



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

WBS Element:		TIP No.: B-5994		County(ies): Jones		Page 1 of 3	
General Project Information							
WBS Element:		TIP Number: B-5994		Project Type: Bridge Replacement		Date: 9/7/2018	
NCDOT Contact:		Robert T. Turnbull, Environmental Services, Inc.		Contractor / Designer:		HNTB North Carolina, P.C.	
Address:		4901 Trademark Dr. Raleigh, NC 27610		Address:		343 E. Six Forks Road Suite 200 Raleigh, NC 27609	
Phone:		(919) 212-1760		Phone:		(919) 424-0444	
Email:		rtturnbull@esinc.cc		Email:		James Byrd (jabyrd@HNTB.com)	
City/Town:		Comfort		County(ies):		Jones	
River Basin(s):		Neuse		CAMA County?		No	
Wetlands within Project Limits?		Yes					
Project Description							
Project Length (lin. miles or feet):		0.14		Surrounding Land Use:		Rural / Agricultural	
		Proposed Project		Existing Site			
Project Built-Up Area (ac.)		1.2 ac.		0.9 ac.			
Typical Cross Section Description:		2 - 11' asphalt paved lanes with 2' to 5' paved shoulders, 3' grass shoulders. Ditches in all four quadrants will be impacted.		2 - 10' asphalt paved lanes with grass shoulders. Wetlands are present in all four quadrants but not impacted. Roadside ditches are present in all four quadrants with one being jurisdictional and tying directly into Tuckahoe Creek. Two others outlet into the wetlands, and the fourth flows away from the stream.			
Annual Avg Daily Traffic (veh/hr/day):		Design/Future: 820 Year: 2032		Existing: 410 Year: 2012			
General Project Narrative: (Description of Minimization of Water Quality Impacts)		Project B-5994 involves the replacement of Bridge #510032 on SR 1142 (Weyerhaeuser Rd.) over Tuckahoe Creek in Jones County. The existing bridge #510032 consists of 1 @ 17'-7", 1 @ 17'-4", 1 @ 17'-0", 1 @ 17'-5", 1 @ 16'-11", 1 @ 16'-10", 1 @ 16'-7", 1 @ 17'-6", and 1 @ 17'-8" timber floor on continuous I-beams, timber caps, and timber piles. It is to be replaced with a 1 @ 40'-0", 1 @ 70'-0", 1 @ 60'-0" 24" Cored Slab units with a 3.75" asphalt wearing surface at the same location. The overall bridge length will be 170.0' and a width of 33.0'. The project also includes 0.05 mi of roadway improvements to the south and 0.06 mi of roadway improvements to the north. The proposed bridge does not contain deck drains. Storm water will discharge into the proposed drainage ditches in the northeast, northwest, southeast, and southwest quadrants, where it will follow existing drainage patterns. The roadside ditches in the northeast, northwest, southeast, and southwest quadrants will be impacted. The redesigned ditches, with the exception of the ditch in the northeast quadrant, will tie into Tuckahoe Creek, and match the existing drainage patterns. The proposed ditch in the southwest quadrant will begin as a V-ditch with 3:1 slopes, and transition into a 4' special lateral base ditch with 2:1 slopes and Class I Rip Rap lining. The Rip Rap is proposed on the southwest ditch to stabilize the side slopes. The northwest and southeast ditches will be special lateral V-ditches with 3:1 slopes and will tie into the existing wetlands. The southeast ditch will be lined with Class I Rip Rap at the end to minimize velocity and prevent erosion. The northeast ditch will be a special lateral V-ditch with a 4:1 front slope and 3:1 back slope. The northeast ditch will flow north, away from the project.					
Waterbody Information							
Surface Water Body (1):		Tuckahoe Creek		NCDWR Stream Index No.:		27-101-5	
NCDWR Surface Water Classification for Water Body		Primary Classification:		Class C			
		Supplemental Classification:		Swamp Waters (Sw)		(NSW)	
Other Stream Classification:							
Impairments:							
Aquatic T&E Species?		Comments:					
NRTR Stream ID:				Buffer Rules in Effect:		Neuse	
Project Includes Bridge Spanning Water Body?		Yes		Deck Drains Discharge Over 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)							



