North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.02; Released April 2015)

WBS Element: 17BP.5.R.50 **TIP No.:** **County(ies):** Franklin **Page** 1 **of** 1

General Project Information

WBS Element:	17BP.5.R.50	**TIP Number:**		**Project Type:** Bridge Replacement	**Date:** 9/23/2015
NCDOT Contact:	W. Galen Cail, PE		**Contractor / Designer:**	Brandon Barham, PE - Ecological Engineering	
Address:	1000 Birch Ridge Drive Raleigh, NC 27610		**Address:**	1151 SE Cary Parkway Suite 101 Cary, NC 27518	
Phone:	919-707-6711		**Phone:**	919-557-0929	
Email:	gcail@ncdot.gov		**Email:**	bbarham@ecologicaleng.com	
City/Town:	Raleigh		**County(ies):**	Franklin	
River Basin(s):	Tar-Pamlico		**CAMA County?**	No	
Wetlands within Project Limits?	Yes				

Project Description

Project Length (lin. miles or feet):	0.21 Miles	**Surrounding Land Use:**	Rural area with forest and agricultural landuses

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	1.00 ac.	0.50 ac.
Typical Cross Section Description:	2@ 12 ft lane, 8 ft shoulders, with total bridge width of 43.0 ft and total bridge length of 190 ft.	2@ 12 ft lane with total bridge witdh of 30 ft and total bridge length of 90 ft.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 2200 Year: 2015	Existing: 2200 Year: 2015

General Project Narrative: (Description of Minimization of Water Quality Impacts)

State Project 17BP.5.R.50 involves the replacement of the existing NCDOT Bridge #340026 on NC 98 over Crooked Creek. Bridge #340026 consists of 1@22' - 9", 1@22'-0", 1@22'-1", 1@22" - 9" timber floor on I-Beams with timber caps on timber piles with timber abutments. The proposed bridge at #340026 will be a 1@40', 1@110 1@40' prestressed concrete girder bridge with 4'-0" caps and sloping abutments. The proposed bridge is located in Zone AE of FIRM Map number 3720273099J and was studied by "Limited Detailed" methods. The proposed bridge will provide more hydraulic opening than the exising bridge. Tow stormwater outfalls are proposed which will be placed at a distance to minimize disturbance to adjacent wetlands. A Rip Rap pad will be utilized to dissipate the energy at each oufall.

Waterbody Information

Surface Water Body (1):	Crooked Creek		**NCDWR Stream Index No.:**	28-30	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	Nutrient Sensitive Waters (NSW)		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:				**Buffer Rules in Effect:**	Tar-Pamlico
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	Yes	**Dissipator Pads Provided in Buffer?**	No
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

09/08/99

PROJECT: 17BP.5.R.50

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.50	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.5.R.50	N/A	PE
17BP.5.R.50	N/A	ROW & UTL
17BP.5.R.50	N/A	CONSTRUCTION

BUFFER DRAWING SHEET __ OF __

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

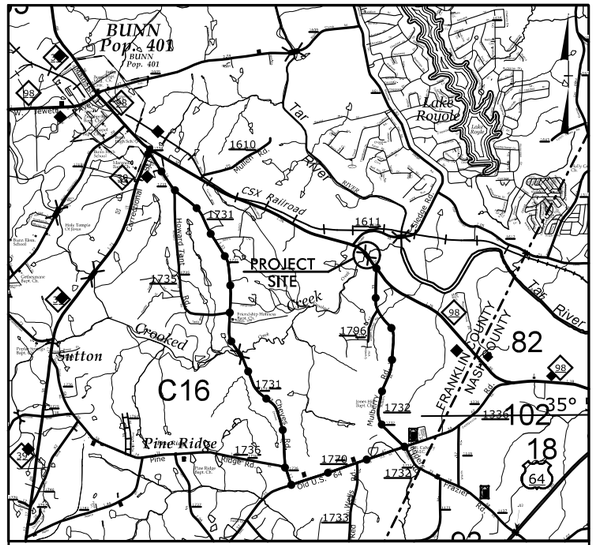
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FRANKLIN COUNTY

