORE W. BROWN
 DB: 3074-P0:284

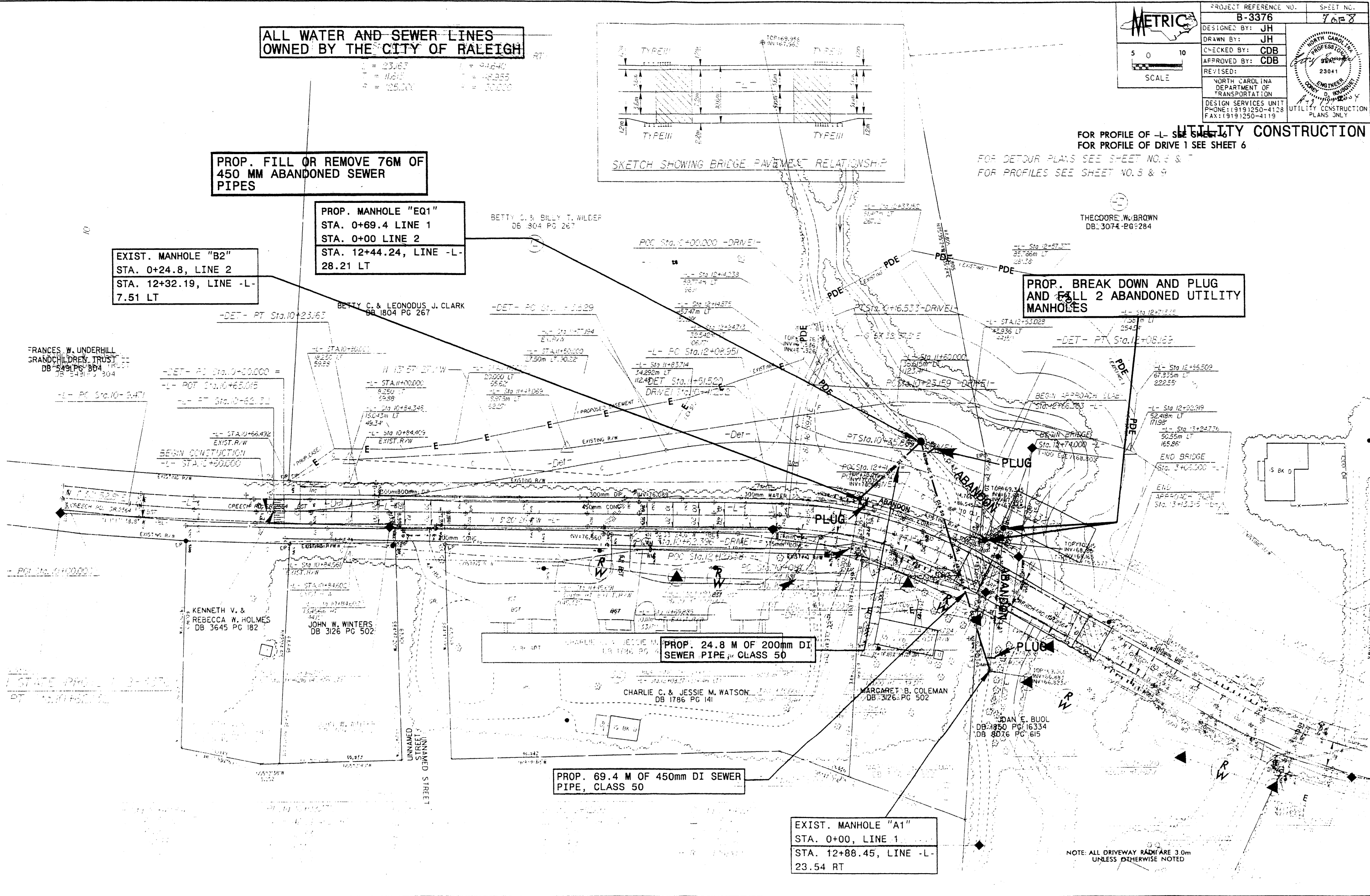
BETTY C. & LEONODUS J. CLARK
 DB 1804 PG 267

PROP. 24.8 M OF 200mm DI SEWER PIPE, CLASS 50

PROP. 69.4 M OF 450mm DI SEWER PIPE, CLASS 50

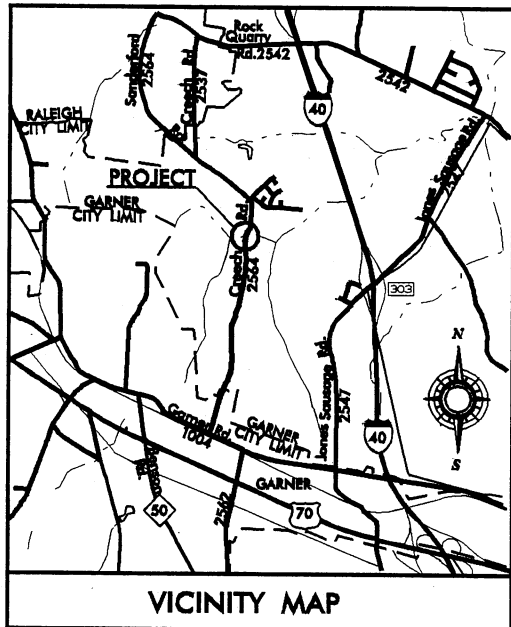
EXIST. MANHOLE "A1"
 STA. 0+00, LINE 1
 STA. 12+88.45, LINE -L- 23.54 RT

NOTE: ALL DRIVEWAY RADI ARE 3.0m UNLESS OTHERWISE NOTED



CONTRACT: C200488 TIP PROJECT: B-3376

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

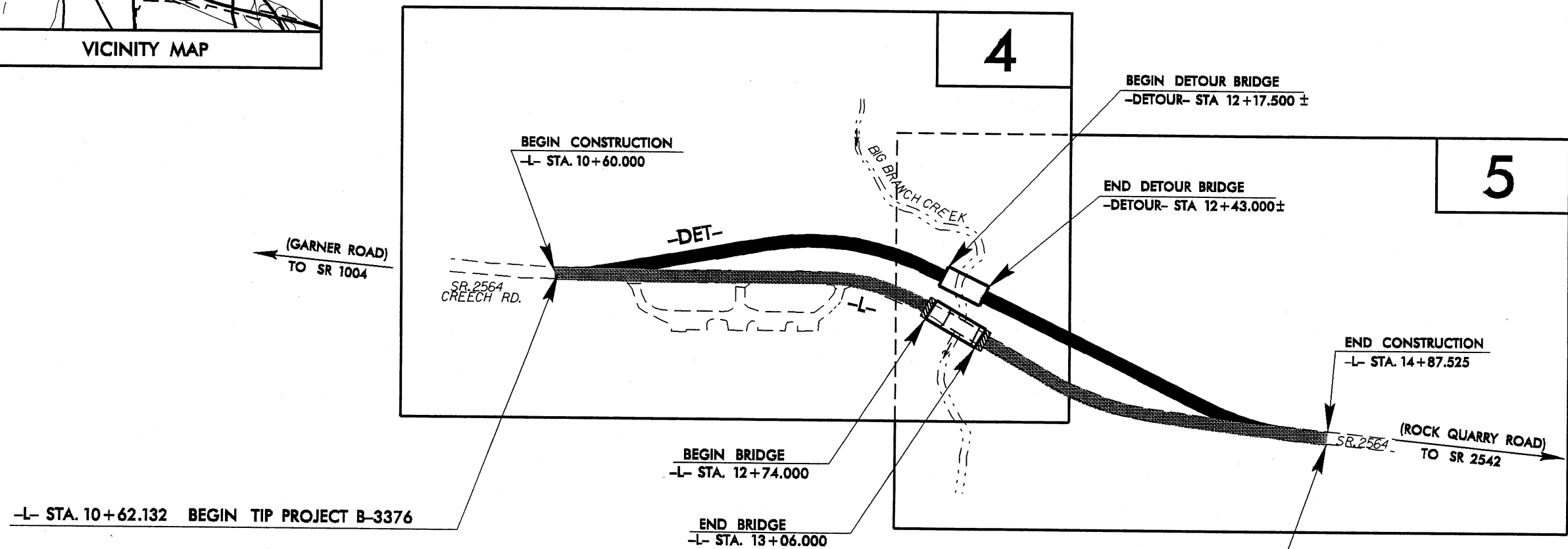
**LOCATION: BRIDGE NO. 246 AND APPROACHES
ON SR 2564 OVER BIG BRANCH CREEK**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	B-3376	1
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION
33024.1.1	BRSTP-2564(1)	P.E.
33024.2.1	BRSTP-2564(2)	R/W, UTL.
33024.3.2	BRSTP-2564(4)	CONST.



** DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED FROM 90 km/h TO 50 km/h AND VERTICAL ALIGNMENT

GRAPHIC SCALES

5 0 10
PLANS

5 0 10
PROFILE (HORIZONTAL)

1 0 2
PROFILE (VERTICAL)

DESIGN DATA

ADT 2004 =	6,600
ADT 2025 =	11,000
DHV =	10 %
D =	65 %
T =	5 % *
V =	50 km/h **
* TTST 1 % DUAL 4 %	
FUNC CLASS = URBAN COLLECTOR	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3376 =	0.393 Km
LENGTH STRUCTURE TIP PROJECT B-3376 =	0.032 Km
TOTAL LENGTH OF TIP PROJECT B-3376 =	0.425 Km

Prepared in the Office of:

DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 31, 2003

LETTING DATE:
DECEMBER 21, 2004

G.E. BREW, P.E.
PROJECT ENGINEER

D. WILLIAMS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA
SIGNATURE: _____ P.E.	SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER	STATE DESIGN ENGINEER
SIGNATURE: _____ P.E.	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
SIGNATURE: _____ P.E.	APPROVED DIVISION ADMINISTRATOR
	DATE

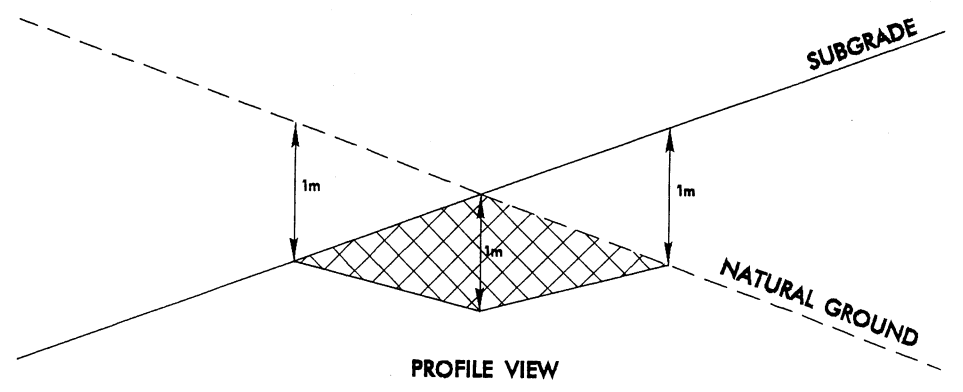
20-AUG-2004 10:36
 PROJECT: C200488 TIP PROJECT: B-3376.tsh
 11/11/04 11:55:50

FINAL PAVEMENT SCHEDULE

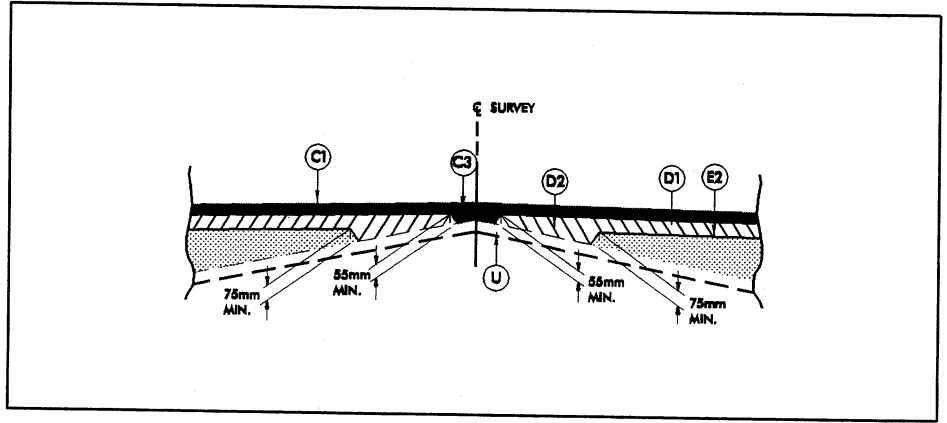
C1	PROP. APPROX. 30 mm ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 72 kg PER SQ. METER.
C2	PROP. APPROX. 60 mm ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 72 kg PER SQ. METER IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 2.40 kg PER SQ. METER PER 1 mm DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 40 mm IN DEPTH.
D1	PROP. APPROX. 100 mm ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 245 kg PER SQ. METER
D2	PROP. VAR. DEPTH ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 2.45 kg PER SQ. METER PER 1 mm DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 55 mm IN DEPTH OR GREATER THAN 110 mm IN DEPTH.
E1	PROP. APPROX. 90mm ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 221 kg. PER SQ. METER.
E2	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 2.45 Kg. PER SQ. METER PER 1mm DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 140mm IN DEPTH OR LESS THAN 75mm IN DEPTH
J1	PROP. 200 mm AGGREGATE BASE COURSE.
J2	PROP. 250 mm AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT. SEE STANDARD WEDGING DETAIL