(Version 2.07; Released October 2016)

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Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
4	-L- 15+50 LT	(1)Tuckahoe Creek	0.0	3.0	3.0	10.2	1020	2000	3.00%	8.6	3.3	11.8	3.6	No	No
	35.031671 / -77.579449														
4	-L- 16+40 LT	(1)Tuckahoe Creek	4.0	2.0	2.0	10.2	1020	100	2.50%	8.6	3.0	11.8	3.3	No	No
	35.031892 / -77.579508														
4	-L- 16+50 RT	(1)Tuckahoe Creek	0.0	3.0	3.0	8.7	870	2100	5.00%	7.5	2.6	10.3	2.8	Yes	No
	35.031981 / -77.579284														
4	-L- 18+05 LT	(1)Tuckahoe Creek	0.0	3.0	3.0	6.3	630	150	0.50%	3.4	1.3	4.7	1.5	No	No
	35.032324 / -77.579676														
4	-L- 22+50 RT	(1)Tuckahoe Creek	0.0	4.0	3.0	0.5	50	250	0.20%	0.6	0.6	0.9	0.7	No	No
	35.033559 / -77.579800														

Additional Comments



WBS Element:	TIP No.: B-5994	County(ies): Jones	Page	3	of	3
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Page 3 of 3

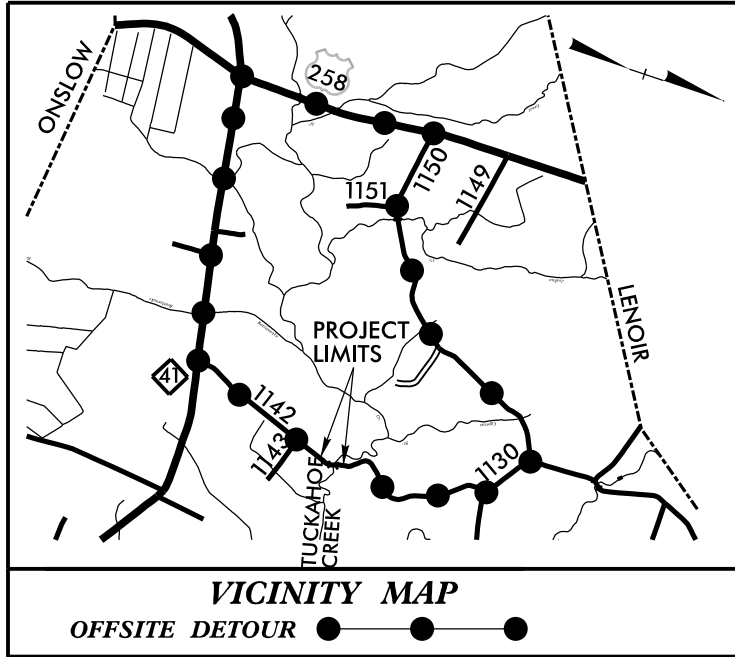
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* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

