North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 17BP.2.R.104 **TIP No.:** **County(ies):** Beaufort

General Project Information

WBS Element:	17BP.2.R.104	**TIP Number:**		**Project Type:**	Bridge Replacement	**Date:**	3/17/2020
NCDOT Contact:	Robert T. Turnbull, Environmental Services, Inc.			**Contractor / Designer:**	HNTB North Carolina, P.C. / James A. Byrd, PE		
	Address: 4901 Trademark Dr. Raleigh, NC 27610			**Address:**	343 E. Six Forks Road Suite 200 Raleigh, NC 27609		
	Phone: (919) 212-1760			**Phone:**	(919) 424-0437		
	Email: rturnbull@esinc.cc			**Email:**	jabyrd@hntb.com		
City/Town:	Aurora			**County(ies):**	Beaufort		
River Basin(s):	Tar-Pamlico			**CAMA County?**	Yes		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.10	**Surrounding Land Use:**	Rural Residential and Agriculture

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.6 ac.	0.3 ac.
Typical Cross Section Description:	2 - 10' asphalt paved lanes with 2' paved shoulders, 4' grass shoulders.	2 - 10' asphalt paved lanes with grass shoulders.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 620 2033	Existing: 310 Year: 2013

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

State project 17BP.2.R.104 involves the replacement of Beaufort County Bidge #060037 on SR 1923 (West Road) over South Creek. The existing bridge consists of 1@20'-3", 4@20'-0", and 1@20'-2" steel plank floor/cont. I-beams. It is to be replaced with a 1@40'-0", 1@50'-0" and 1@40'-0" 21" cored slab (130' total length, 33' total width) at the same location.

The project includes 0.04 miles of roadway improvements on the west end of the bridge and 0.04 miles on the east end of the bridge. In accordance with Tar-Pamlico River Buffer Regulations, the proposed bridge does not contain deck drains. Stormwater from the bridge and approaches will be collected by two storm drainage system and a modified concrete flume at -L- station 24+87 LT, -L- station 26+22 LT, and -L- station 22+85 LT. All drainage system will discharge outside of buffer zone and later discharge into wetland. Welands exist in all four quadrants, however the outlet is outside all wetland boundries. Class 'I' and 'B' rip rap pads are specified at the drainage outlets to lower discharge velocity and to minimize erosion. No existing and proposed ditch within the project limit.

Waterbody Information

Surface Water Body (1):	South Creek		**NCDWR Stream Index No.:**	29-28-(4)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class SC		
		Supplemental Classification:	Nutrient Sensitive Waters (NSW)		
Other Stream Classification:					
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:				**Buffer Rules in Effect:**	Tar-Pamlico

Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**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)					

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

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WBS Element: **TIP No.:** **County(ies):** Beaufort

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
4	-L- Sta. 26+24.85 RT 35.27804, -76.78352	(1)South Creek	Riprap Energy Dissipator Basin	Class 'B'	0.1	Pipe	15	0.7	0.3	N/A

Additional Comments

* 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.

09/08/09

TIP PROJECT: 17BP.2.R.104

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

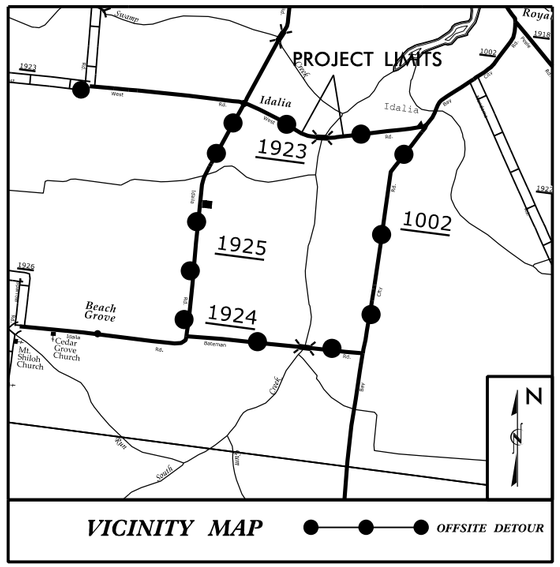
LOCATION: REPLACE BRIDGE NO. 37 OVER SOUTH CREEK ON SR 1923 (WEST RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.2.R.104	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.2.R.104		PE
17BP.2.R.104		R/W / UTIL