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

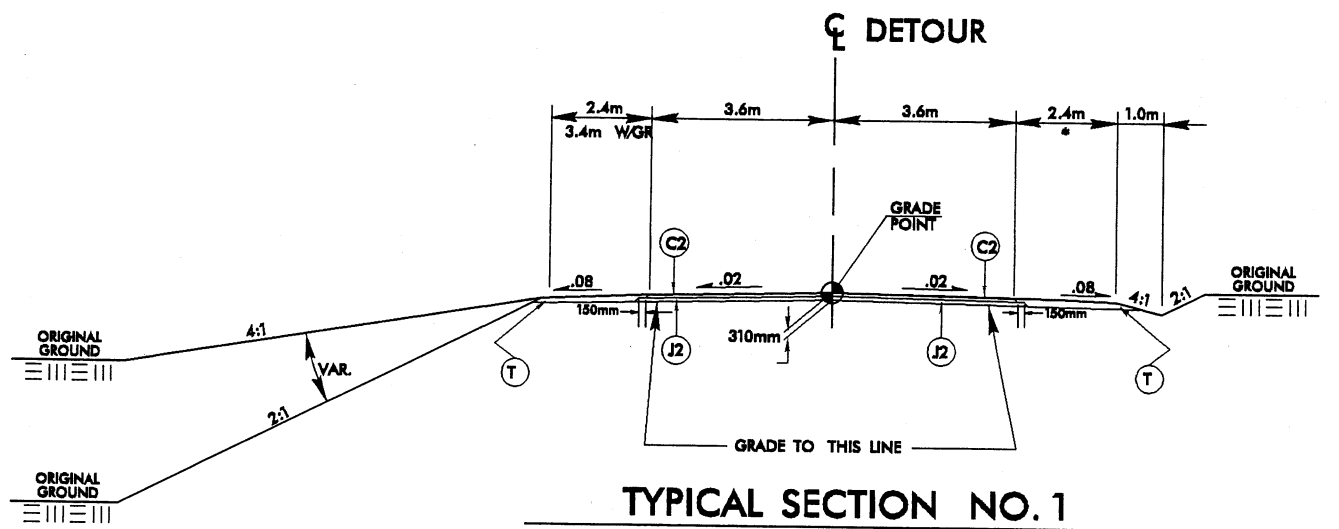
DETAIL OF PROPOSED UNDERCUT AT GRADE POINT



PROJECT REFERENCE NO. R-3376	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



Detail Showing Method of Wedging
(Use with Typical Section No. 2)




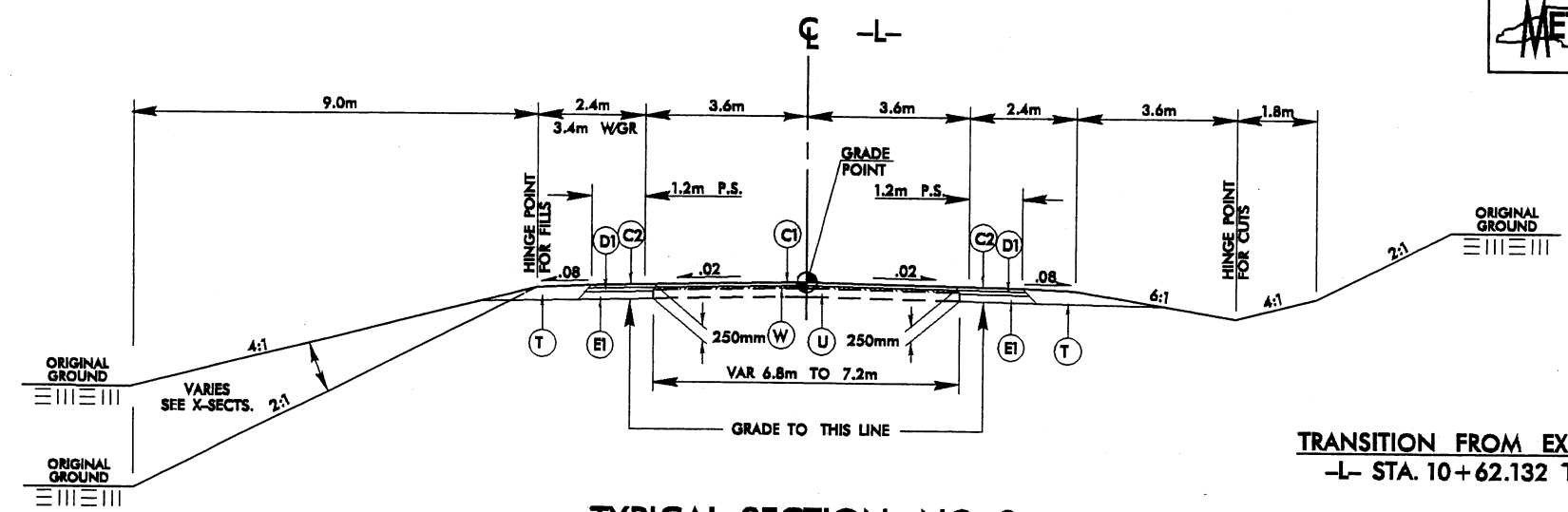
TRANSITION FROM EXISTING TO T.S. NO. 1.
 DETOUR STA. 10+00.000 TO 10+50.292
 USE TYPICAL SECTION NO. 1
 -DETOUR- STA. 10+50.292 TO 12+17.500 ± (BEGIN BRIDGE)
 -DETOUR- STA. 12+43.000 ± (END BRIDGE) TO 13+86.848
 •USE 1.2m FROM -DETOUR- STA. 10+76.023 TO 10+96.371

TRANSITION FROM T.S. NO. 1 TO EXISTING
 DETOUR STA. 13+86.848 TO 14+28.889

R-3376-2004 10/25
 11/11/04
 No. 03-03376-1/2
 10/16/03

FINAL PAVEMENT SCHEDULE	
C1	30 mm S9.5B
C2	60 mm S9.5B
D1	100 mm I19.0B
E1	90 mm B25.0B
J1	200 mm ABC
J2	250 mm ABC
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PVMT.

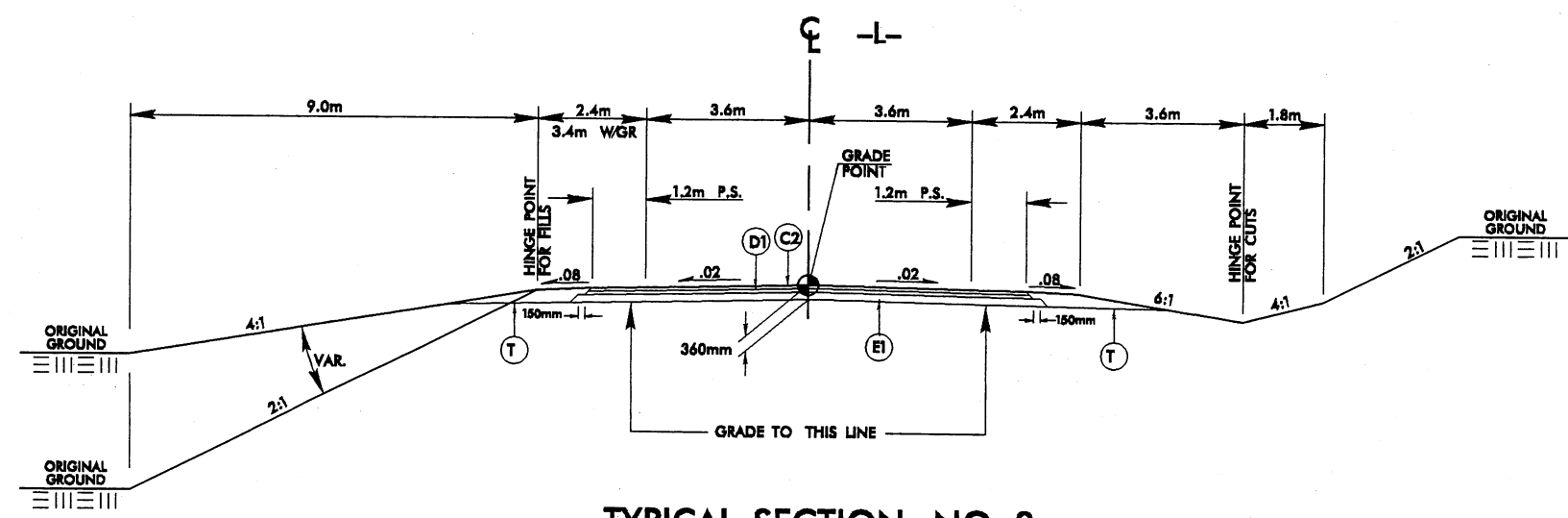
	PROJECT REFERENCE NO.	SHEET NO.
	B-3376	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER	



TYPICAL SECTION NO. 2

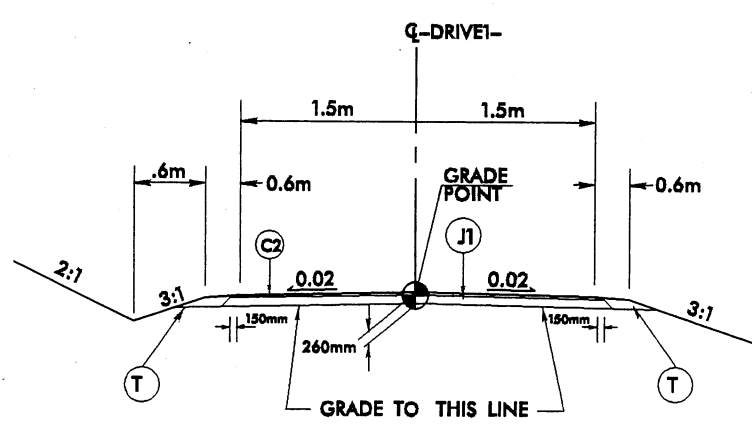
TRANSITION FROM EXISTING TO T.S. NO. 2
 -L- STA. 10+62.132 TO STA. 10+80.000

USE TYPICAL SECTION NO. 2
 -L- STA. 10+80.000 TO 12+45.000
 -L- STA. 13+60.000 TO 14+37.165



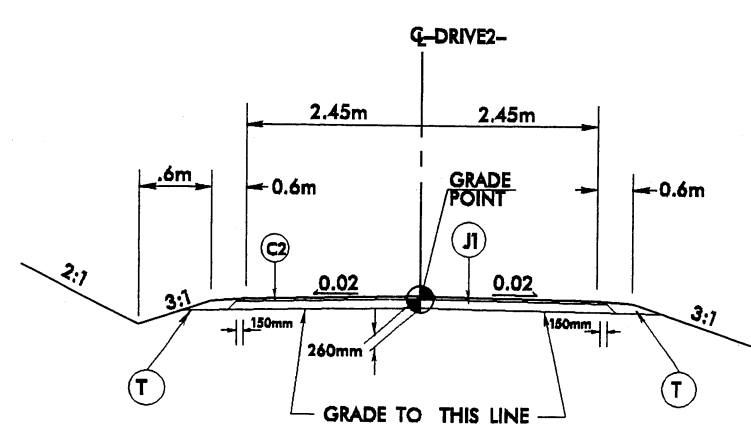
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
 -L- STA. 12+45.000 TO 12+74.000 (BEGIN BRIDGE)
 -L- STA. 13+06.000 (END BRIDGE) TO 13+60.000



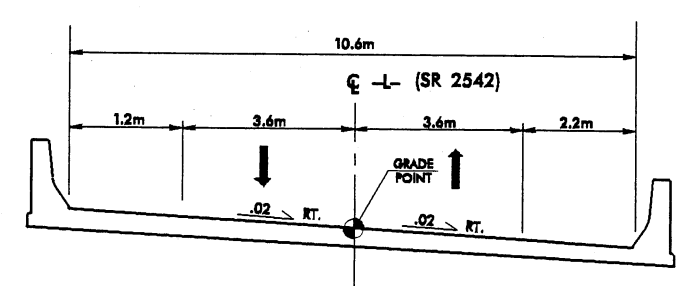
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
 -DRIVE1- STA. 10+03.250 TO 10+60.004



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
 -DRIVE2- STA. 10+04.800 TO 10+17.000



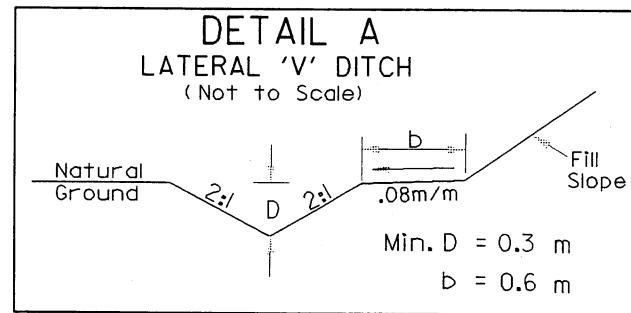
TYPICAL SECTION ON BRIDGE

-L- STA. 12+74.000 (BEGIN BRIDGE) TO
 -L- STA. 13+06.000 (END BRIDGE)

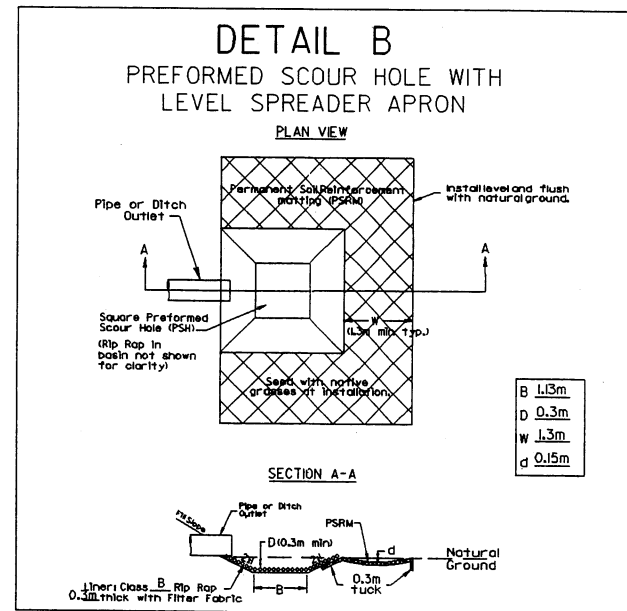
PROJECT NO. 004 1035
 DATE: 11/18/88
 Nov 83-83376.syd