LOCATION: ***BRIDGE NO. 26 OVER CROOKED CREEK ON NC 98***

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

BUFFER IMPACTS PERMIT

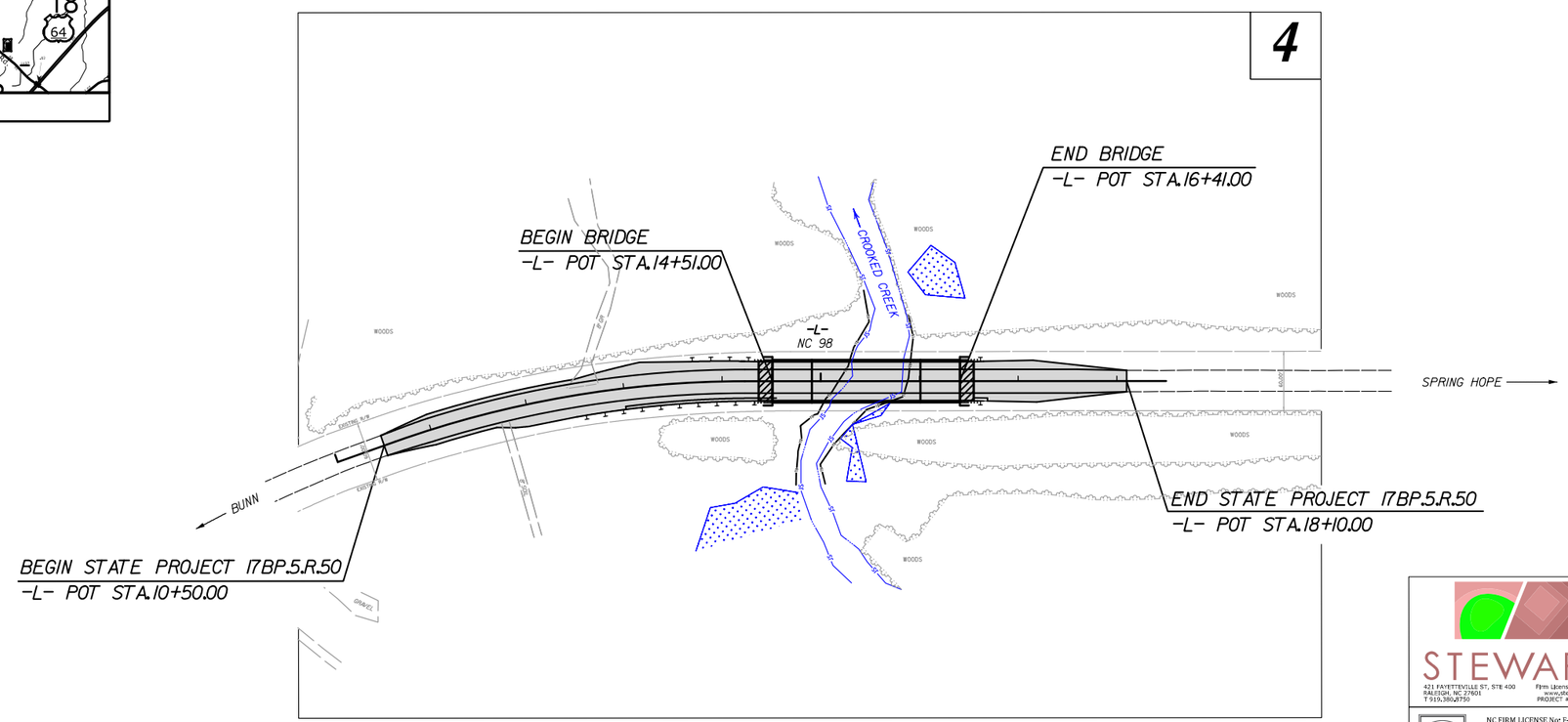


VICINITY MAP FOR 17BP.5.R.50

OFFSITE DETOUR ROUTE

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

NAD 83/NA 2011



CLEARING ON THIS PROJECT SHALL BE TO LIMITS ESTABLISHED USING METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.9750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:N14003.00

NC FIRM LICENSE No: F-1148
1151 SE Cary Parkway, Suite 101
Cary, NC 27518
(919) 557-0929
ECOLOGICAL ENGINEERING

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT = 2200
V = 55 MPH
CLASS = MINOR ARTERIAL

REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 17BP.5.R.50	=	0.108 mi.
LENGTH STRUCTURES STATE PROJECT 17BP.5.R.50	=	0.036 mi.
TOTAL LENGTH STATE PROJECT 17BP.5.R.50	=	0.144 mi.