09/08/99

TIP PROJECT: B-5994



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JONES COUNTY

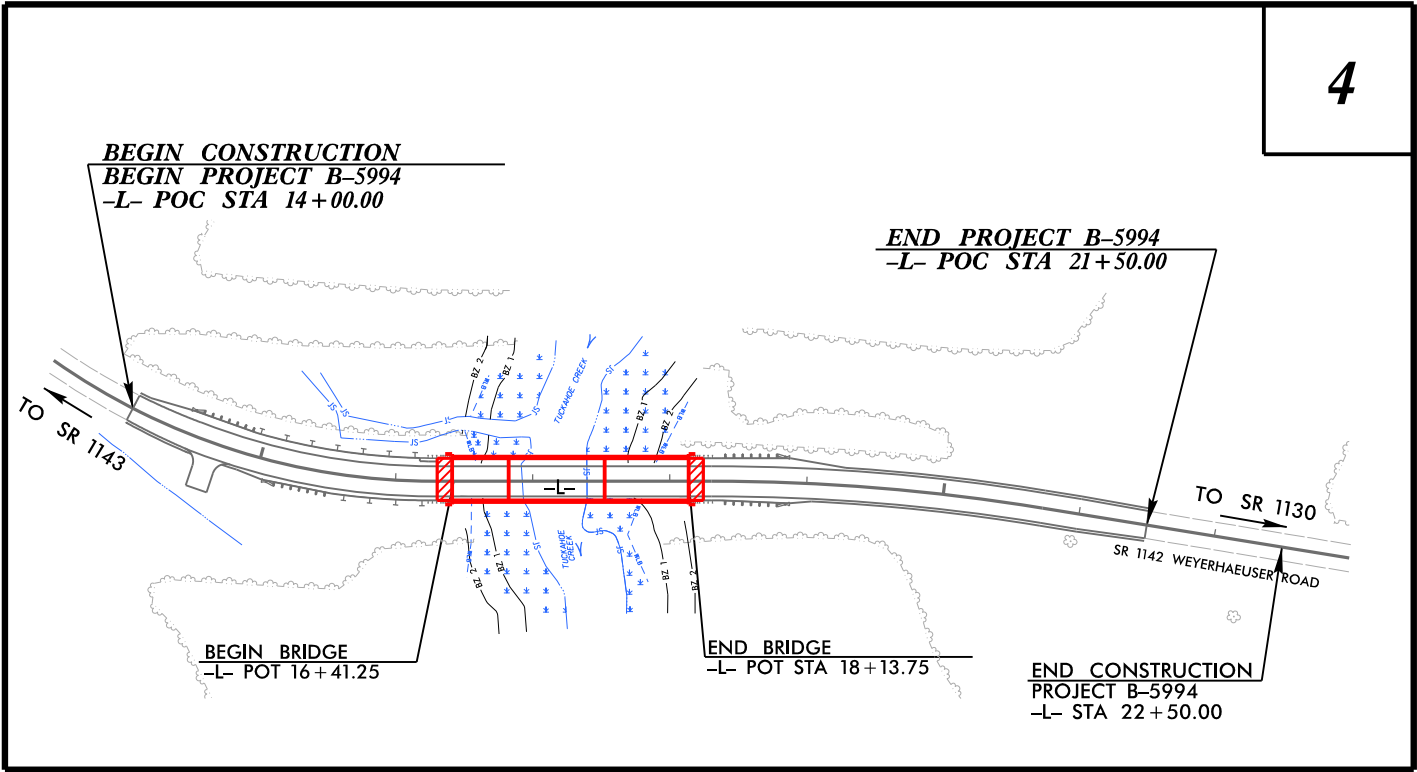
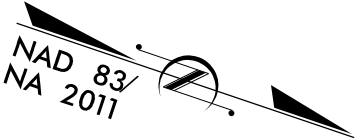
LOCATION: REPLACE BRIDGE NO. 32 OVER TUCKAHOE CREEK
SR 1142 (WEYERHAEUSER ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

WETLAND AND SURFACE
WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5994	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.2.R.77		P.E.	
17BP.2.R.77		ROW/UTIL.	
48189.3.1	BRZ-1142(013)	CONST.	

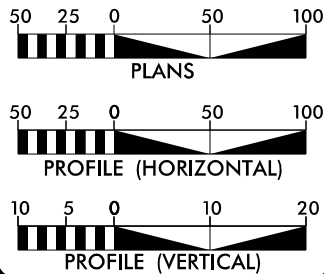
PERMIT DRAWING
SHEET 1 OF 7



NOTES:

1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
2. THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
- ** 3. DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVE (480.47') AND HORIZONTAL SSD (215') V = 35 MPH

GRAPHIC SCALES



DESIGN DATA

ADT 2012 = 410
ADT 2032 = 820
K = 10 %
D = 60 %
T = 6 % *
** V = 60 MPH
* TTST = 2% DUAL 4%
FUNC CLASS =
MINOR COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT B-5994 = 0.109 MILES
LENGTH OF STRUCTURE PROJECT B-5994 = 0.033 MILES
TOTAL LENGTH OF PROJECT B-5994 = 0.142 MILES