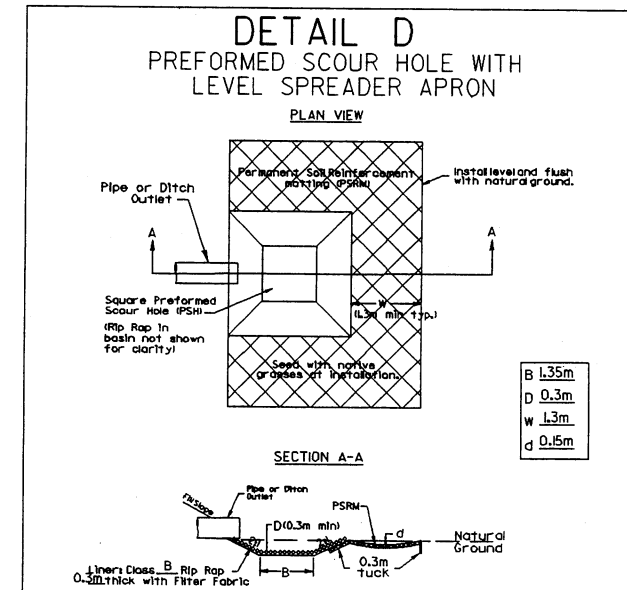
PROJECT REFERENCE NO. B-3376	SHEET NO. 5
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



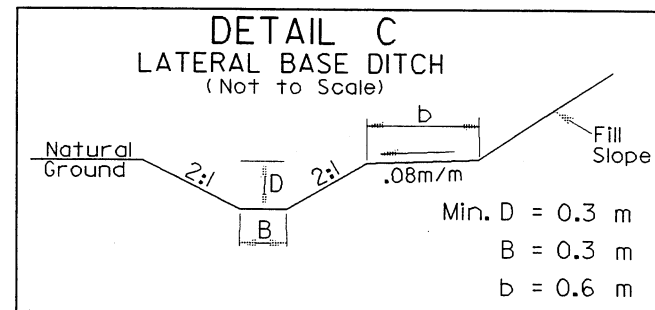
-L- STA. 13+17.473 - 13+47.473 RT
ESTIMATED DDE = 20 CM



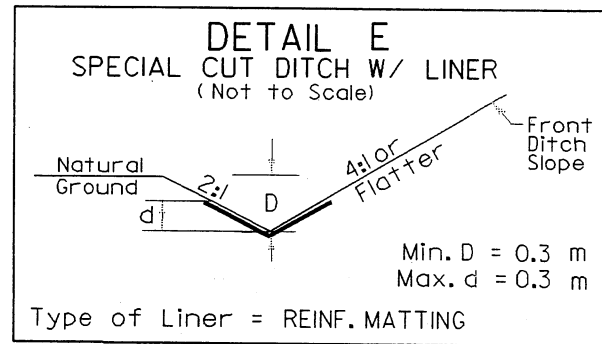
-L- STA. 13+15 RT



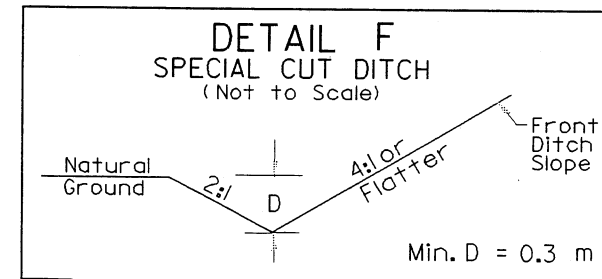
-L- STA. 12+24 LT
-L- STA. 13+09 LT
-DET- STA. 12+52 LT (TEMP)
-DRIVE 1 STA. 10+24 LT



-L- STA. 13+07.473 - 13+27.473 LT
ESTIMATED DDE = 122 CM
-DET- STA. 12+48 - 12+55 LT
ESTIMATED DDE (DET) = 3 CM

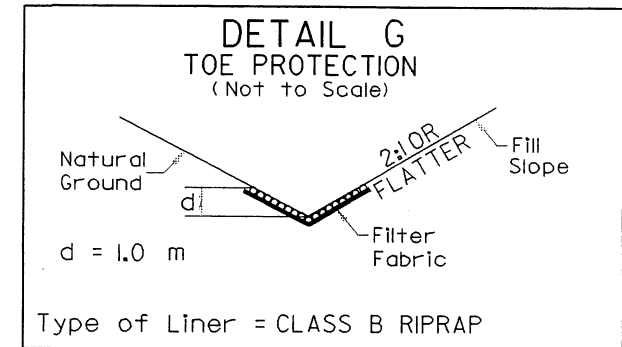


-DET- STA. 10+96.371 - 11+42.940 RT
-L- STA. 11+ 40 - 12+06 LT

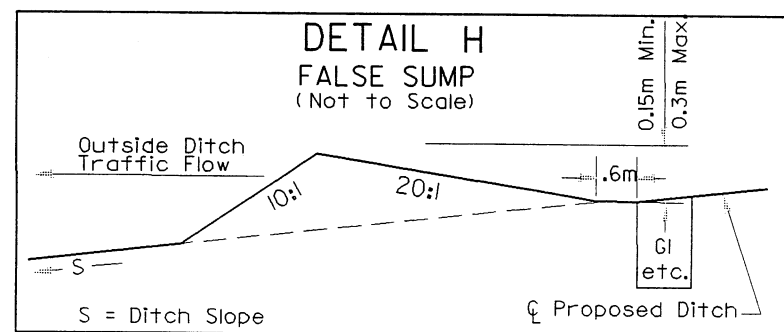


-L- STA. 10+60 - 10+80 LT & RT
-L- STA. 14+20 - 14+40 LT & RT
-DET- STA. 14+07 - 14+47 LT (TEMP)
-DRIVE 2- STA. 10+08 - 10+14 RT

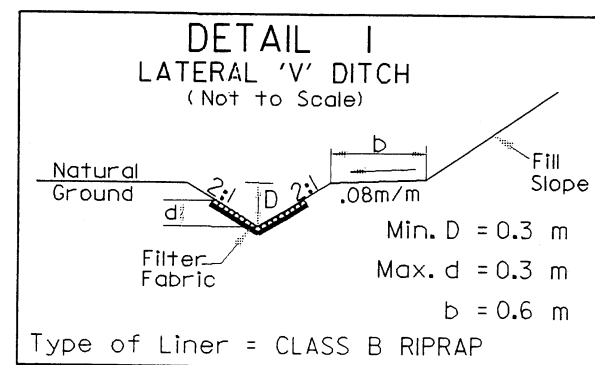
NOTE: -L- STA. 10+60 - 10+80 RT. USE
3:1 FRONT DITCH SLOPE



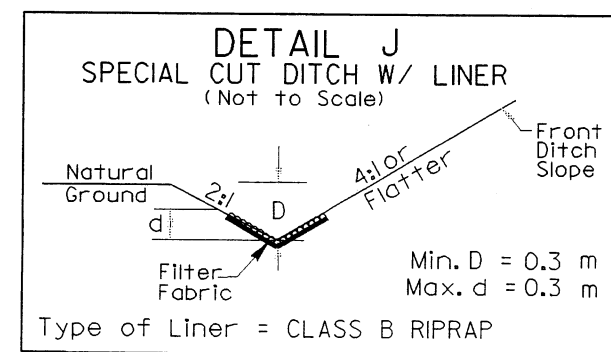
-L- STA. 12+27 - 12+37 RT
-DET- STA. 12+08 - 12+21 RT (TEMP)
-DET- STA. 12+40 - 12+67 RT (TEMP)



-DRIVE1- STA. 10+04 RT

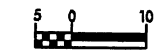


-L- STA. 13+47.473 - 13+67.473 RT



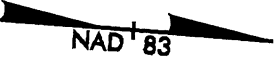
-L- STA. 12+00 - 12+15 RT
-L- STA. 13+27.473 - 13+47.473 LT
-DET- STA. 12+55 - 12+75 LT (TEMP)

DATE: 02/04/14
 TIME: 11:44 AM
 PROJECT: B-3376
 SHEET: 5
 DRAWN BY: J. B. BROWN
 CHECKED BY: J. B. BROWN
 DATE: 02/04/14

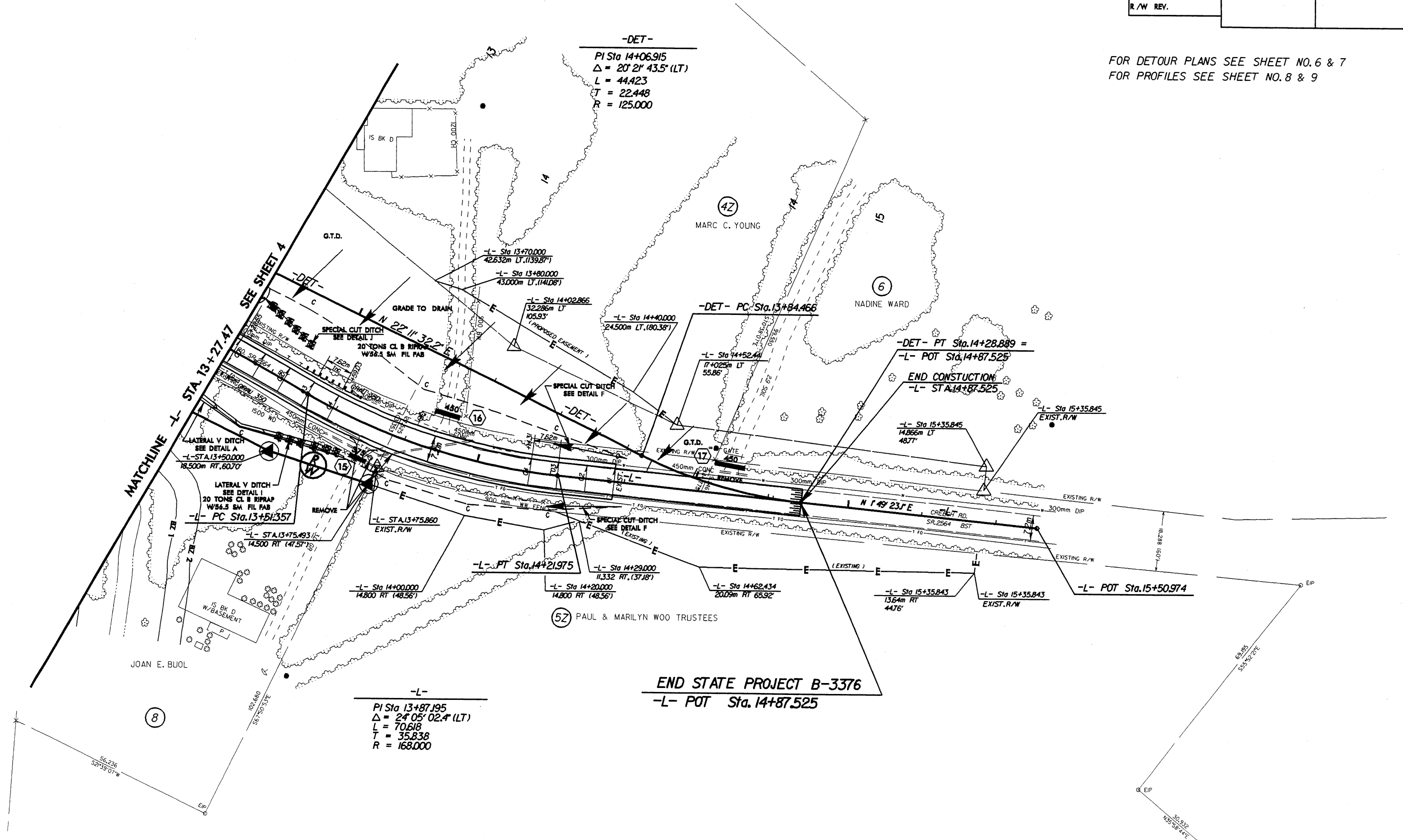


CONST. REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
B-3376	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



FOR DETOUR PLANS SEE SHEET NO. 6 & 7
FOR PROFILES SEE SHEET NO. 8 & 9



-DET-
PI Sta 14+06.915
 $\Delta = 20' 21' 43.5''$ (LT)
L = 44.423
T = 22.448
R = 125.000

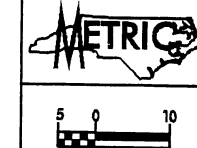
-L-
PI Sta 13+87.195
 $\Delta = 24' 05' 02.4''$ (LT)
L = 70.618
T = 35.838
R = 168.000

END STATE PROJECT B-3376
-L- POT Sta. 14+87.525

B-3376-05.dwg - Nov 03 10:37:45 - spt

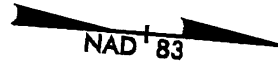
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT B3376-1 WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 218812.248 EASTING: 645880.466 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989708 THE NC LAMBERT GRID BEARING LOCALIZED HORIZONTAL GROUND DISTANCE FROM B3376-1 TO -L- STATION 10+62.132 IS N 6° 58' 03.32" E DISTANCE 582.873m ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