PERMIT DRAWING
SHEET 1 OF 9

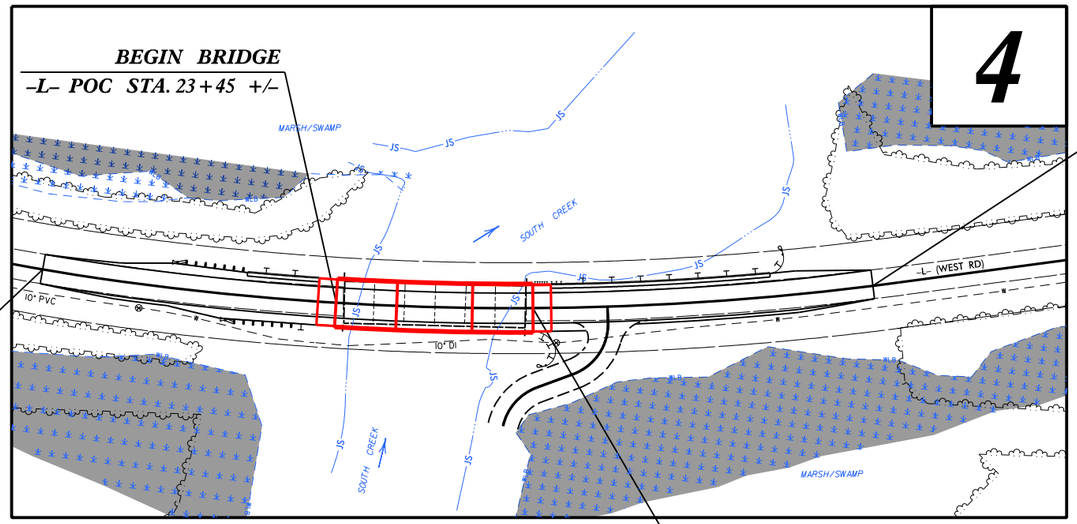


DRAFT R/W PLANS

WETLAND AND SURFACE WATER IMPACTS PERMIT

404 WETLANDS

CAMA WETLANDS



BEGIN PROJECT 17BP.2.R.104
-L- POC STA. 21+50.00

END PROJECT 17BP.2.R.104
-L- POC STA. 27+00.00

NC GRID
NAD 83 NA 2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 2013 = 310
ADT 2033 = 620
K = 10 %
D = 60 %
T = 4 % *
V = 50 MPH
* TTST = 1% DUAL 3%
FUNC CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.2.R.104 = 0.079 MILES
LENGTH OF STRUCTURE PROJECT 17BP.2.R.104 = 0.025 MILES
TOTAL LENGTH OF PROJECT 17BP.2.R.104 = 0.104 MILES

PREPARED IN THE OFFICE OF:
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
FOR NCDOT DIVISION 2

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 3, 2020

LETTING DATE:
SEPTEMBER 9, 2020

ROY H. TELLIER, PE
PROJECT ENGINEER

MICHAEL C. AMAN, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

3/11/2020
17BP.2.R.104_HYD_PRM_TSH.dgn
HNTB

8/17/99

WETLAND & STREAM IMPACTS

404 WETLANDS

CAMA WETLANDS

W1
IMPACTS IN SURFACE WATER = <0.01 Ac/43 SF
TEMPORARY IMPACTS IN SURFACE WATER = 0.02 Ac/660 SF

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.2.R.104	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NC GRID NAD 83 NA 2011