Prepared in the Office of:
STEWART, Inc.
For
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 18, 2015

RIGHT OF WAY COMPLETE: PENDING

LETTING DATE: JANUARY 11, 2017

ANDY YOUNG, PE
PROJECT ENGINEER

MICHAEL BURNS, EI
PROJECT DESIGN ENGINEER

LISA GILCHRIST, EI
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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BrandonBarnham

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.50	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

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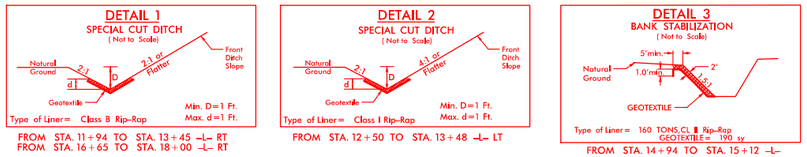
NC #1284 LICENSE No. F-1148, 1151 SE Cary Parkway, Suite 101, Cary, NC 27511, (919) 557-0929 — ECOLOGICAL ENGINEERING

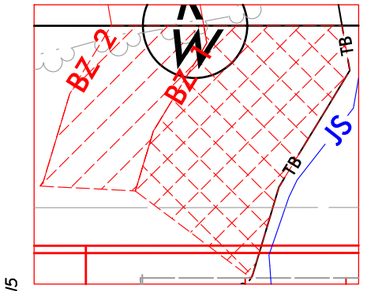


ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

BUFFER DRAWING SHEET __ OF __

NAD 83/NNSRS 2011



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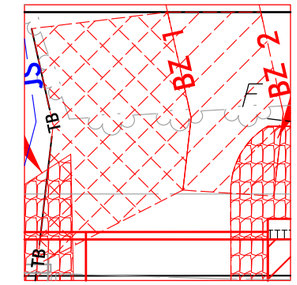

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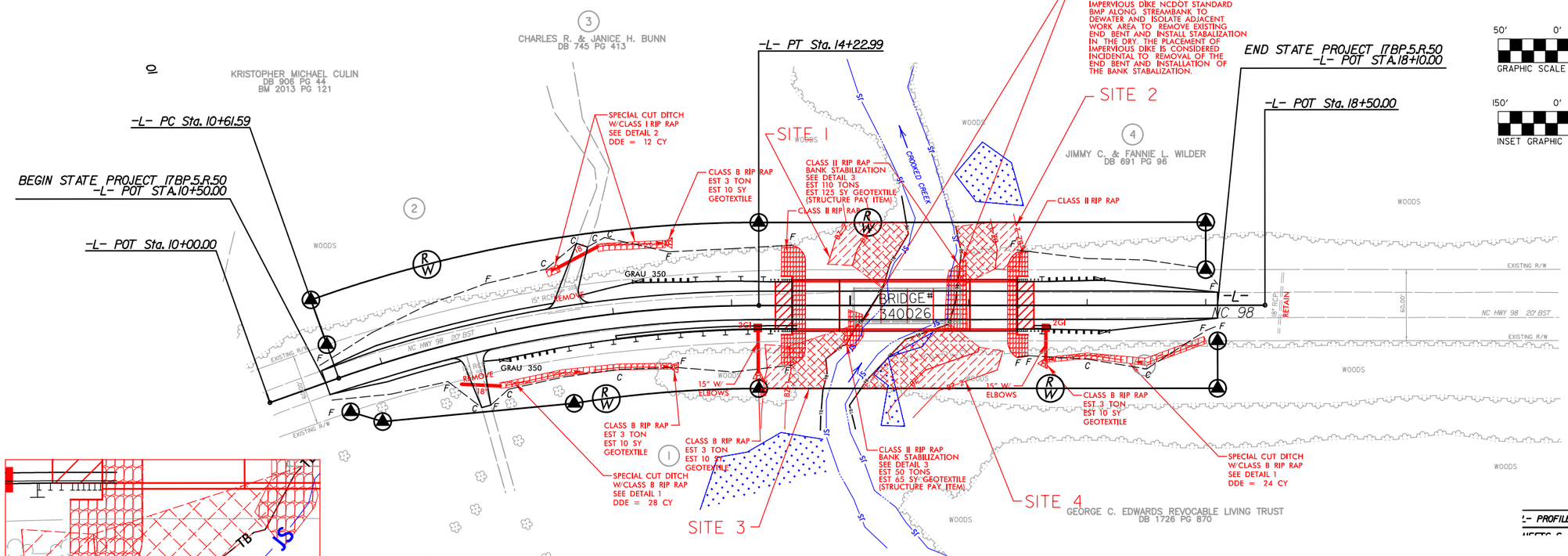
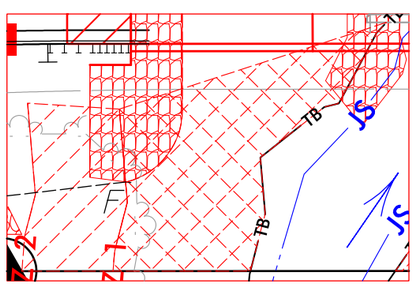