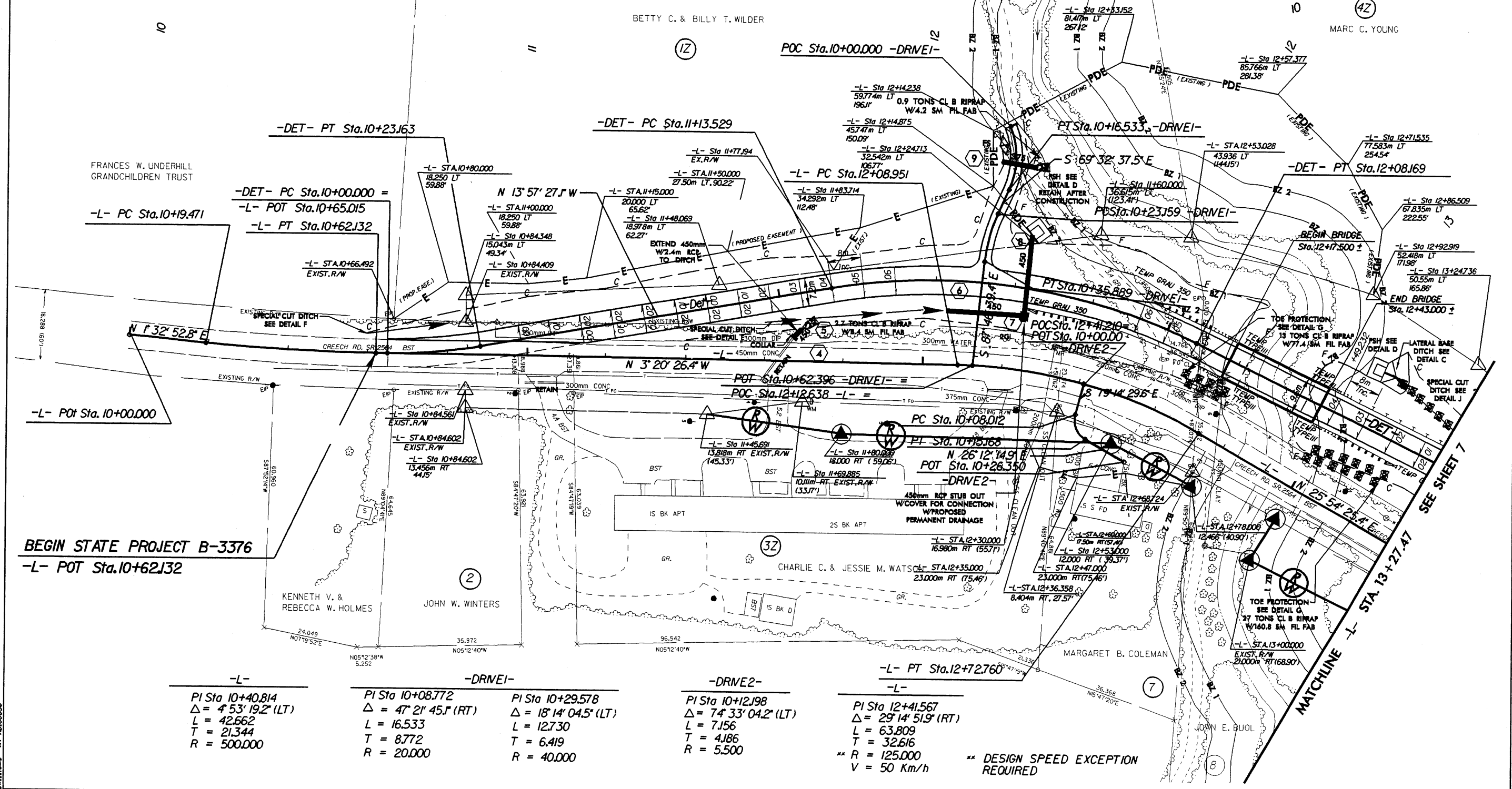


PROJECT REFERENCE NO.		SHEET NO.	
B-3376		6	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST. REV.			
R/W REV.			

-DET-
 PI Sta 10+11.615 PI Sta 11+62.483
 $\Delta = 10' 37' 01.6" (LT)$ $\Delta = 36' 08' 59.6" (RT)$
 L = 231.63 L = 94.640
 T = 11.615 T = 48.955
 R = 125.000 R = 150.000



FOR DETOUR PLANS SEE SHEET NO. 6 & 7
 FOR PROFILES SEE SHEET NO. 8 & 9





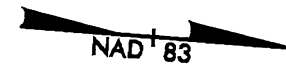
BEGIN STATE PROJECT B-3376
 -L- POT Sta. 10+62.132

-L- PI Sta 10+40.814 $\Delta = 4' 53' 19.2" (LT)$ L = 42.662 T = 21.344 R = 500.000	-DRVE1- PI Sta 10+08.772 $\Delta = 47' 21' 45.1" (RT)$ L = 16.533 T = 8.772 R = 20.000	-DRVE2- PI Sta 10+29.578 $\Delta = 18' 14' 04.5" (LT)$ L = 12.730 T = 6.419 R = 40.000	-L- PI Sta 12+41.567 $\Delta = 29' 14' 51.9" (RT)$ L = 63.809 T = 32.616 ** R = 125.000 V = 50 Km/h ** DESIGN SPEED EXCEPTION REQUIRED
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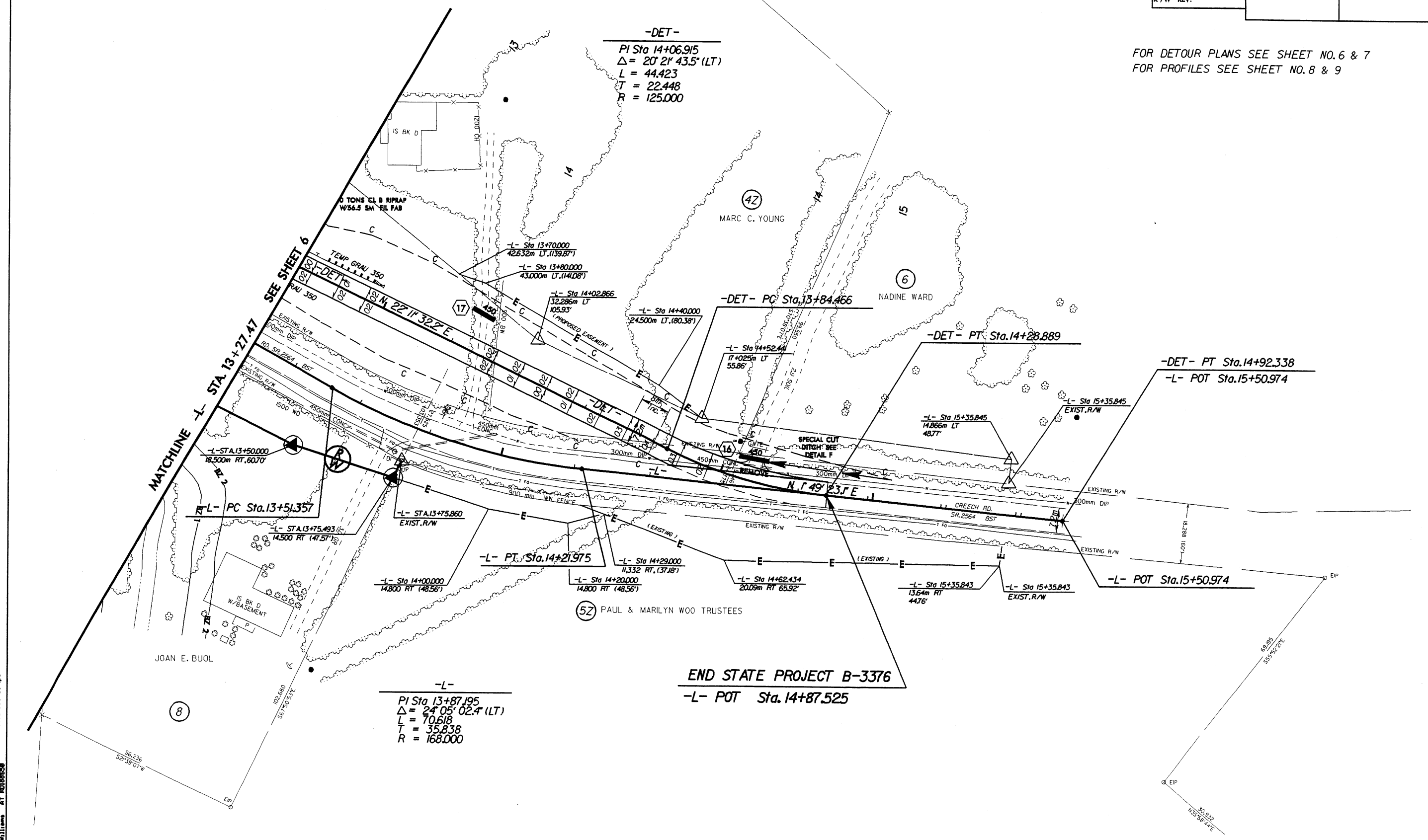
SEE SHEET 7
 MATCHLINE -L- STA. 13+27.47

B-3376-1-10-6
 Nov 03 08:30 AM
 AT 10:00 AM
 B-3376-1-10-6

	PROJECT REFERENCE NO.	SHEET NO.
	B-3376	7
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.		
R/W REV.		



FOR DETOUR PLANS SEE SHEET NO. 6 & 7
FOR PROFILES SEE SHEET NO. 8 & 9



-DET-
PI Sta 14+06.915
 $\Delta = 20' 21' 43.5''$ (LT)
L = 44.423
T = 22.448
R = 125.000

-L-
PI Sta 13+87.195
 $\Delta = 24' 05' 02.4''$ (LT)
L = 70.618
T = 35.838
R = 168.000

8/17/23
 5:45:00 PM
 5/11/23
 H:\GIS\Projects\B-3376\B-3376.dwg
 5/11/23

Office Use Only:

Form Version May 2002

USACE Action ID No. _____

DWQ No. _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
 Section 404 Permit
 Section 10 Permit
 401 Water Quality Certification
 Riparian or Watershed Buffer Rules
 Isolated Wetland Permit from DWQ
2. Nationwide, Regional or General Permit Number(s) Requested: _____
3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here:
4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here:
5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here:

II. Applicant Information

1. Owner/Applicant Information
Name: _____ Gregory J. Thorpe, Ph.D. _____
Mailing Address: _____ 1548 Mail Service Center _____
_____ Raleigh, NC 27699-1548 _____

Telephone Number: (919)733-3141 _____ Fax Number: (919)733-9794 _____
E-mail Address: gthorpe@dot.state.nc.us _____
2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
Name: N/A _____
Company Affiliation: _____
Mailing Address: _____

Telephone Number: _____ Fax Number: _____
E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge No. 246 over Little Arm Branch on SR 2564 (Creech Road) in Wake County
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3376
3. Property Identification Number (Tax PIN): _____
4. Location
County: Wake Nearest Town: Raleigh
Subdivision name (include phase/lot number): _____
Directions to site (include road numbers, landmarks, etc.): _____
Bridge No. 246 over Little Arm Branch on SR 2564 (Creech Road) in Wake County
5. Site coordinates, if available (UTM or Lat/Long): UTM 17 717017E / 3956367N
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
6. Property size (acres): _____
7. Nearest body of water (stream/river/sound/ocean/lake): Little Arm Branch
8. River Basin: Neuse River Basin
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The project vicinity is rural in nature and surrounding landuse includes a mixture of residential, agricultural and commercial use.

10. Describe the overall project in detail, including the type of equipment to be used: The North Carolina Department of Transportation proposes to replace Bridge No. 246 over Little Arm Branch with a new bridge at approximately the same location and roadway elevation. The proposed bridge would be approximately 105 feet in length and 35 feet in width, with a 24 foot travel way and with 4 - 7 foot offsets. Traffic would be detoured onsite, using a temporary bridge located upstream of the existing bridge during construction. The detour bridge will be approximately 80 feet in length. The temporary bridge may be placed as much as one meter lower than the existing bridge. Equipment will include bulldozers, earthmovers, pile drivers, crane, and a backhoe.

11. Explain the purpose of the proposed work: Replace obsolete bridge.

IV. Prior Project History

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

Section 404 Regional General Permit 31 issued 12-31-02 by Eric Alsmeyer USACE, project was redesigned from a culvert to a bridge. Soil structural stability issues have been identified at the site, which would make constructing a culvert in that location unfeasible. In addition, the permitting agencies strongly encouraged replacing existing structures with bridges rather than culverts.

A General Buffer Certification 3375 was also applied for in conjunction with the aforementioned GP 31 permit. This General Certification 3375 application was not issued and was placed on hold for reasons explained in a Division of Water Quality letter (see attached) dated January 6, 2003.

V. Future Project Plans

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

No future request anticipated.

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream

evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: Allowable buffer impacts: L Sta. 12+66-12+85 bridge = 2274 ft², L Sta. 12+99-13+10 bridge = 2204 ft²; DET Sta. 11+68-12+24 bridge = 5816 ft²; DET Sta. 12+39-12+5 bridge = 2382 ft²; sewer line L Sta. 12+77-12+93 parallel impact = 1,219 ft² ; sewer manhole L Sta. 12+38-12+48 parallel impact = 523; Mitigable buffer impacts: 1,742 ft²

2. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
N/A					

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: 0
 Total area of wetland impact proposed: N/A

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
N/A					

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (acres) to all streams on site: _____

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
N/A				

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): uplands stream wetlands
 Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): _____

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): _____

Size of watershed draining to pond: _____ Expected pond surface area: _____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

Best Management Practices for Bridge Demolition and Removal will be used for this project. Components of the superstructure will be removed without dropping them into Waters of the United States. Since the substructure consists of timber, this will also be removed without dropping any portion into Waters of the US. In stream construction activities will be scheduled to avoid and minimize impacts to aquatic resources/organisms. Temporary construction impacts due to erosion will be minimized through implementation of erosion control schedule and the use of BMPs. These measures include: the use of dikes, berms, silt basins, and other containment measures to control runoff and elimination of construction staging areas in floodplains and adjacent waterways. Disturbed sites will be revegetated with herbaceous cover after any temporary construction impacts.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ’s Draft Technical Guide for Stream Work in North Carolina; available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

Ecological Enhancement Program

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant’s responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): _____
Amount of buffer mitigation requested (square feet): _____
Amount of Riparian wetland mitigation requested (acres): _____
Amount of Non-riparian wetland mitigation requested (acres): _____
Amount of Coastal wetland mitigation requested (acres): _____

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes No

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?
 Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes No

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes No

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____ Neuse _____)?

Yes No If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

	Sewer Line/MH Parallel Impact	Bridge Construction
Zone 1 Impact (sq. ft.)	653	3,659
Zone 2 Impact (sq. ft.)	1,089	9,017
XI. TOTAL IMPACTS	1,742	12,676
Mitigation requirements (exempt, allowable or allowable with mitigation)	Zone 1: Allowable with Mitigation Zone 2: Allowable with Mitigation	Allowable Allowable
Mitigable Impacts (using 3:1 ratio) for Zones 1	1,959	N/A
Mitigable Impacts (using 1:1.5 ratio) for Zones 2	1,633.5	N/A
TOTAL MITIGATION REQUIRED	3,592.5	N/A

*Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

XII. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

XIII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

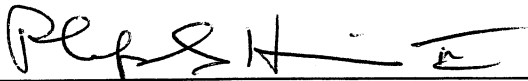
XIV. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
Yes No

Is this an after-the-fact permit application?
Yes No

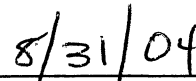
XV. Other Circumstances (Optional):

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



Applicant/Agent's Signature

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



Date



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 30, 2004

Mr. William D. Gilmore, P.E.
EEP Transition Manager
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Dear Sir:

Subject: Buffer Mitigation Request. Wake County, Replacement of Bridge No. 246 over Little Arm Branch on SR 2564, Division 5, Wake County. Federal Aid Project No. BRSTP-2564(1), State Project No. 8.2406301, T.I.P. No. B-3376.