PERMIT DRAWING SHEET 2 OF 9

BEGIN PROJECT 17BP.2.R.104
-L- POC STA. 21+50.00

END PROJECT 17BP.2.R.104
-L- POC STA. 27+00.00

PCS PHOSPHATE COMPANY, INC

MARSH/SWAMP

404 WETLAND

CLASS 'I' RIP-RAP
EST. 2 TONS
EST. 8 SYGF

MODIFIED CONCRETE FLUME
STA. 22+91.08 LT

ROCK EMBANKMENT FOR 2:1 SLOPES

IMPERVIOUS DIKE

SOUTH CREEK

DRILL PIT (ENTRY)

DRILL PIT (EXIT)

TB2GI

15" RCP-V

CLASS 'B' RIP-RAP
EST. 1 TONS
EST. 5 SYGF

-L- PCC Sta. 21+87.19

-L- PC Sta. 30+25.56

-L- PT Sta. 27+17.19

N 74° 53' 05.9" E

SR 1923 (WEST ROAD) 19' BST

EXISTING R/W

WOODED

3 YANCEY TYRE, HEIRS

2 BURNETT PURNELL

1 PCS PHOSPHATE COMPANY, INC

W2
IMPACTS IN SURFACE WATER = 0.02 Ac/1043 SF
TEMPORARY IMPACTS IN SURFACE WATER = 0.01 Ac/506 SF

TEMP. IMPACTS IN SURFACE WATER BY IMPERVIOUS DIKES

W4
IMPACTS IN SURFACE WATER = 0.00 Ac/0 SF
FILL IN WETLANDS (CAMA) = <0.01 Ac/92 SF

-L- Sta. 25+24.24
-DRW01 Sta. 10+00.00
S 9° 19' 36.9" E

-DRW01- PC Sta. 10+10.45

-DRW01- PT Sta.

S 62° 08' 32.2" W

-DRW01- PC Sta. 10+80.26

END CONSTRUCTION
-DRW01- PT Sta. 11+15.25

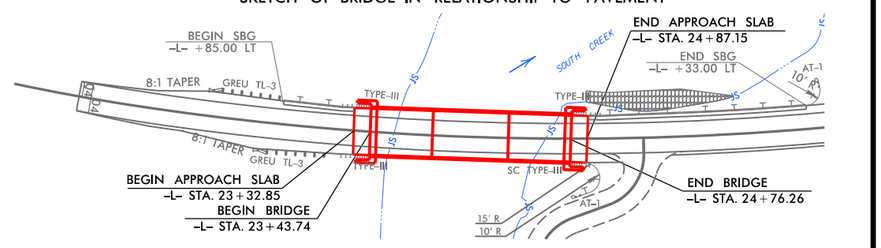
MATERIAL TO BE REMOVED

SCALE: 1" = 20'

LEGEND

- F F — DENOTES FILL IN WETLAND
- S S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT



-L-

BM#1 BENCHTIE IN 12" GUM TREE
-L- STA 27+30.11, 147.25 LT
ELEV. = 4.12

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2326	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 18	FT
BASE DISCHARGE	= 3550	CFS
BASE FREQUENCY	= 100 (FEMA)	YRS
BASE HW ELEVATION	= 21	FT
OVERTOPPING DISCHARGE	= >5332 (+)	CFS
OVERTOPPING FREQUENCY	= >500 (+)	YRS
OVERTOPPING ELEVATION	= 3.29	FT
DATE OF SURVEY	= 4-10-19	
W.S.ELEVATION AT DATE OF SURVEY	= 1.0	FT

PI = 22+25.00
EL = 3.62'
K = 98
VC = 150'

PI = 24+00.00
EL = 5.77'
K = 97
VC = 200'

PI = 26+00.00
EL = 4.11'
K = 376
VC = 200'