50' 0' 100'
GRAPHIC SCALE

150' 0' 300'
INSET GRAPHIC SCALE



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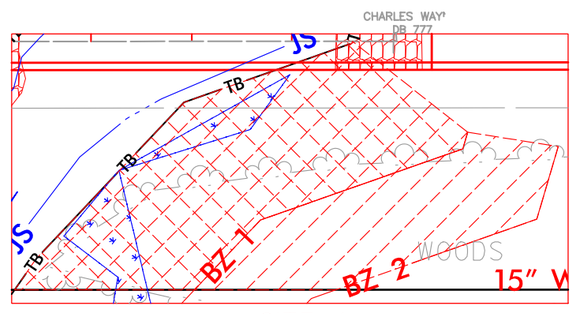

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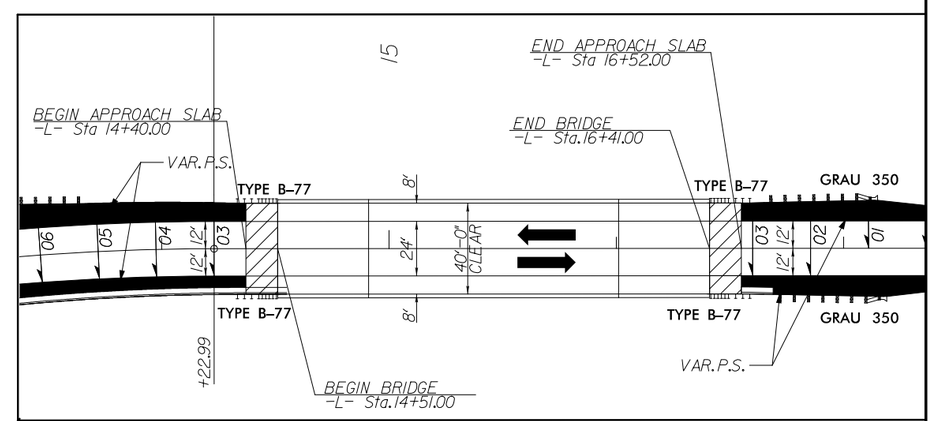

PAVEMENT-BRIDGE RELATIONSHIP SKETCH (NOT TO SCALE)

REVISIONS

8/17/99

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BrandonBorham

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	1@40', 1@110',1@40', 54" PRESTRESSED CONC. GIRDER	14+81 TO 15+49 -L- LT		X		1518.8	790.3	2309.1					
2	1@40', 1@110',1@40', 54" PRESTRESSED CONC. GIRDER	15+89 TO 16+44 -L- LT		X		1386.1	809.7	2195.8					
3	1@40', 1@110',1@40', 54" PRESTRESSED CONC. GIRDER	14+27 TO 15+07 -L- RT		X		1604.8	734.7	2339.5					
4	1@40', 1@110',1@40', 54" PRESTRESSED CONC. GIRDER	15+09 TO 16+29 -L- RT		X		2522.2	1385.4	3907.6					
TOTAL:						7031.9	3720.1	10752.0	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

FRANKLIN COUNTY
PROJECT: 17BP.5.R.50 (SF-340026)
BRIDGE #71 OVER CROOKED CREEK

6/9/2015
SHEET OF

Rev. May 2006

09/08/99

PROJECT: 17BP.5.R.50

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.50	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
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17BP.5.R.50	N/A	CONSTRUCTION

PERMIT DRAWING
SHEET __ OF __

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DIVISION OF HIGHWAYS

FRANKLIN COUNTY

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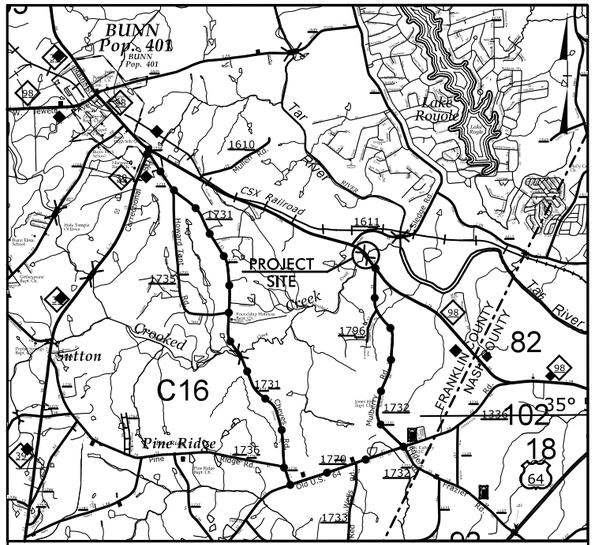
WETLAND AND SURFACE WATER IMPACTS PERMIT