HNTB

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 8, 2017

LETTING DATE:
OCTOBER 24, 2018

DOUGLAS M. WHEATLEY, PE
PROJECT ENGINEER

MONICA J. DUVAL
PROJECT DESIGN ENGINEER

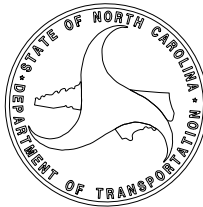
HEATHER C. LANE, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

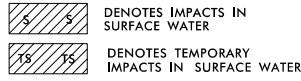
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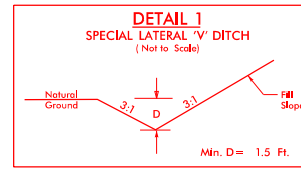
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HNTB

8/17/99

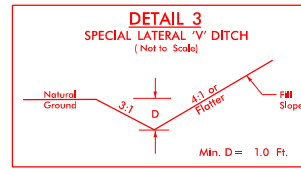
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HAND CLEARING IN WETLANDS = <0.00 Ac/0.00 SF
FILL IN WETLANDS = 0.00 Ac/0.00 SF
PERMANENT STREAM IMPACTS = 88 LF
TEMPORARY STREAM IMPACTS = 28 LF



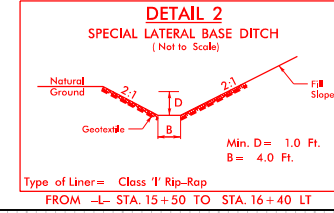
BEGIN CONSTRUCTION
BEGIN PROJECT B-5994
-L- POC STA 14+00.00



FROM -L- STA. 14+00 TO STA. 15+50 LT
FROM -L- STA. 14+00 TO STA. 16+50 RT
FROM -L- STA. 18+05 TO STA. 19+50 LT



FROM -L- STA. 20+00 TO STA. 22+50 RT



Type of Liner = Class 'I' Rip-Rap
FROM -L- STA. 15+50 TO STA. 16+40 LT

W3
HAND CLEARING IN WETLANDS = 0.00 Ac/0.00 SF
FILL IN WETLANDS = 0.00 Ac/0.00 SF

WETLAND & STREAM IMPACTS

HNTB
HNTB NORTH CAROLINA, P.C.
349 E. ST. FORK ROAD, SUITE 200
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. C-1684