BEGIN GRADE
-L- STA 21+50.00
ELEV. = 3.84

WS EL= 1.0'
SURVEY 04-10-19

(-)0.3000%
(+)1.2300%
(-)0.8313%
(-)0.8313%
(-)0.3000%

DRILL PIT
BEGIN BRIDGE
-L- STA 23+43.74
END BRIDGE
-L- STA 24+76.26
END GRADE
-L- STA 27+00.00
ELEV. = 3.81
DRILL PIT

30'
20'
10'
0'
-10'
-20'

22+00 23+00 24+00 25+00 26+00 27+00

20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00

-DRW01-

PI = 10+35.00
EL = 4.89'
K = 12
VC = 50'

PI = 10+85.00
EL = 2.25'
K = 18
VC = 50'

(-)1.0000%
(-)5.2900%
(-)5.2900%
(-)2.5000%

END GRADE
-DRW01- STA 11+15.25
ELEV. = 1.49

BEGIN GRADE
-DRW01- STA 10+10.00
ELEV. = 5.14

10+00 11+00 12+00

6/23/2021
17BP.2.R.104_HYD_PRM_wet_PSH4.dgn
HNTB

8/17/99

WETLAND & STREAM IMPACTS

404 WETLANDS

CAMA WETLANDS

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TEMPORARY IMPACTS IN SURFACE WATER = 0.02 Ac/660 SF

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IMPACTS IN SURFACE WATER = 0.02 Ac/1043 SF
TEMPORARY IMPACTS IN SURFACE WATER = 0.01 Ac/506 SF

W4
IMPACTS IN SURFACE WATER = 0.00 Ac/0 SF
FILL IN WETLANDS (CAMA) = <0.01 Ac/92 SF

TEMP. IMPACTS IN SURFACE WATER BY IMPERVIOUS DIKES

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PROJECT REFERENCE NO.	SHEET NO.
17BP.2.R.104	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NC GRID NAD 83 NA 2011

PERMIT DRAWING SHEET 3 OF 9

BEGIN PROJECT 17BP.2.R.104
-L- POC STA. 21+50.00

END PROJECT 17BP.2.R.104
-L- POC STA. 27+00.00

PCS PHOSPHATE COMPANY, INC

MODIFIED CONCRETE FLUME STA. 22+91.08 LT

CLASS 'I' RIP-RAP EST. 2 TONS EST. 8 SYGF

ROCK EMBANKMENT FOR 2:1 SLOPES

IMPERVIOUS DIKE

SOUTH CREEK

15" RCP-V

CLASS 'B' RIP-RAP EST. 1 TONS EST. 5 SYGF

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-L- Sta. 25+24.24
-DRW01- Sta. 10+00.00
S 9°19'36.9" E

-DRW01- PC Sta. 10+10.45

-DRW01- PT Sta. 10+80.26

S 62°08'32.2" W

END CONSTRUCTION
-DRW01- PT Sta. 11+15.25

-L- PC Sta. 30+25.56

YANCEY TYRE, HEIRS

-L- PT Sta. 27+17.19

N 74°53'05.9" E

SR 1923 (WEST ROAD) 19' BST

BURNETT PURNELL

1 PCS PHOSPHATE COMPANY, INC

2 BURNETT PURNELL

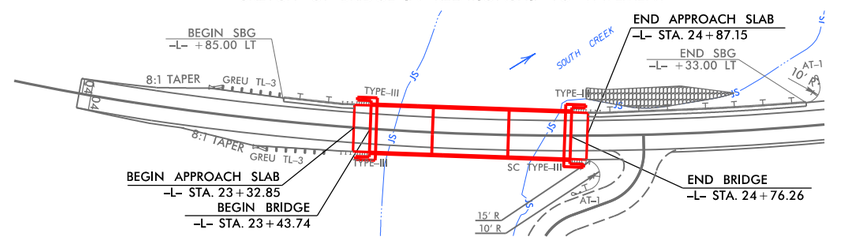
3 YANCEY TYRE, HEIRS

MATERIAL TO BE REMOVED

SCALE: 1" = 20'