The purpose of this letter is to request that the North Carolina Ecosystem Enhancement Program (EEP) provide confirmation that you are willing to provide compensatory mitigation for the project in accordance with the Memorandum of Agreement (MOA) signed July 22, 2003 by the USACE, the NCDENR and the NCDOT.

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 246 over Little Arm Branch with a new bridge at approximately the same location and roadway elevation. The proposed bridge would be approximately 105 feet in length and 35 feet in width, with a 24 foot travel way and with 4 - 7 foot offsets. Traffic would be detoured onsite, using a temporary bridge located upstream of the existing bridge during construction. The detour bridge will be approximately 80 feet in length. The temporary bridge may be placed as much as one meter lower than the existing bridge.

We have avoided and minimized the impacts to jurisdictional resources and riparian buffers to the greatest extent possible as described in the permit application. We do not anticipate impacts to jurisdictional streams or wetlands for the construction of this project. The project is located in the Piedmont Physiographic Province in Wake County in the Neuse River basin in Hydrological Cataloguing Unit 03020201.

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
2728 CAPITOL BOULEVARD
PARKER LINCOLN BUILDING, SUITE 168
RALEIGH NC 27699

The following table shows the buffer impacts and needed mitigation.

Table 1. Neuse River Buffer Impacts (Square Feet)

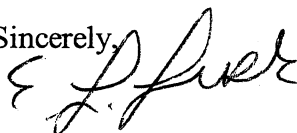
	Sewer Line/MH Parallel Impact	Bridge Construction
Zone 1 Impact (sq. ft.)	653	3,659
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TOTAL IMPACTS	1,742	12,676
Mitigation requirements (exempt, allowable or allowable with mitigation)	Zone 1: Allowable with Mitigation Zone 2: Allowable with Mitigation	Allowable Allowable
Mitigable Impacts (using 3:1 ratio) for Zone 1	1,959	N/A
Mitigable Impacts (using 1:1.5 ratio) for Zone 2	1,633.50	N/A
TOTAL MITIGATION REQUIRED	3,592.50	N/A

Total mitigation required for buffer impacts is for 3,592.50 sq. ft., 0.08 ac.

In order to satisfy regulatory assurances that mitigation will be performed; the NCDWQ requires a formal letter from EEP indicating their willingness and ability to provide the mitigation work requested by NCDOT. The NCDOT requests such a letter of confirmation be addressed to Mr. John Hennessy of NCDWQ, with copies submitted to NCDOT.

If you have any questions or need additional information please call Cheryl Knepp at (919) 715-1489.

Sincerely,



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

cc: Mr. John Hennessy, Division of Water Quality (2 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Greg Perfetti, P.E., Structure Design
Mr. David Franklin, USACE, Wilmington
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. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, III, FHWA
Ms. Stefanie Caudill, Planning Engineer
Mr. Jon Nance, P.E., Division 5 Engineer
Mr. Chris Murray, DEO

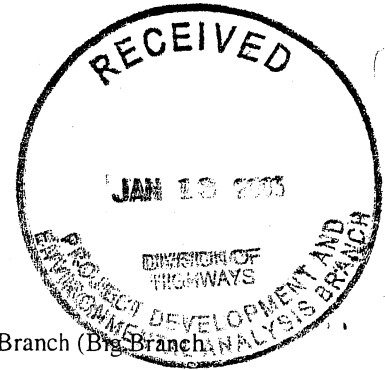


Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

YMA

January 6, 2003



Dr. Greg Thorpe, PhD., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Re: Permit Application for proposed Replacement of Bridge Number 246 over the Little Arm Branch (Big Branch Creek) on SR 2564 (Creech Road) in Wake County
DWQ No. 021903, TIP No. B-3376

Dear Dr. Thorpe:

The Division of Water Quality has reviewed your submittal for a 401 Water Quality Certification for the aforementioned project. Review of your application revealed it lacking necessary information required for making an informed permit decision. The permit application was deficient in the following areas:

- The proposed project design includes a new location segment and stream crossing. However, there is no discussion presented in the application that explains the rationale for the new location segment. Prior to issuing a 401 Water Quality Certification or a Neuse Buffer Certification, the DWQ needs to ensure that no other practical alternative exists to the proposed impacts. Please provide a discussion that details the alternative analysis used to determine the need for a road realignment and new stream crossing.
- The application did not include a Preconstruction Notification (PCN) form. Issuance of a General Certification 3375 requires the submittal of a completed (seven copies) PCN form.
- The application proposes 256 linear feet of natural stream design. However, no specifics regarding the proposed stream design are presented. Please provide appropriate geomorphological data for the existing stream, the proposed channel, and the reference reach. In addition, please provide an appropriate sediment transport analysis, buffer planting plan, and monitoring plan for the proposed stream.
- The proposed project design replaces an existing bridge with a culvert. Prior to issuing a 401 Water Quality Certification for the project, the DWQ needs to ensure that the new culvert will not result in stream instability. As a result, please provide the stream pattern, dimension, and profile for two meander lengths upstream and downstream from the proposed impact site. In addition, please redesign the proposed culvert to mimic the stream bankfull dimension through the use of sills and culvert reconfiguration. The installation of upstream and downstream grade control should also be evaluated, and submitted for approval to the DWQ.
- It is not clear if the proposed stormwater design for the project complies with the Neuse River Riparain Buffer Rules (15A NCAC 2B .0233). The stormwater outlet located on the west side of the road at station number 11+00 does not appear to provide diffuse flow of stormwater through the buffer at non-erosive velocities. In addition, the lateral base ditch that discharges to the buffer on the west side of the road at station number 12+22 does not provide diffuse flow at non-erosive velocities or fit the criteria for a grassed swale. Furthermore, it is not clear where the stormwater draining off the super elevated curve drains. Please redesign the project to provide the necessary stormwater controls.



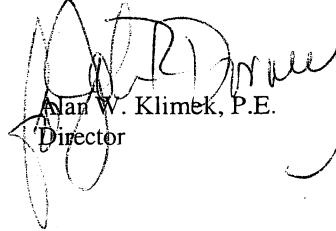


Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources
Alan W. Klimek, P.E. Director

Therefore, pursuant to 15A NCAC 2H .0507(a)(5), we will have to place the permit application on hold until we are supplied the necessary information. Furthermore, until the information is received by the NC Division of Water Quality, we request (by copy of this letter) that the US Army Corps of Engineers place the permit application on hold.

Hopefully, we can work together to expedite the processing of your permit application. If you have any questions or require additional information, please contact John Hennessy at 919-733-5694.

Sincerely,



Alan W. Klimek, P.E.
Director

cc: DWQ Wilmington Regional Office
US Army Corps of Engineers Wilmington Field Office
File Copy

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 4, 2004

Mr. Gary Jordan
US Fish and Wildlife Service
P.O. Box 33726
Raleigh, NC 27636-3726

Subject: Section 7 Concurrence request for the proposed replacement of Bridge No. 246 over Little Arm Branch in Wake County. State Project No. 8.2406301, Federal Aid Project No. BRSTP-2564 (1), Division 5, TIP No. B-3376.

Dear Mr. Jordan:


This letter is in reference to NCDOT's proposed replacement of Bridge No. 246 on SR 2564 over Little Arm Branch, TIP B-3376, Wake County. The purpose of this letter is to request concurrence from the U.S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*) (ESA).

Please see the attached document concerning the latest survey report for B-3376. Based on the information in the attached survey report, NCDOT concludes that the proposed project's Biological Conclusion for Michaux's sumac (*Rhus michauxii*) is "May Affect, Not Likely to Adversely Affect". A Biological Conclusion of "No Effect" was described for dwarf wedge mussel, bald eagle, and red-cockaded woodpecker. We believe that the requirements of Section 7(a)(2) of the ESA have been satisfied and hereby request your concurrence.

Thank you for your assistance with this project. If you have any questions or need additional information please contact Cheryl Knepp via e-mail at cknepp@dot.state.nc.us or (919) 715-1489.

Sincerely,

A handwritten signature in black ink, appearing to read "Phil S. Harris, III".

 Phil S. Harris, III, P.E., Manager
PDEA - Office of Natural Environment

cc: Eric Alsmeyer, USACE
Stephanie Caudill, P.E., Project Engineer, PDEA
File: B-3376



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 3, 2004

MEMORANDUM TO: Cindy Sharer, P.E., Unit Head
Project Development Unit

FROM: Cheryl Knepp, Environmental Specialist *CK*
Office of Natural Environment

SUBJECT: Water resources and protected species review for a Federal Highway Administration (FHWA) Construction Consultation for the proposed replacement of Bridge No. 246 over Little Arm Branch in Wake County. State Project No. 8.2406301, Federal Aid Project No. BRSTP-2564 (1), Division 5, TIP No. B-3376.

ATTENTION: Stephanie Caudill, Project Planning Engineer
Project Development Unit

REFERENCES: 1) Categorical Exclusion (NCDOT, dated March 26, 2001).

The following memorandum provides information to assist in the preparation of an FHWA Construction Consultation for the proposed project. It addresses water resources and federally protected species potentially impacted by the project and serves to update the previously submitted Categorical Exclusion (CE) with respect to these two issues.

WATER RESOURCES

Water resource classifications have not changed since the CE was prepared. The Division of Water Quality (DWQ) best usage classification remains **C NSW** for Little Arm Branch, which is DWQ Index No. 27-34-11-2. **Class C** refers to waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation, agriculture and other uses requiring waters of low quality. The supplemental classification of **NSW** denotes Nutrient Sensitive Waters, which requires limitations on nutrient, inputs.

Neither High Quality Waters (HQW), Water Supplies (WS-I or WS-II), nor Outstanding Resource Waters (ORW), occur within 1.6 km (1.0 mi.) of the project area.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), Proposed Threatened (PT), are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended.

As of January 29, 2003, the U.S. Fish and Wildlife Service (FWS) lists four protected species, which includes bald eagle (*Haliaeetus leucocephalus*), red-cockaded woodpecker (*Picoides borealis*), dwarf wedgemussel (*Alasmidonta heterodon*), and Michaux's sumac (*Rhus michauxii*) for Wake County. The status of these species, red-cockaded woodpecker (E), dwarf wedgemussel (E) and Michaux's sumac (E), has not changed since the completion of the referenced CE. However, the bald eagle has been proposed for delisting.

A description and biological conclusion of "No Effect" was given for the bald eagle, red-cockaded woodpecker, dwarf wedgemussel and Michaux's sumac in the referenced CE document. This biological conclusion of "No Effect" remains valid for the Bald eagle and red-cockaded woodpecker due to lack of suitable habitat.

A plant by plant survey for Michaux's sumac was conducted in the project study area on May 11, 2004 by NCDOT biologists Cheryl Knepp and Rachelle Beauregard, in the areas of suitable habitat. Habitat was found and surveyed on foot by the above mentioned biologists. Although habitat was located, no Michaux's sumac was found anywhere within the project study area in 2 man-hours of survey time. The NCNHP database of rare species and unique habitat does not list any populations of Michaux's sumac within the project vicinity. As Michaux's sumac habitat exists in the project area, the biological conclusion is "May Affect, Not Likely to Adversely Affect".

A mussel survey was conducted on March 25, 2004 by NCDOT biologists, Neil Medlin, Anne Burroughs, and Jared Gray. The Little Arm Branch crossing at SR 2564 contains run, riffles and slack areas. The compactness of the streambed was unconsolidated. The substrate above and below the bridge on SR 2564 consists of sand, silt, clay, and gravel with slow to medium current. The portion of Little Arm Branch that was surveyed had moderate buffer upstream and downstream except for two residential areas downstream. The stream banks were unstable. Sand and gravel bars were abundant in the stream. The land use was urban at the SR 2564 crossing of Little Arm Branch. The host fish that carry the glochidia for dwarf wedgemussel was observed during the survey. Surveys were conducted by wading using a batiscope from approximately 400 meters downstream to 100 meters upstream of the project crossing. No freshwater mussels were found in 2.25 man-hours of survey time.

Given the survey results, that no freshwater mussels were found, it is apparent that the dwarf wedgemussel does not occur in the project footprint. The North Carolina Natural Heritage Program (NCNHP) does not list a known population up or downstream in Little Arm Branch or Big Branch Creek, which Little Arm flows into. The proposed bridge replacement will have "No Effect" on the dwarf wedgemussel.

QUALIFICATIONS OF PRINCIPAL INVESTIGATORS

Investigator: Jared Gray

Education: B.S. Environmental Science, Morehead State University

Experience: Environmental Biologist, Enviro-Pro, October 1994 – May 1997
Environmental Technician, Appian Consulting Engineers, P.A., October 1997 – May 1998
Environmental Specialist, NCDOT, October 1998-present

Expertise: Endangered species (terrestrial/aquatic) surveys; benthic macroinvertebrate collection, wetland delineation; soils, water quality analysis, and 404/401 permitting.

Investigator: Anne Burroughs, Environmental Specialist

Education: B.S. Biological Science, minor Environmental Science,
North Carolina State University / Raleigh 1992.

Experience: Biological Control technician – NC Dept of Agriculture May 2001-April 2003.
Environmental Specialist – NC Dept. of Transportation, May 2003-August 2003,
January 2004-present.

Expertise: Endangered species (terrestrial/aquatic) surveys; benthic macroinvertebrate collection.

Investigator: Neil Medlin, Environmental Specialist

Education: M.A. Biology, Appalachian State University
B.S. Biology, Appalachian State University

Experience: Environmental Specialist, NCDOT, January 2002 - present
Environmental Biologist, NC Division of Water Quality
June 1990 - January 2002

Environmental Biologist, FL Department of Environmental Protection (formerly Department of Environmental Regulation), August 1986 – June 1990

Expertise: Freshwater fish and benthic macroinvertebrate collection and identification; aquatic habitat evaluations and function; biocriteria and biotic indices evaluations; Endangered species (terrestrial/aquatic) surveys.