W1
HAND CLEARING IN WETLANDS = 0.00 Ac/0.00 SF
FILL IN WETLANDS = 0.00 Ac/0.00 SF

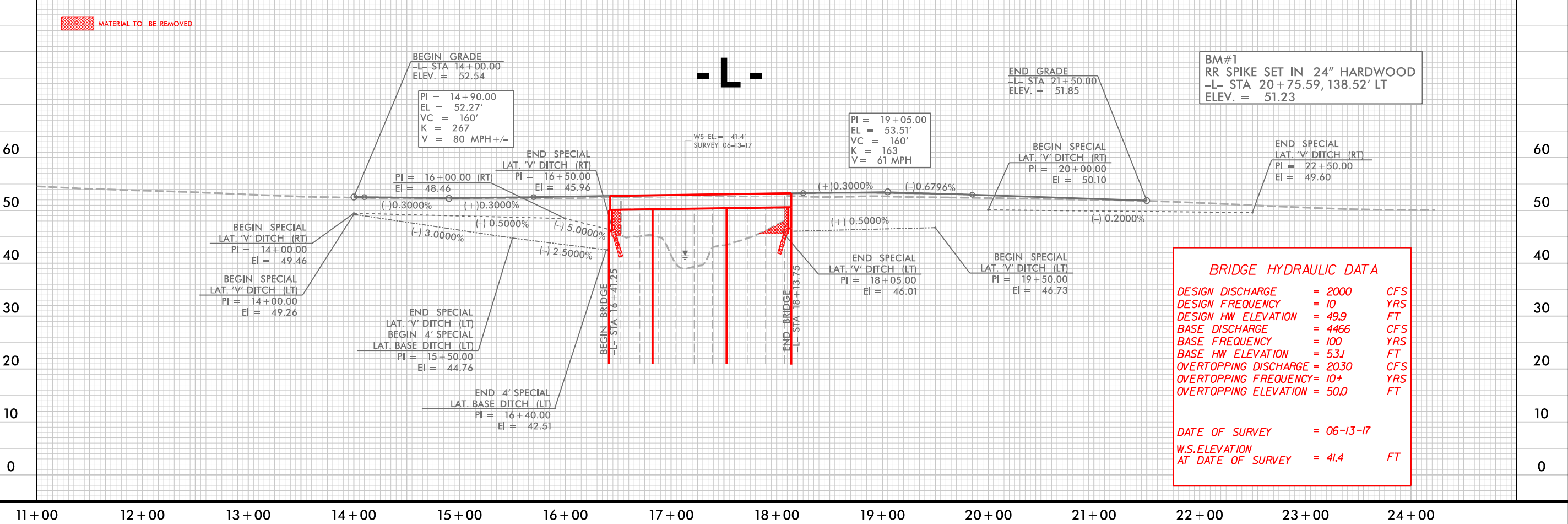
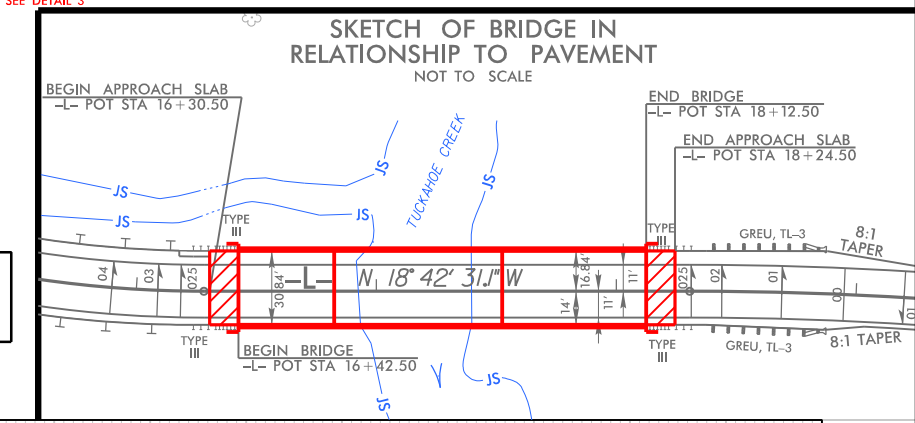
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B-5994		4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

PERMIT DRAWING
SHEET 2 OF 7



END PROJECT B-5994
-L- POT STA 21+50.00

END CONSTRUCTION
PROJECT B-5994
-L- STA 22+50.00



9/17/2018
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HNTB

W2
HAND CLEARING IN WETLANDS = <0.00 Ac / 0.00 SF
FILL IN WETLANDS = 0.00 Ac / 0.00 SF
PERMANENT STREAM IMPACTS = 88 LF
TEMPORARY STREAM IMPACTS = 28 LF

5/5
15/15
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

WETLAND & STREAM IMPACTS

HNTB
HNTB NORTH CAROLINA, P.C.
349 E. ST. JOSEPH ROAD, SUITE 200
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. C-1684

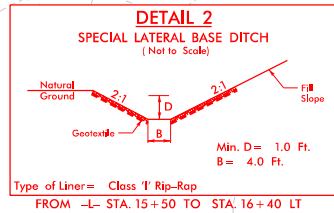
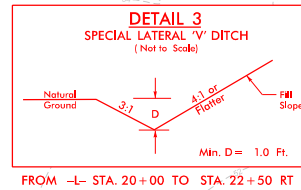
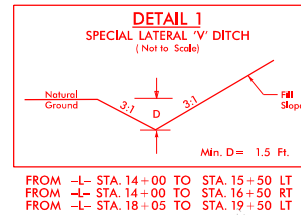
PROJECT REFERENCE NO.		SHEET NO.
B-5994		4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