LEGEND
- F F — DENOTES FILL IN WETLAND
- S S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT



-L-

BM#1 BENCHTIE IN 12" GUM TREE
-L- STA 27+30.11, 147.25 LT
ELEV. = 4.12

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 2326	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 18	FT
BASE DISCHARGE	= 3550	CFS
BASE FREQUENCY	= 100 (FEMA)	YRS
BASE HW ELEVATION	= 21	FT
OVERTOPPING DISCHARGE	= >5332 (+)	CFS
OVERTOPPING FREQUENCY	= >500 (+)	YRS
OVERTOPPING ELEVATION	= 3.29	FT
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W.S.ELEVATION AT DATE OF SURVEY	= 1.0	FT

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EL = 3.62'
K = 98
VC = 150'

PI = 24+00.00
EL = 5.77'
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VC = 200'

PI = 26+00.00
EL = 4.11'
K = 376
VC = 200'

BEGIN GRADE
-L- STA 21+50.00
ELEV. = 3.84

WS EL= 1.0'
SURVEY 04-10-19

(+)1.2300%
(-)0.8313%
(-)0.3000%
(+)1.2300%
(-)0.8313%
(-)0.3000%

END GRADE
-L- STA 27+00.00
ELEV. = 3.81

DRILL PIT
BEGIN BRIDGE
-L- STA 23+43.74
END BRIDGE
-L- STA 24+76.26
DRILL PIT

30' 20' 10' 0' -10' -20'

22+00 23+00 24+00 25+00 26+00 27+00

20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00

-DRW01-

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EL = 4.89'
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EL = 2.25'
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VC = 50'

(-)1.0000%
(-)5.2900%
(-)5.2900%
(-)2.5000%

END GRADE
-DRW01- STA 11+15.25
ELEV. = 1.49

BEGIN GRADE
-DRW01- STA 10+10.00
ELEV. = 5.14

30' 20' 10' 0' -10' -20'