Investigator: Cheryl Knepp

Education: B.S. Natural Resource Management & Ecology, Colorado State University

Experience: Environmental Specialist, NCDOT, Raleigh, NC, December 2003 to present
Field Tech, GeoSonics, Inc., Raleigh, NC September to December 2003

Expertise: Biotic community mapping and assessment, species identification, wetland delineation, and technical report writing.

Investigator: Rachelle Beauregard
Education: B.S. Fisheries and Wildlife Science, North Carolina State University
Experience: Environmental Biologist, NCDOT, March 2001-present
Biologist, Dr. J.H. Carter III and Associates, Inc., March 1997-Jan. 2001
Expertise: Natural resource investigations; Section 7 field investigations; protected species (terrestrial/aquatic) surveys; Section 404/401 permitting; wetland delineation.

B-3376

**Wake County
Bridge No. 246
Over Little Arm Branch
Federal-Aid Project No. BRSTP-2564(1)
State Project No. 8.2406301
T.I.P. No. B-3376**

ADDENDUM TO

CATEGORICAL EXCLUSION

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

N.C. DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

June 2, 2003

DATE

Veresa Hart

for

Gregory J. Thorpe, Ph.D., Manager
Environmental Management Director, PDEA

June 2, 2003

DATE

John F. Sullivan, III

for

John F. Sullivan, III
Division Administrator, FHWA

**Wake County
Bridge No. 246
Over Little Arm Branch
Federal-Aid Project No. BRSTP-2564(1)
State Project No. 8.2406301
T.I.P. No. B-3376**

**ADDENDUM TO
CATEGORICAL EXCLUSION**

June, 2003

Documentation Prepared in
Project Development and Environmental Analysis Branch by:

June 2, 2003
DATE

Stephanie L. Caudill
Stephanie Ledbetter Caudill
Project Planning Engineer

6/2/03
DATE

C. D. Sharer
Cynthia D. Sharer, P.E., Unit Head
Project Planning Unit

Project Commitments

Wake County
Bridge No. 246
Over Little Arm Branch on SR 2564
Federal Project BRSTP-2564(1)
State Project 8.2406301
TIP No. B-3376

Highway Division 5, Hydraulics Unit, Roadside Environmental Unit

NCDOT's Best Management Practices (BMP) for the Protection of Surface Waters and Sedimentation Control guidelines in Sensitive Watersheds will be strictly enforced during the construction stage of the project. Provisions to preclude contamination by toxic substances during the construction interval will also be strictly enforced.

Roadway Design Unit, Project Development and Environmental Analysis Branch, Roadside Environmental Unit, Highway Division 5

Upon completion of the new bridge, the temporary bridge will be removed. The temporary approach fill will be removed to natural grade and the area will be planted with native grasses and/or tree species as appropriate.

Roadway Design Unit, Structure Design Unit, Project Development and Environmental Analysis Branch, Highway Division 5

Both the bridge rail, deck and substructure will be removed without dropping them into Waters of the United States. During and after bridge demolition no bridge debris will be allowed to enter Waters of the United States.

Roadside Environmental Unit, Hydraulics, PD&EA, Roadway Design Unit

All Neuse River Buffer rules will apply.

Roadside Environmental Unit, Hydraulics, PD&EA

There will be *no* on site Stream Mitigation due to relocation of stream surface waters.

**WakeCounty
Bridge No246
Over Little Arm Branch
Federal Project BRSTP-2564(1)
State Project 8.2406301
TIP No. B-3376**

I. BACKGROUND

A Categorical Exclusion (CE) for the subject project was approved March 14, 2001. The document recommended, Alternative 1, replacement of the existing bridge with a double barrel box culvert on new location approximately 98 feet (30 meters) west of the existing bridge with each barrel measuring 12 feet by 9 feet (approximately 3.6 meters by 2.7 meters). Traffic would be maintained using the existing bridge during construction.

Since the completion of the CE document, soil structural stability issues have been identified at the site of the proposed culvert alternative which would make constructing a culvert in that location unfeasible. In addition, the permitting agencies strongly encourage replacing existing structures with bridges rather than culverts.

It is not possible to replace this bridge on existing location without using a temporary bridge since there is not a reasonable offsite detour route available; SR 2564 is a school bus route and the total detour length would be over 9.5 miles.

Therefore, the US Army Corps of Engineers, and NC Department of Transportation determined that another alternate needed to be evaluated. This alternative appears below:

Alternate 2: (Discussed as non-preferred in the CE document signed March, 2001) Replace Bridge No. 246 with a new bridge at approximately the same location and roadway elevation. The proposed bridge would be approximately 24.4 meters (80 feet) in length and 12.2 meters (40 feet) in width, with a 7.2 meter (24 foot) travel way and with 2.4 meter (8 feet) offsets. Traffic would be detoured onsite, using a temporary bridge located upstream of the existing bridge during construction.

II. DISCUSSION

The Hydraulics Unit made design revisions to minimize stream impacts and as a result alternative 2 will require no stream or buffer mitigation. Alternative 2 also avoids the unstable streambed.

Bridge No. 246 will be replaced as recommended in Alternate 2, above, with a new bridge at approximately the same location and roadway elevation of the existing structure (see Figure two). Due to the location of the bridge and the existing terrain, the proposed profile meets a 30 mph design speed only. A design exception will be required for both vertical and horizontal alignments for the permanent improvement and for the detour alike.

The approach roadway will consist of 7.2 meter (24 foot) travel way and offsets of at least 2.4 meters (8 feet). The shoulder widths will be 4 meters (13.12 feet) wide where guardrail is warranted. There will be approximately 150 meters (492 feet) of approach work on the south side and 120 meters (394 feet) on the north side of the bridge.

During construction, traffic will be shifted onto a temporary alignment over a detour bridge up stream of the existing bridge. The detour bridge will be approximately 15.2 meters (50 feet) in length and 12.2 meters (40 feet) in width. The temporary bridge may be placed as much as 1 meter (3 feet) lower than the existing bridge.

III. COST ESTIMATES

The estimated cost of Alternative 2 is \$1,093,000 including \$1,050,000 in construction costs and \$43,000 in right of way costs (in 2003 dollars).

IV. RECOMMENDATIONS

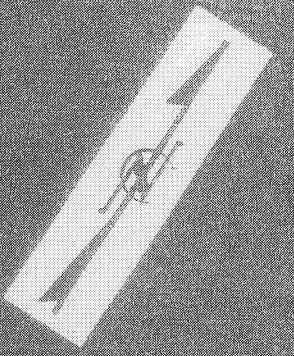
Bridge No. 246 will be replaced as discussed above. Traffic will be detoured on site during construction. Total project length will be approximately 305 meters (1000 feet). Due to the location of the bridge and the existing terrain, the proposed profile meets a design speed of 30 mph (miles per hour) instead of the previously recommended 40 mph. A design exception will be required for both horizontal and vertical alignments.

The construction of the recommended alternate does not have the potential to cause substantial impacts to the local environment. The preferred alternate (2) replaces the bridge in place and the proposed on site detour places the temporary bridge in approximately the same location as the original alternate (1) selected in the CE signed March 14, 2001. The NCDOT Division 5 Construction Engineer concurs with the selection of Alternate 2.

V. CONCLUSIONS

Alternate 2 is the preferred alternate for replacing Bridge No. 246 on SR 2564 over Little Arm Branch in Wake County. This is the most constructable option and has minimal impacts to natural resources. Also, this Alternate combines both the department and agency requirements to satisfy the public needs in a safe manner.

FIGURES



ALTERNATIVE 2

BRIDGE No. 246

SR 2564

DETOUR
BRIDGE



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

WAKE COUNTY
REPLACE BRIDGE NO. 246 ON SR
OVER BIG BRANCH CREEK
B-3376
PROJECT NO. 82460301

Scale: 1" = 290' Figure T

Wake County
Bridge No. 246
Over a Creek on SR 2564
Federal Project BRSTP-2564(1)
State Project 8.2406301
TIP No. B-3376

CATEGORICAL EXCLUSION

U. S. Department Of Transportation
Federal Highway Administration
And
N. C. Department Of Transportation
Division Of Highways

3-14-01

Date

William D. Gilmore

William D. Gilmore, P. E., Manager
Project Development and Environmental Analysis Branch

3/26/2001

Date

Thomas P. Riggs

Nicholas Graf, P. E.
Division Administrator, FHWA

Wake County
Bridge No. 246
Over a Creek on SR 2564
Federal Project BRSTP-2564(1)
State Project 8.2406301
TIP No. B-3376

CATEGORICAL EXCLUSION

March 2001

Documentation Prepared in
Project Development and Environmental Analysis Branch By:

3/14/01

Date

Stephanie Ledbetter

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3/14/01

Date

Cynthia D. Sharer

Cynthia D. Sharer, P. E., Project Development Unit Head
Project Development and Environmental Analysis Branch

3-14-01

Date

Lubin V. Prevatt

Lubin V. Prevatt, P. E., Assistant Manager
Project Development and Environmental Analysis Branch

Project Commitments

Wake County
Bridge No. 246
Over a Creek on SR 2564
Federal Project BRSTP-2564(1)
State Project 8.2406301
TIP No. B-3376

Highway Division 5, Hydraulics Unit, Roadside Environmental Unit

NCDOT's Best Management Practices (BMP) for the Protection of Surface Waters and Sedimentation Control guidelines in Sensitive Watersheds will be strictly enforced during the construction stage of the project. Provisions to preclude contamination by toxic substances during the construction interval will also be strictly enforced.

Roadway Design Unit, Project Development and Environmental Analysis Branch, Roadside Environmental Unit, Highway Division 5

Upon completion of the new ^{SS} ~~bridge~~ ^{culvert}, the existing bridge will be removed. The existing approach fill will be removed to natural grade and the area will be planted with native grasses and/or tree species as appropriate.

Roadway Design Unit, Structure Design Unit, Project Development and Environmental Analysis Branch, Highway Division 5

Both the bridge rail, deck and substructure will be removed without dropping them into Waters of the United States. During and after bridge demolition no bridge debris will be allowed to enter Waters of the United States.

Roadside Environmental Unit, Hydraulics, PD&EA, Roadway Design Unit

All Neuse River Buffer rules will apply.

Roadside Environmental Unit, Hydraulics, PD&EA

There will be ^{NO} on site Stream Mitigation due to relocation of stream surface waters. ^{SS}

Categorical Exclusion
December 2000

Wake County
Bridge No. 246
Over a Creek on SR 2564
Federal Project BRSTP-2564(1)
State Project 8.2406301
TIP No. B-3376

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 246 in Wake County (see Figure 1). This bridge carries SR 2564 (Creech Road) over Little Arm Branch Creek. This project is included in NCDOT's 2000-2006 Transportation Improvement Program (TIP) as a bridge replacement project. NCDOT and the Federal Highway Administration (FHWA) classify this project as a Categorical Exclusion. No substantial environmental impacts are expected.

I. SUMMARY OF RECOMMENDATIONS

Bridge No. 246 will be replaced as recommended in Alternate 1 with a culvert on new alignment approximately 30 meters (98 feet) west of the existing structure (see Figure 2). The new structure will consist of a two barrel box culvert each barrel 3.6 meters (11.8 ft) by 2.7 meters (8.9 ft) and 31.2 meters (102 ft) in length. The roadway over the culvert will consist of two 3.6-meter (12-ft) lanes and two 2.4 meter (7.9 ft) shoulders. The roadway approaching the culvert will consist of two 3.6-meter (12-ft) lanes with 1.4-meter (4.6-ft) paved shoulders. The new culvert plus cover will be at approximately the same elevation as the existing structure. The desirable design speed for this project is 97 km/hr (60 mph). However, the horizontal and vertical design speed, of 64 km/hr (40 mph) on the sag curve at the culvert, does not meet the 97 km/hr (60 mph) design criteria due to the tie in points at either end of the project. Therefore, a design exception will be required. Traffic will be maintained on the existing alignment during construction.

The estimated cost of the project is \$1,593,000 including \$1,550,000 in construction costs and \$43,000 in right of way costs. The estimated cost shown in the 2000-2006 TIP is \$572,000. The current estimated cost of the proposed improvements exceeds the TIP funding by \$1,021,000. Right of way acquisition for the project is scheduled to begin in fiscal year 2001 and construction is scheduled to begin in fiscal year 2002.

IV. STUDIED ALTERNATES

A. Alternative 1 (Recommended)

Replace Bridge No. 246 with a two barrel box culvert each barrel 3.6 meters (11.8 ft) by 2.7 meters (8.9 ft) on new location west of existing bridge. The proposed box culvert will have a buried base, which the stream will fill in over time. This will lessen the impact that the structure has on the environment. Traffic will be maintained using the existing bridge during construction. No residences will be relocated as a result of construction of this alternate.

D. Other Alternatives

The "do-nothing" alternative is not practical; requiring the eventual closing of the road as the existing bridge completely deteriorates. Rehabilitation of the existing deteriorating bridge is neither practical nor economical.

All alternatives with an off-site detour are not reasonable or feasible. The shortest detour route is more than 15 kilometers (9 miles) in length (see Figure 3). This detour would generate a much greater cost to the average road user during the course of construction than an on-site detour. The off site detour would result in a \$1,500,000 user cost for a ninety-day road closure. An off-site detour is also undesirable due to the resulting community impacts. Two schools have recently been constructed in the area. As mentioned above, 14 school buses each cross the bridge as many as two times per day during the school year. Closing the bridge during construction would cause substantial delays for these buses and would be an obstacle to school bus operations.

A bridge on existing location with an on- site detour was considered. However, due to length of the bridge that would be necessary, and the cost of the detour, this alternative would be neither reasonable nor feasible.

An alternative to the east of the existing bridge was also considered. This alternate was rejected because it would relocate one multi family dwelling which would result in far greater community impacts.