PERMIT DRAWING
SHEET 3 OF 7

BEGIN CONSTRUCTION
BEGIN PROJECT B-5994
-L- POC STA 14+00.00

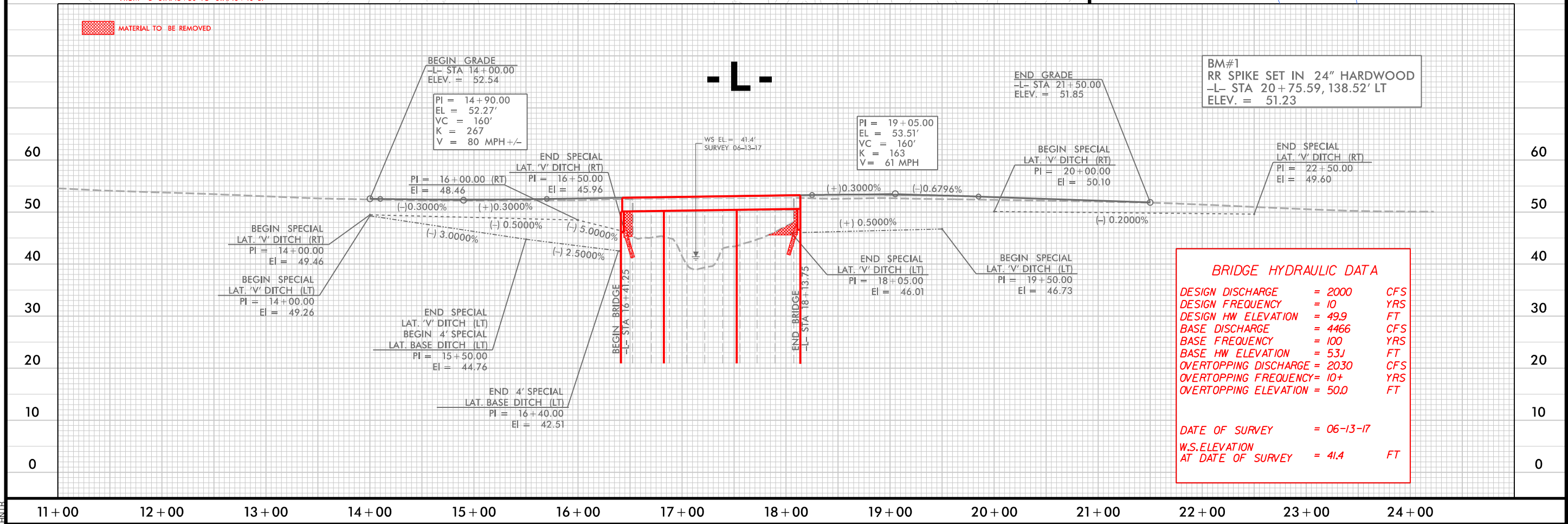
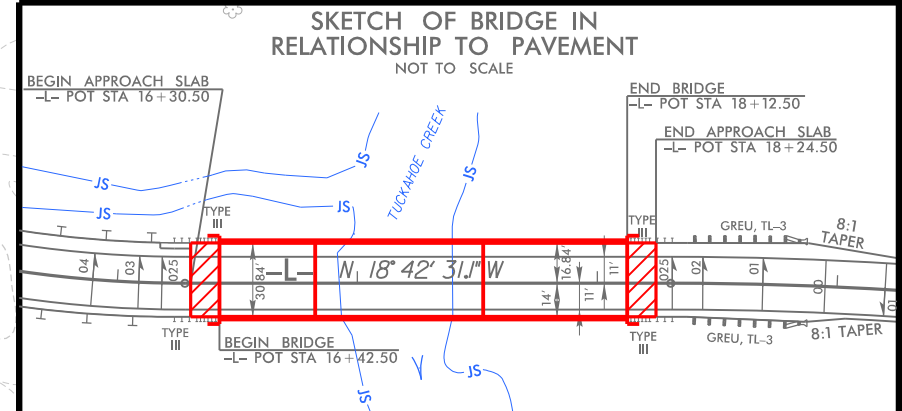
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-L- POT STA 21+50.00