VICINITY MAP FOR 17BP.5.R.50

OFFSITE DETOUR ROUTE

See Sheet 1-A For Index of Sheets
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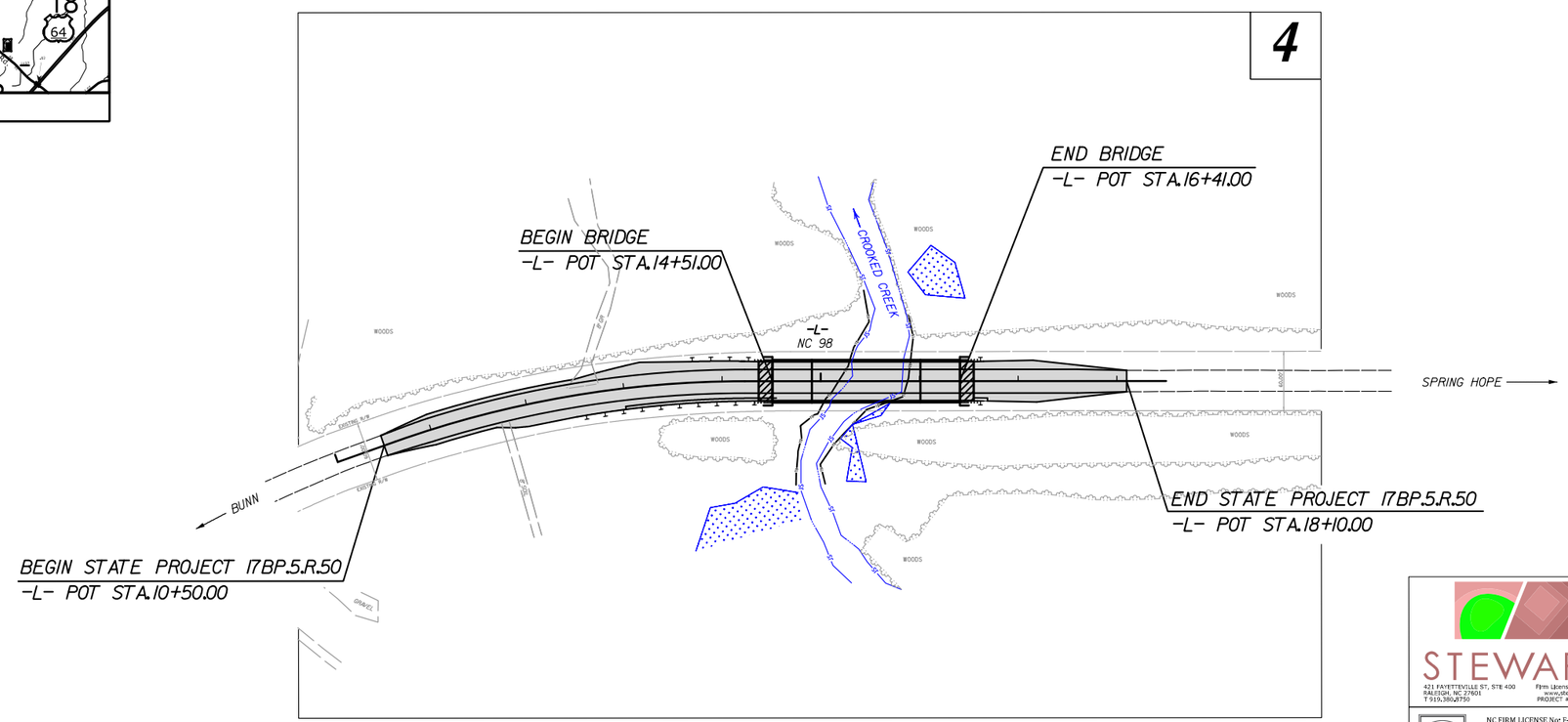
NAD 83/
NA 2011



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CLASS = MINOR ARTERIAL

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MAY 18, 2015

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LETTING DATE:
JANUARY 11, 2017

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HYDRAULICS ENGINEER

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ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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BrandonBarnham

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.50	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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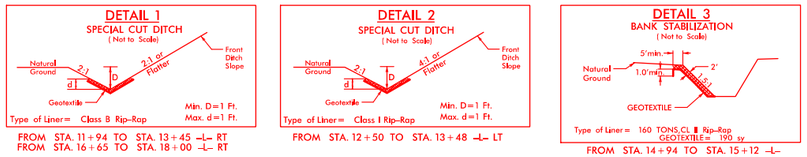