An alternative on new location west of the existing bridge using a bridge instead of a culvert was considered as well. This alternate was not recommended due to the design constraints associated with the creek alignment and also

The existing approach fill will be removed to natural grade and the area will be planted with native grasses and/or tree species as appropriate. This action will provide on-site mitigation to offset impacts to the Neuse River Buffer.

VII. ENVIRONMENTAL EFFECTS

A. General

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

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

This bridge replacement will not have a substantial adverse effect on the quality of the human or natural environment by implementing the project commitments listed in the front of this document, and by using current NCDOT standards and specifications.

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

There is potential for components of the deck to be dropped into Waters of the United States during construction. The resulting temporary fill associated with the concrete deck is approximately 16.8 m³ (22.2 yd³).

There are no hazardous waste impacts.

No adverse effect on families or communities is anticipated. Right-of-way acquisition will be limited. No residences will be relocated as a result of construction of the project.

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

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

to be found. Therefore, SHPO has recommended that no archaeological investigation be conducted for the project (see letter dated April 9, 1999, in the appendix).

E. Natural Resources

1. Methodology

Published information regarding the project area was consulted prior to a field visit. Information sources used in this pre-field investigation of the study area include U.S. Geological Survey (USGS) quadrangle map (Garner), U.S. Fish and Wildlife Service (FWS) National Wetland Inventory Map (Garner), and NCDOT aerial photographs of project area (1:1200).

Water resource information was obtained from publications of the Department of Environment, Health and Natural Resources (DEHNR, 1996) and from the NC Center for Geographic Information and Analysis (Environmental Sensitivity Base Map of Wake County, 1995). Information concerning the occurrence of federal and state protected species in the study area was gathered from the Fish and Wildlife Service (FWS) list of protected species and species of concern, and the N.C. Natural Heritage Program (NCNHP) database of rare species and unique habitats.

General field surveys were conducted along the proposed alignment by NCDOT biologists Tim Bassette, Jared Gray, and Chris Murray on June 15, 1999. Plant communities and their associated wildlife were identified and recorded. Wildlife identification involved using one or more of the following observation techniques: active searching and capture, visual observations (binoculars), and identifying characteristic signs of wildlife (sounds, scat, tracks and burrows). Jurisdictional wetland determinations were performed utilizing delineation criteria prescribed in the "Corps of Engineers Wetland Delineation Manual" (Environmental Laboratory, 1987).

2. Physical Resources

Soil and water resources, which occur in the study area, are discussed below. Soils and availability of water directly influence composition and distribution of flora and fauna in any biotic community. The project study area lies within the Piedmont Physiographic Province. Broad, smooth ridgetops, long side slopes, and long narrow drainageways characterize the topography in this section of Wake

Probable impacts to these water bodies are also discussed, as are means to minimize impacts.

Waters Impacted and Characteristics

Little Arm Branch will be the only surface water resource directly impacted by the proposed project (Figure 2). Little Arm Branch is located in sub-basin NEU2, 03020201 of the Neuse River Basin. Little Arm Branch is a tributary to Big Branch Creek, and has its confluence with Big Branch Creek approximately 3.2 km (2.0 mi.) stream channel distance downstream of Bridge No. 246.

Little Arm Branch, at Bridge No. 246, is a perennial stream approximately 4.6 m (15.0 ft) wide and has a 1.8 m (6.0 ft) bank at this location. The substrate is composed of sand, and cobble. The waters of Little Arm Branch were very clear at the time of the natural resource investigation, and the stream was approximately 10.2 cm (4 in.) in depth.

Best Usage Classification

Streams have been assigned a best usage classification by the DWQ (DENR 1999). The classification of Little Arm Branch [Index No. 27-34-11-2] is Class C NSW. Class C waters is suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. The supplemental classification of NSW denotes Nutrient Sensitive Waters, which requires limitations on nutrient, inputs. Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within 1.6 km (1.0 mi.) of project study area.

Water Quality

The DWQ has initiated a whole basin approach to water quality management for the 17 river basins within the state. To accomplish this goal the DWQ collects biological, chemical and physical data that can be used in basinwide assessment and planning. Likewise, benthic macroinvertebrates are intensively sampled for specific river basins. Benthic macroinvertebrates have proven to be a good indicator of water quality because they are sensitive to subtle changes in water quality, have extremely long life cycle, are non-mobile (compared to fish) and are extremely diverse. The overall species richness and presence of indicator organisms help to assess the health of streams and rivers. River basins are

from the project and lower the water level downstream of the project. Anticipated impacts to the project areas aquatic environment are contained in Section 4.1.2 of this report. Project construction may result in the following impacts to surface waters:

1. Increased sedimentation and siltation from construction and/or erosion.
2. Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
3. Alteration of water levels and flows due to interruption and/additions to surface and ground water flow from construction.
4. Changes in water temperature due to streamside vegetation removal.
5. Increased nutrient loading during construction via runoff from exposed areas.
6. Potential concentration of toxic compounds from highway runoff, construction and toxic spills.

Precautions should be taken to minimize impacts to water resources in the study area; NCDOT's Best Management Practices (BMP) must be strictly enforced during the construction stage of the project. Guidelines for these BMP's include, but are not limited to: minimizing built upon area and diversion of stormwater away from surface water supply waters as much as possible. Provisions to preclude contamination by toxic substances during the construction interval should also be strictly enforced.

As the project is located in the Neuse River Basin, Riparian Area Rules for Nutrient Sensitive Waters apply. The rules state that roads, bridges, stormwater management facilities, ponds, and utilities may be allowed where no practical alternative exists. They also state that these structures shall be located, designed, constructed, and maintained to have minimal disturbance, to provide maximum nutrient removal and erosion protection, to have the least adverse effects on aquatic life and habitat, and to protect water quality to the maximum extent practical through the use of best management practices. Every reasonable effort will be made to avoid and minimize stream impacts. Once the new alignment and the stream relocation has been completed, the buffer areas will be revegetated.

analysis are used in estimating fauna expected to be present within the project area.

a. Terrestrial Communities

Two distinct terrestrial communities are identified in the project study area: mixed hardwood forest community, and maintained/disturbed community. Community boundaries within the study area are well defined without a significant transition zone between them. Faunal species likely to occur within the study area will exploit all of these communities for shelter and foraging opportunities or as movement corridors.

Mixed Hardwood Forest Community

The Mixed Hardwood Forest community is the major community impacted by the project. This upland tract is dominated by species common throughout the piedmont of North Carolina. The herbs and vines in the mixed hardwood flora include sedge (*Carex* sp.), Japanese honeysuckle (*Lonicera japonica*), poison ivy (*Toxicodendron radicans*), violet (*Viola* sp.), Christmas fern (*Polystichum acrostichoides*), ebony spleenwort (*Asplenium platyneuron*), Virginia creeper (*Parthenocissus quinquefolia*), greenbrier (*Smilax rotundifolia*), false nettle (*Boehmeria cylindrica*), jewel-weed (*Impatiens capensis*), rush (*Juncus effusus*), grape (*Vitis* sp.), giant cane (*Arundinaria gigantea*), and pokeweed (*Phytolacca americana*).

The canopy was comprised of red mulberry (*Morus rubra*), sycamore (*Plantus occidentalis*), red maple (*Acer rubrum*), white oak (*Quercus alba*), tulip poplar (*Liriodendron tulipifera*), southern red oak (*Quercus falcata*), American elm (*Ulmus americana*), loblolly pine (*Pinus taeda*), blackjack oak (*Quercus marilandica*), northern red oak (*Quercus rubra*), and American beech (*Fagus grandifolia*). The shrub layers consisted of green ash (*Fraxinus laevigata*), elderberry (*Sambucus canadensis*), redbud (*Cercis canadensis*), blackhaw (*Viburnum prunifolium*), Chinese privet (*Ligustrum sinense*), flowering dogwood (*Cornus florida*), persimmon (*Diospyros virginiana*), tree of heaven (*Ailanthus altissima*), and sweet gum (*Liquidambar styraciflua*).

Maintained/Disturbed

moderately sized perennial streams in rural areas may include northern dusky salamander (*Desmognathus fuscus*), three lined salamander (*Eurycea guttolineata*), green frog (*Rana clamitans*), pickerel frog (*Rana palustris*), and northern water snake (*Nerodia sipedon*). According to Fish (1968), Little Arm Branch is of no fishing significance due to stream size. Fish species that maybe located here include bluehead chub (*Nocomis leptcephalus*), silver shiner (*Notropis photogenis*), Johnny darter (*Etheostoma olmstedii*), redbreast sunfish (*Lepomis auritus*), margined madtom (*Noturus insignis*), Eastern mosquitofish (*Gambusia holbrooki*), pirate perch (*Aphredoderus sayanus*) and creek chub (*Semotilus atromaculatus*).

Summary of Anticipated Impacts

Construction of the subject project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies impacts to the natural resources in terms of area impacted and ecosystems affected. Permanent impacts to biotic communities are represented in Table 1.

Calculated impacts to terrestrial resources reflect the relative abundance of each community present within the study area. Project construction will result in clearing and degradation of portions of these communities. Table 2 summarizes potential quantitative losses to these biotic communities, resulting from project construction. Estimated impacts are derived using the entire proposed right of way width of 18.3-m (60.0-ft). Usually, project construction does not require the entire right of way; therefore, actual impacts may be considerably less.

TABLE 2. Anticipated Impacts to Biotic Communities

Community	Alternate 1
Mixed Hardwood Forest	0.02 (0.06)
Maintained/Disturbed	0.04 (0.09)
Totals	0.07 (0.18)

Values cited are in hectares (acres)

Plant communities found within the proposed project area serve as nesting and sheltering habitat for a variety of wildlife. Replacing Bridge

a. Waters of the United States

The U.S. Army Corps of Engineers (USACE) promulgated the definition of "Waters of the United States" under 33 CFR §328.3(a). Waters of the United States include most interstate and intrastate surface waters, tributaries, and wetlands. Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions are considered "wetlands" under 33 CFR §328.3(b). Wetlands generally include swamps, marshes, bogs, and similar areas. Any action that proposes to place dredge or fill materials into Waters of the United States falls under the jurisdiction of the USACE, and must follow the statutory provisions under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344).

Characteristics of Wetlands and Surface Waters

Potential wetland communities were investigated pursuant to the 1987 "Corps of Engineers Wetland Delineation Manual". The three-parameter approach is used where hydric soils, hydrophytic vegetation and prescribed hydrologic characteristics must all be present for an area to be considered a wetland. There are no wetland areas located within the project study area.

Little Arm Branch is jurisdictional surface water under Section 404 of the Clean Water Act (33 U.S.C. 1344). Discussion of the biological, physical and water quality aspects of Little Arm Branch are presented in previous sections of this report.

Summary of Anticipated Impacts

Anticipated permanent impacts to surface waters are determined by the length of the culvert which is 31.2 m (102 ft.). NCDOT is also going to relocate Little Arm Branch using natural stream design for approximately 80 m (262 ft.). The existing channel loss for Little Arm Branch is approximately 120 m (393 ft.). Surface water loss pertaining to Alternate 1 have been determined to be 131 linear feet. The amount of surface water impacts may be modified by any changes in roadway design.

There is the potential that components of the deck associated with Bridge No. 246 will be dropped into waters of the U.S. during construction. The resulting temporary fill associated with Bridge No. 246

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

Avoidance

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to Waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the USACE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology and logistics in light of overall project purposes. Avoidance cannot be reached because of the replacement of the existing bridge with a culvert, which will affect Waters of the United States.

Minimization

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to Waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, ROW widths, fill slopes and/or road shoulder widths. Other practical mechanisms to minimize impacts to Waters of the United States crossed by the proposed project include: strict enforcement of sedimentation control BMP's for the protection of surface waters during the entire life of the project, reduction of clearing and grubbing activity; reduction/elimination of direct discharge into streams, reduction of runoff velocity; re-establishment of vegetation on exposed areas, minimization of "in-stream" activity, covering of exposed fill material and litter/debris control

Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of June 16, 2000 the FWS lists four federally protected species for Wake County.

Table 3. Federally-Protected Species for Wake County

COMMON NAME	SCIENTIFIC NAME	STATUS
dwarf wedge mussel	<i>Alasmidonta heterodon</i>	E
bald eagle	<i>Haliaeetus leucocephalus</i>	T
red-cockaded woodpecker	<i>Picoides borealis</i>	E
Michaux's sumac	<i>Rhus michauxii</i>	E

"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).

Alasmidonta heterodon (dwarf wedge mussel) E
 Animal Family: Unionidae
 Date Listed: 3/14/90

The dwarf wedge mussel is a small mussel having a distinguishable shell noted by two lateral teeth on the right half and one on the left half. The periostracum (outer shell) is olive green to dark brown in color and the nacre (inner shell) is bluish to silvery white.

Known populations of the dwarf wedge mussel in North Carolina are found in the Neuse River Basin and in the Tar River system. This mussel is sensitive to agricultural, domestic, and industrial pollutants and requires a stable silt free streambed with well-oxygenated water to survive.

BIOLOGICAL CONCLUSION.....NO EFFECT

streaked flanks. The RCW has a large white cheek patch surrounded by the black cap, nape, and throat.

The RCW uses open old growth stands of southern pines, particularly longleaf pine (Pinus palustris), for foraging and nesting habitat. A forested stand must contain at least 50% pine, lack a thick understory, and be contiguous with other stands to be appropriate habitat for the RCW. These birds nest exclusively in trees that are ≥ 60 years old and are contiguous with pine stands at least 30 years of age. The foraging range of the RCW is up to 200.0 hectares (500.0 acres). This acreage must be contiguous with suitable nesting sites.

These woodpeckers nest exclusively in living pine trees and usually in trees that are infected with the fungus that causes red-heart disease. Cavities are located in colonies from 3.6-30.3 m (12-100 ft) above the ground and average 9.1- 15.7 m (30-50 ft) high. They can be identified by a large incrustation of running sap that surrounds the tree. The RCW lays its eggs in April, May, and June; the eggs hatch approximately 38 days later.