END CONSTRUCTION
PROJECT B-5994
-L- STA 22+50.00



W3
HAND CLEARING IN WETLANDS = 0.00 Ac / 0.00 SF
FILL IN WETLANDS = 0.00 Ac / 0 SF

W4
HAND CLEARING IN WETLANDS = 0.00 Ac / 0.00 SF
FILL IN WETLANDS = 0.00 Ac / 0.00 SF



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2000	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 49.9	FT
BASE DISCHARGE	= 4466	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 53.1	FT
OVERTOPPING DISCHARGE	= 2030	CFS
OVERTOPPING FREQUENCY	= 10+	YRS
OVERTOPPING ELEVATION	= 50.0	FT
DATE OF SURVEY	= 06-13-17	
W.S. ELEVATION AT DATE OF SURVEY	= 41.4	FT

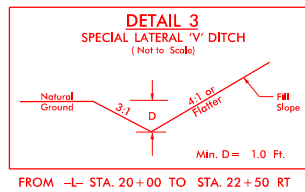
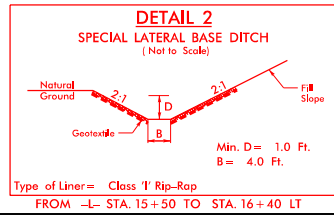
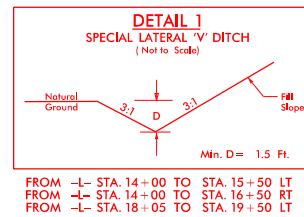
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9/17/2018
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HNTB

LEGEND	
	ALLOWABLE IMPACTS ZONE 1
	ALLOWABLE IMPACTS ZONE 2

B1
ZONE 1 BUFFER IMPACTS = 535 SF
ZONE 2 BUFFER IMPACTS = 227 SF

BEGIN CONSTRUCTION
BEGIN PROJECT B-5994
-L- POC STA 14+00.00



B2
ZONE 1 BUFFER IMPACTS = 563 SF
ZONE 2 BUFFER IMPACTS = 261 SF

BUFFER IMPACTS

HNTB HNTB NORTH CAROLINA, P.C.
349 E. SIX FORKS ROAD, SUITE 200
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. C-1884