FROM STA. 11+94 TO STA. 13+45 -L- RT
FROM STA. 16+65 TO STA. 18+00 -L- RT

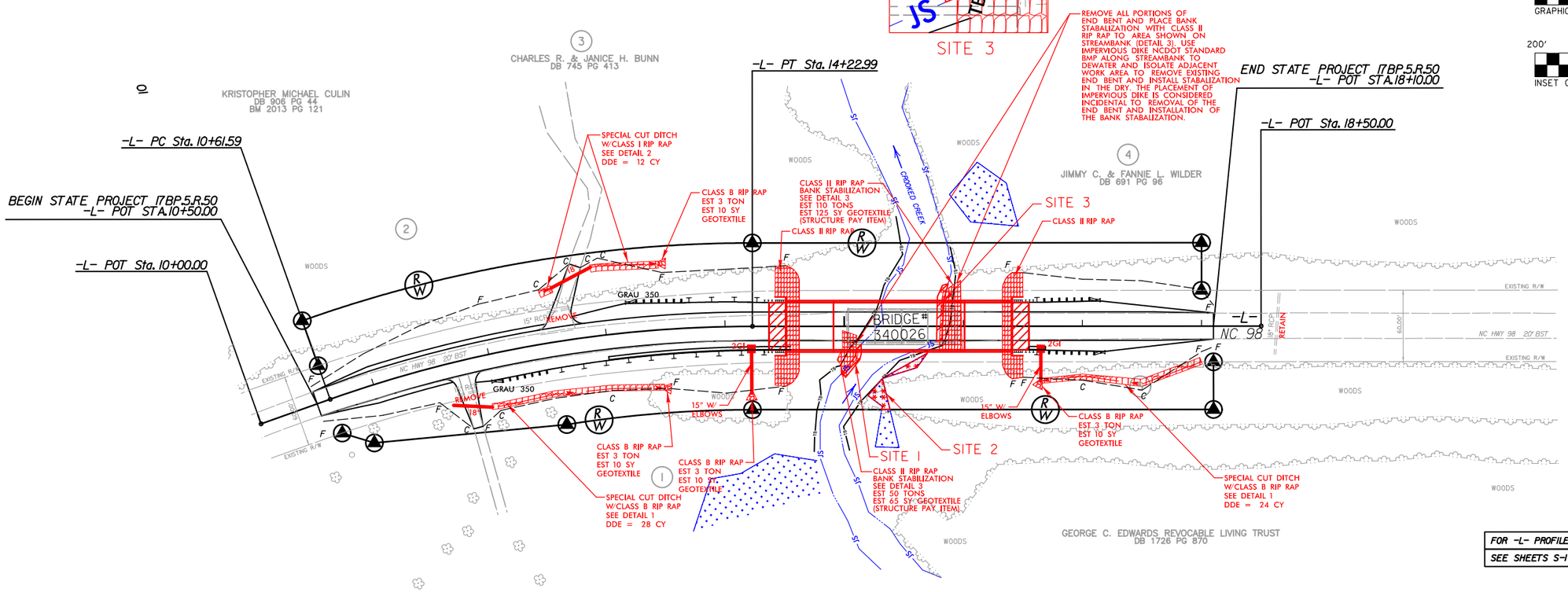
FROM STA. 12+50 TO STA. 13+48 -L- LT

FROM STA. 14+94 TO STA. 15+12 -L-
FROM STA. 15+79 TO STA. 15+99 -L-

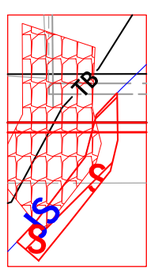
DENOTES IMPACTS IN SURFACE WATER

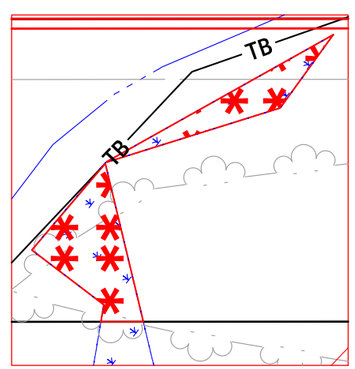
DENOTES MECHANIZED CLEARING

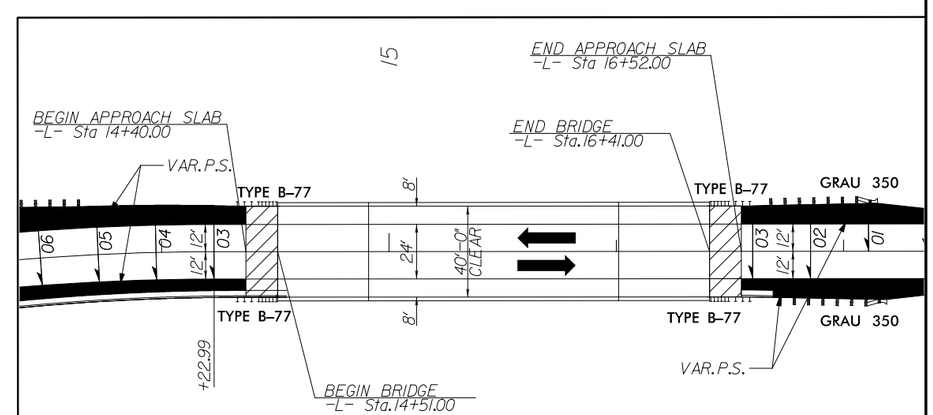
PERMIT DRAWING
SHEET __ OF __



FOR -L- PROFILE,SEE SHEET 5
SEE SHEETS S-1 THRU S-34 FOR STRUCTURE PLANS







PAVEMENT-BRIDGE RELATIONSHIP SKETCH (NOT TO SCALE)

REVISIONS

8/17/99

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BrandonBarham

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.50	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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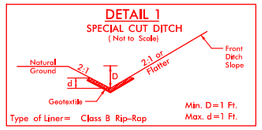
NAD 83/NA 2011

GRAPHIC SCALE 50′ 0′ 100′

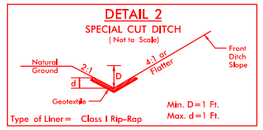
INSET GRAPHIC SCALE 200′ 0′ 400′

DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)



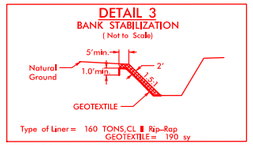
FROM STA. 11+94 TO STA. 13+45 -L- RT
FROM STA. 16+65 TO STA. 18+00 -L- RT

DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 12+50 TO STA. 13+48 -L- LT

DETAIL 3
BANK STABILIZATION
(Not to Scale)