BIOLOGICAL CONCLUSION.....NO EFFECT

Suitable nesting and foraging habitat for the RCW, in the form of old growth pine forest, is not located in the project study area. There were no pines of sufficient size and density located in the project study area or nearby vicinity. A review of NCNHP database of rare species and unique habitats revealed no known populations of RCW within 1.6 km (1.0 mi.) of the project study area. This project will not effect the red-cockaded woodpecker.

Rhus michauxii (Michaux's sumac) E
Plant Family: Anacardiaceae
Federally Listed: September 28, 1989
Flowers Present: June

Michaux's sumac is a densely pubescent rhizomatous shrub. The bases of the leaves are rounded and their edges are simply or doubly serrate. The flowers of Michaux's sumac are greenish to white in color. Fruits, which develop from August to September on female plants, are a red densely short-pubescent drupe.

This plant occurs in rocky or sandy open woods. Michaux's sumac is dependent on some sort of disturbance to maintain the openness of its habitat. It usually grows in association with basic soils and occurs on sand

Table 4. Federal Species of Concern for Wake County.

Common Name	Scientific Name	NC Status	Habitat
Bachman's sparrow	<i>Aimophila aestivalis</i>	SC	No
Carolina darter	<i>Etheostoma collis lepidinion</i>	SC	Yes
Southern hognose snake	<i>Heterodon simus</i>	SR/(PSC)	No
Pinewoods shiner	<i>Lythrurus matutinus</i>	SR	Yes
Southeastern myotis	<i>Myotis austroriparius</i>	SC	Yes
yellow lance	<i>Elliptio lanceolata</i>	T/(PE)	No
Atlantic pigtoe	<i>Fusconaia masoni</i>	T/(PE)	No
green floater	<i>Lasmigona subvirdus</i>	E	No
Diana fritillary butterfly	<i>Speyeria diana</i>	SR	No
sweet pinesap	<i>Monotropis odorata</i>	C	Yes
Carolina least trillium	<i>Trillium pusillum pusillum</i>	E	No

"E"--An Endangered species is one whose continued existence as a viable component of the State's flora is determined to be in jeopardy.

"T"--A Threatened species is one which is likely to become endangered species within the foreseeable future throughout all or a significant portion of its range.

"SC"--A Special Concern species is one which requires monitoring but may be taken or collected and sold under regulations adopted under the provisions of Article 25 of Chapter 113 of the General Statutes (animals) and the Plant Protection and Conservation Act (plants). Only propagated material may be sold of Special Concern plants that are also listed as Threatened or Endangered.

"C"--A Candidate species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species is also either rare throughout its range or disjunct in North Carolina from a main range in a different part of the country or the world.

"SR"--A Significantly Rare species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species is generally more common elsewhere in its range, occurring peripherally in North Carolina.

"PSC"--A species that has been proposed by a Scientific Council as a status (Special Concern), that is different from the current status, but the status has not yet been adopted by the WRC and by the General Assembly as law.

"PE"--A species that has been proposed by a Scientific Council as a status (Endangered), that is different from the current status, but the status has not yet been adopted by the WRC and by the General Assembly as law

Basin. Division of Water Quality.

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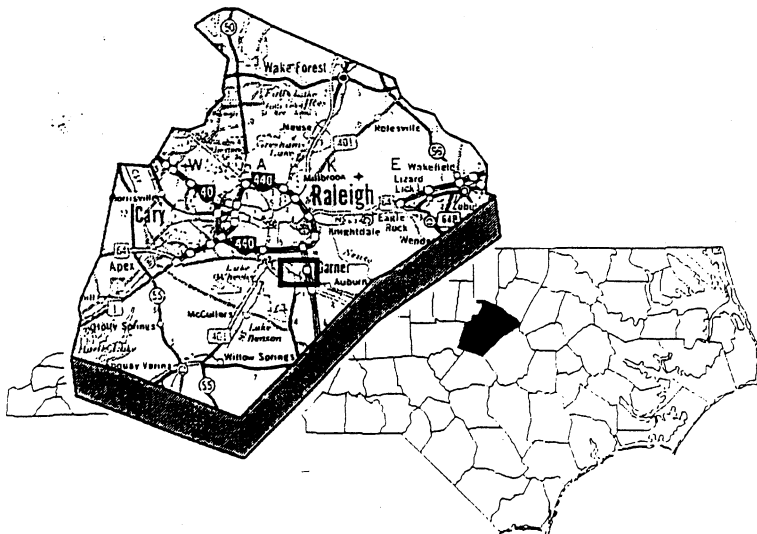
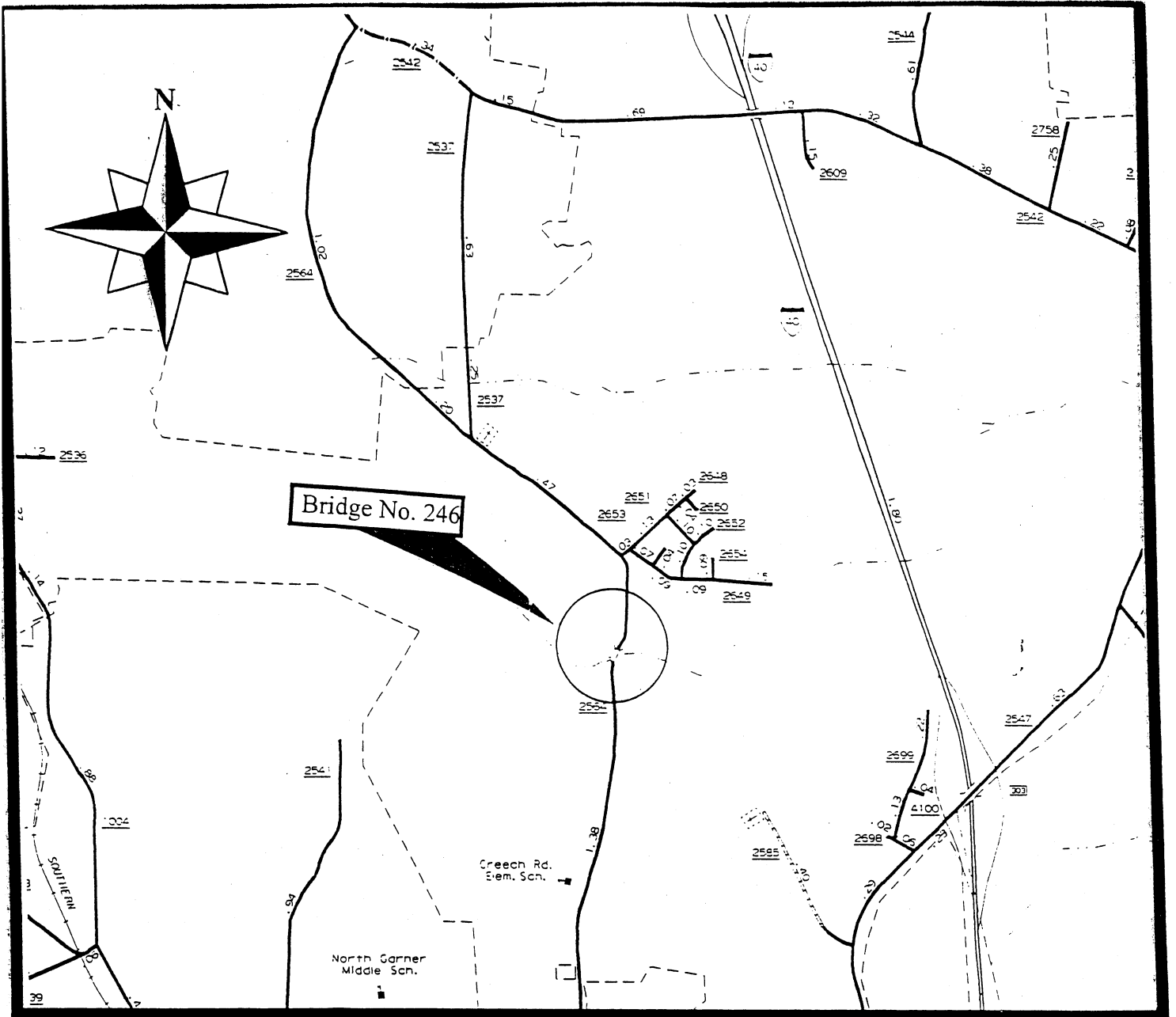
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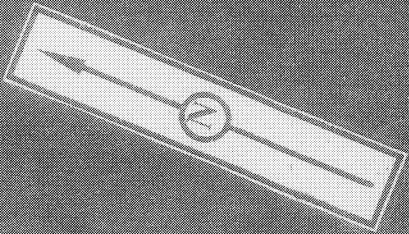
VIII. CONCLUSION

On the basis of the above discussion, it is concluded that no substantial adverse environmental effects will result from the implementation of the project. The proposed project is considered to be a "categorical exclusion" as defined by the Federal Highway Administration's environmental guidelines (23 CFR 771.117).

FIGURES



	<p>North Carolina Department of Transportation Division of Highways Planning & Environmental Branch</p>
<p>Wake County Replace Bridge No. 246 on SR 2564 Over Creek B-3376</p>	
<p>Figure One</p>	

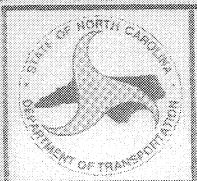


SR 2564

Bridge No. 246

SR 2564

Alternate 1(New Alignment)

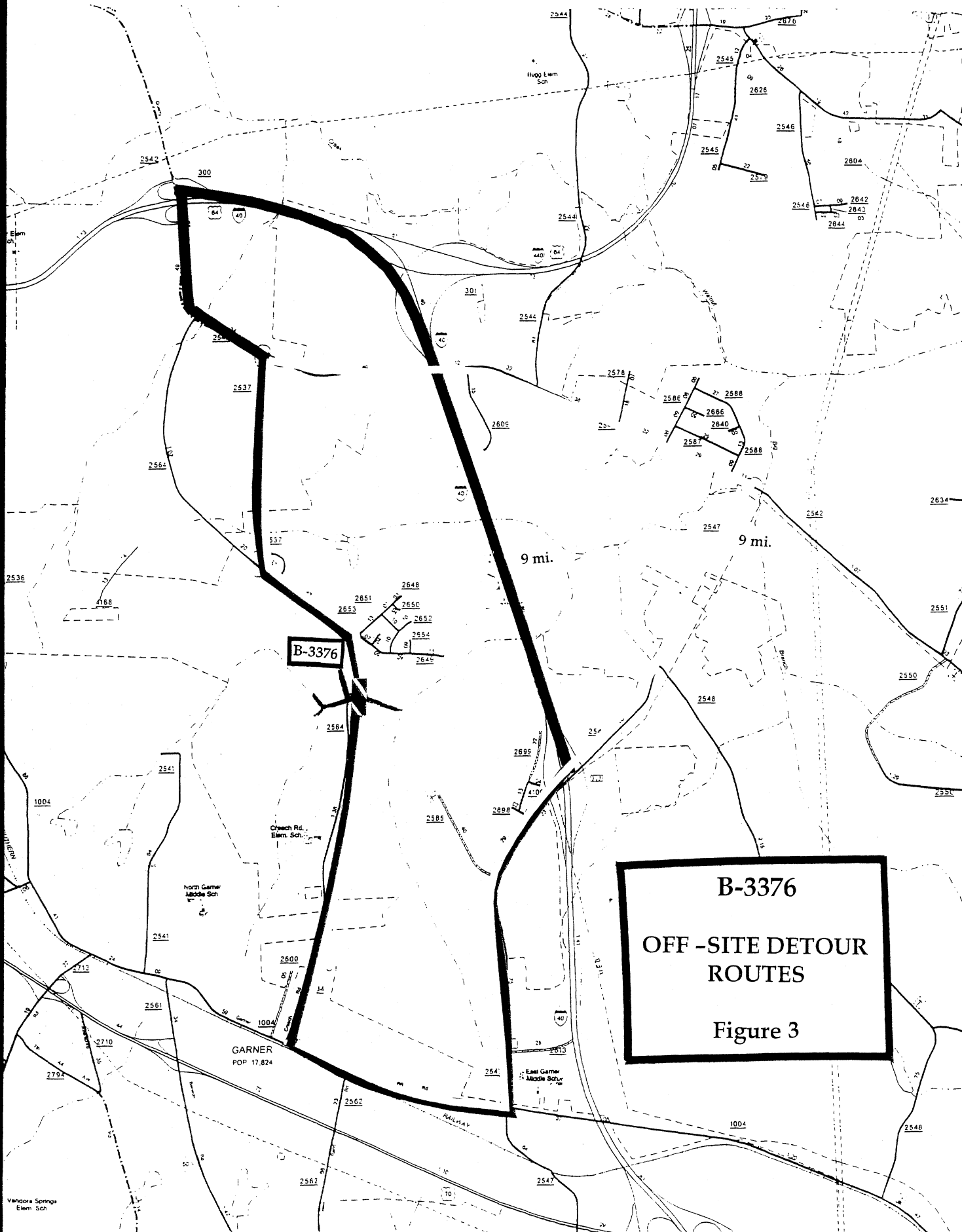


North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

Wake County
Replace Bridge No. 246 on SR 2564
Over Creek
B-3376

Scale 1:1200

Figure Two



B-3376

B-3376
OFF-SITE DETOUR
ROUTES
Figure 3

GARNER
POP 17,824

Vanora Springs
Elem. Sch

APPENDIX



Looking North on SR 2564



Looking South on SR 2564



Looking West along Little Arm Branch



Looking South- East along Little Arm Branch



North Carolina Department of Cultural Resources

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

Division of Archives and History
Jeffrey J. Crow, Director

April 6, 1998

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue
Raleigh, N.C. 27601-1442

Re: Bridge 246 on SR 2564 over creek, Wake
County, B-3376, Federal Aid Project BRSTP-
2564(1), State Project S.2406301, ER 98-8623



Dear Mr. Graf:

On April 2, 1998, Debbie Bevin of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources, we are aware of no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

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.

Having provided this information, we look forward to receipt of either a Categorical Exclusion or Environmental Assessment which indicates how NCDOT addressed our comments.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 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.

Sincerely,

A handwritten signature in cursive script that reads "David Brook".

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: H. F. Vick
B. Church
T. Padgett
Wake County Historic Preservation Commission