B3
ZONE 1 BUFFER IMPACTS = 518 SF
ZONE 2 BUFFER IMPACTS = 351 SF

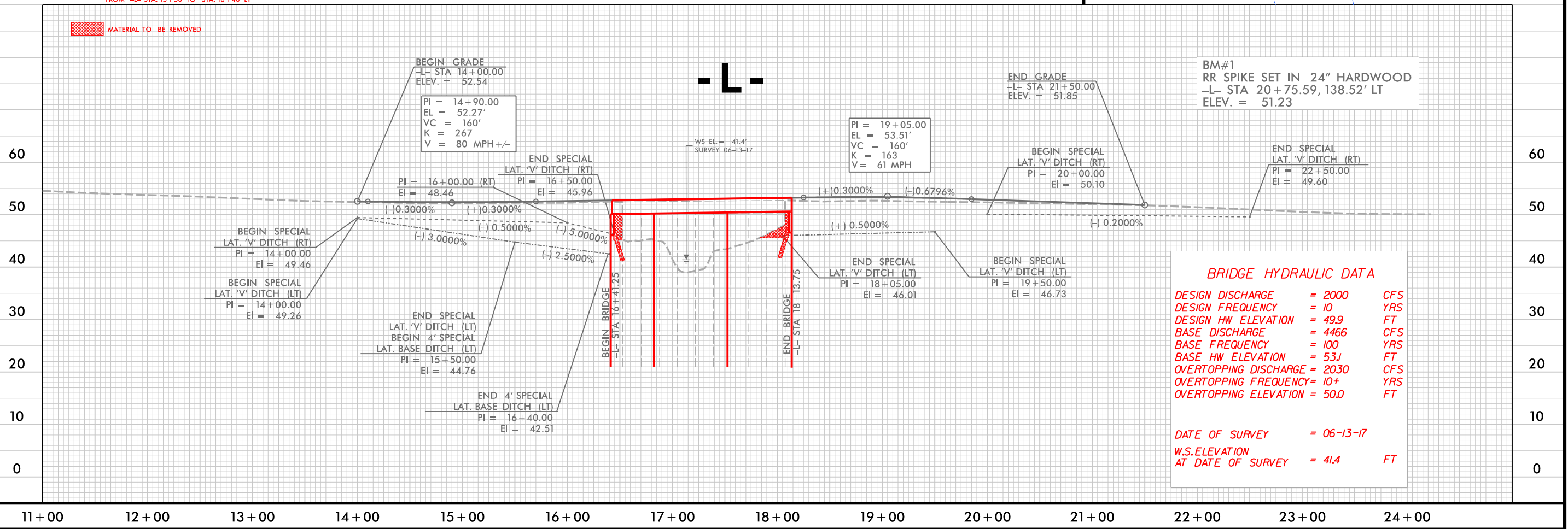
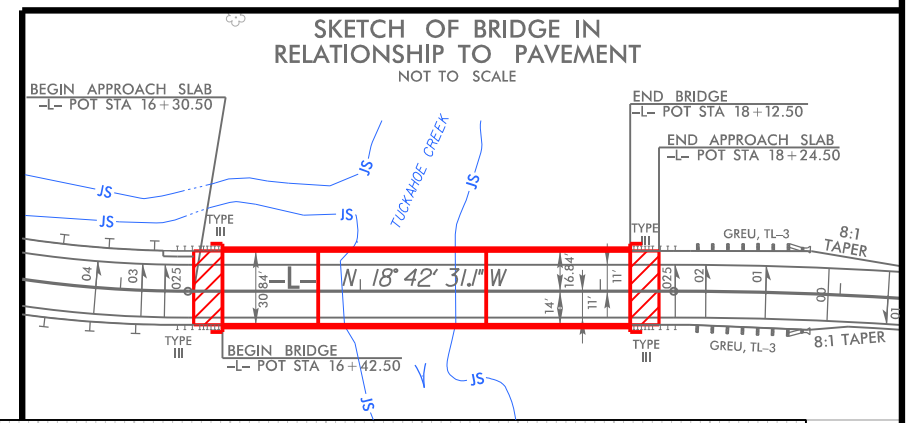
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B-5994		4
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ROADWAY DESIGN ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

PERMIT DRAWING
SHEET 4 OF 7

NAD 83/NA 2011

END PROJECT B-5994
-L- POT STA 21+50.00

END CONSTRUCTION
PROJECT B-5994
-L- STA 22+50.00



WETLAND AND SURFACE WATER IMPACTS 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	15+42 TO 16+60	24" CORED SLAB BRIDGE						0.02	< 0.01	88	28	
TOTALS*:								0.02	< 0.01	88	28	0

*Rounded totals are sum of actual impacts

NOTES:

Permanent SW impacts: 1033 SF

Temporary SW impacts: 229 SF

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
9/7/2018
JONES COUNTY
B-5994

SHEET 5 OF 7

RIPARAIN BUFFER IMPACTS SUMMARY

[illegible]

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JONES COUNTY BRIDGE NO. 32
B-5994

DATE: 9/7/2018
SHEET 6 OF 7

Rev. SEP 2016

WETLANDS IN BUFFER IMPACTS SUMMARY

			WETLANDS IN BUFFERS	
SITE NO.	STATION (FROM/TO)		ZONE 1 (ft ²)	ZONE 2 (ft ²)
1	-L- 16+48 TO 18+13		0	0
TOTAL:			0	0

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JONES COUNTY BRIDGE NO. 32
B-5994

DATE: 9/7/2018
SHEET 7 OF 7