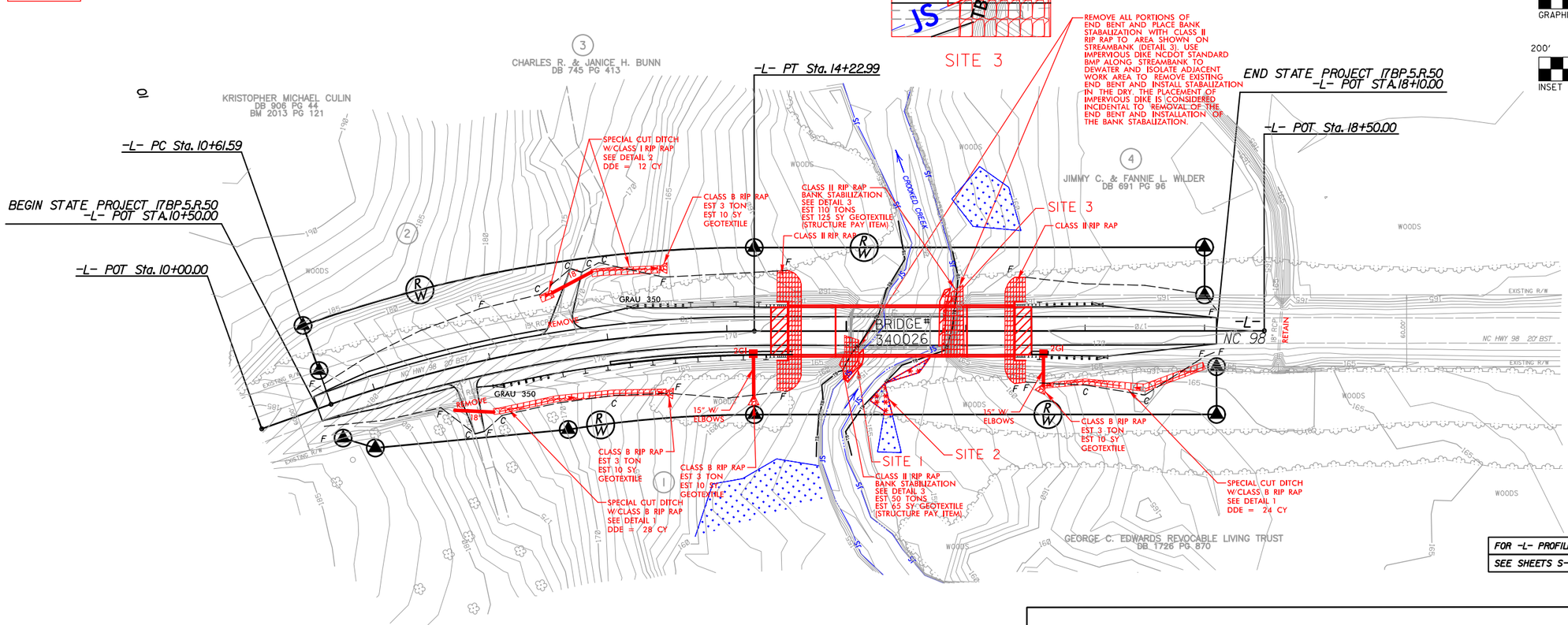


FROM STA. 14+94 TO STA. 15+12 -L-
FROM STA. 15+79 TO STA. 15+99 -L-

DENOTES IMPACTS IN SURFACE WATER

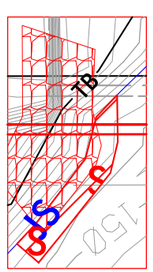
DENOTES MECHANIZED CLEARING

PERMIT DRAWING
SHEET __ OF __



FOR -L- PROFILE,SEE SHEET 5

SEE SHEETS S-1 THRU S-34 FOR STRUCTURE PLANS



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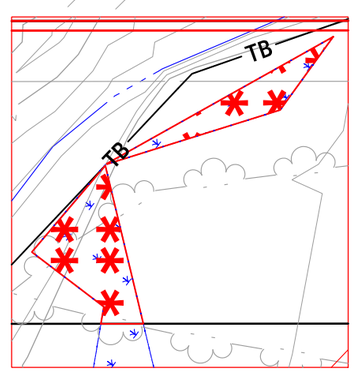
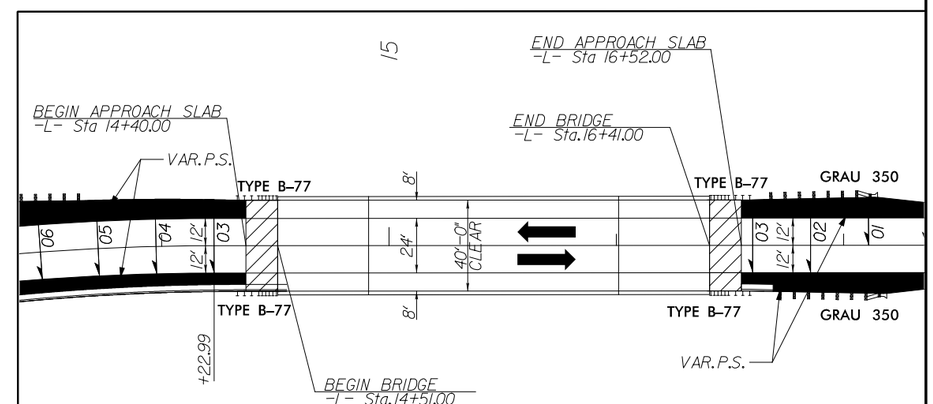


SITE 2

CHARLES WAYNE M
DB 777 PG



PAVEMENT-BRIDGE RELATIONSHIP SKETCH (NOT TO SCALE)

REVISIONS

8/17/99

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BrandonBarham

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	14+95 - 15+14 -L- RT	1@40', 1@110',1@40', 54" PRESTRESSED CONC. GIRDER						< 0.01		32		
2	15+20 - 15+70 -L- RT	1@40', 1@110',1@40', 54" PRESTRESSED CONC. GIRDER				< 0.01						
3	15+78 - 15+87 -L- LT	1@40', 1@110',1@40', 54" PRESTRESSED CONC. GIRDER						< 0.01		47		
TOTALS:						< 0.01		< 0.01		79.00		

Impacts:	Mechanized Clearing In Wetlands (Sq. Ft)	Surface Water Impacts (Sq. Ft)
Site 1	0	126
Site 2	361	0
Site 3	0	238
Total	361	364

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FRANKLIN COUNTY
WBS - 17BP.5.R.50 (SF-340026)
BRIDGE #26 OVER CROOKED CREEK
SHEET 6/9/2015

ATN Revised 3/31/05

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
4	15+20 TO 15+70 -L-RT		362.0	0
TOTAL:			362.0	0

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

FRANKLIN COUNTY
PROJECT: 17BP.5.R.50 (SF-340026)
BRIDGE #71 OVER CROOKED CREEK

6/9/2015
SHEET OF

Rev. Jan 2009