10+00 11+00 12+00

6/23/2021
17BP.2.R.104_HYD_PRM_wet_PSH4.dgn
HNTB

BUFFER IMPACTS

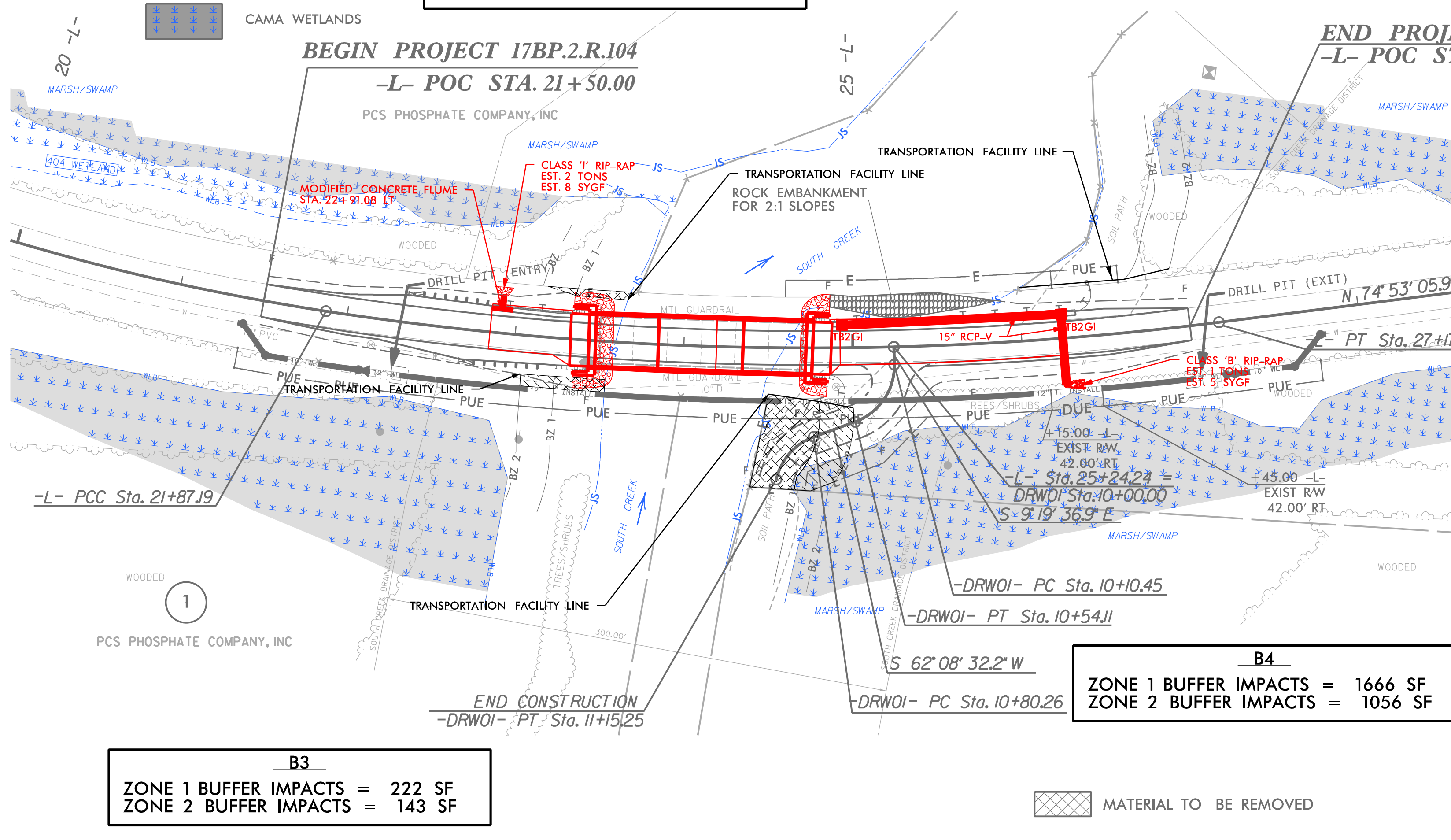
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO. 17BP.2.R.104 | SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 4 OF 9

404 WETLANDS
CAMA WETLANDS

B1
ZONE 1 BUFFER IMPACTS = 136 SF
ZONE 2 BUFFER IMPACTS = 36 SF

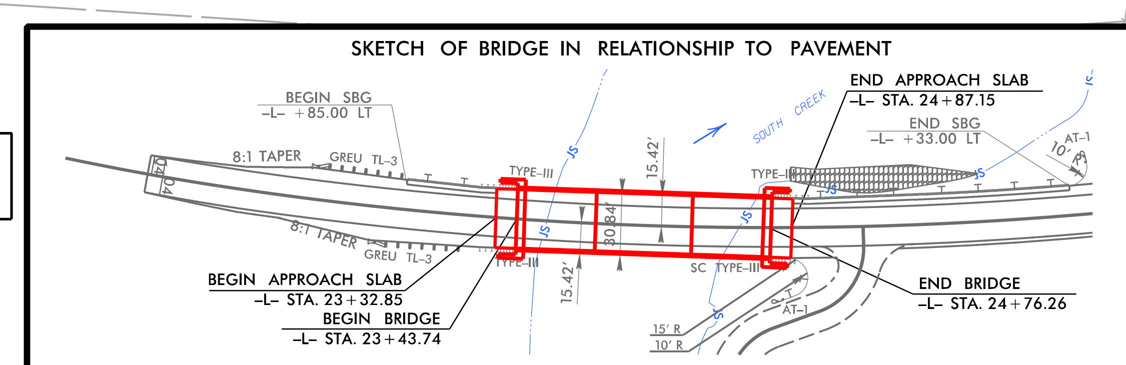


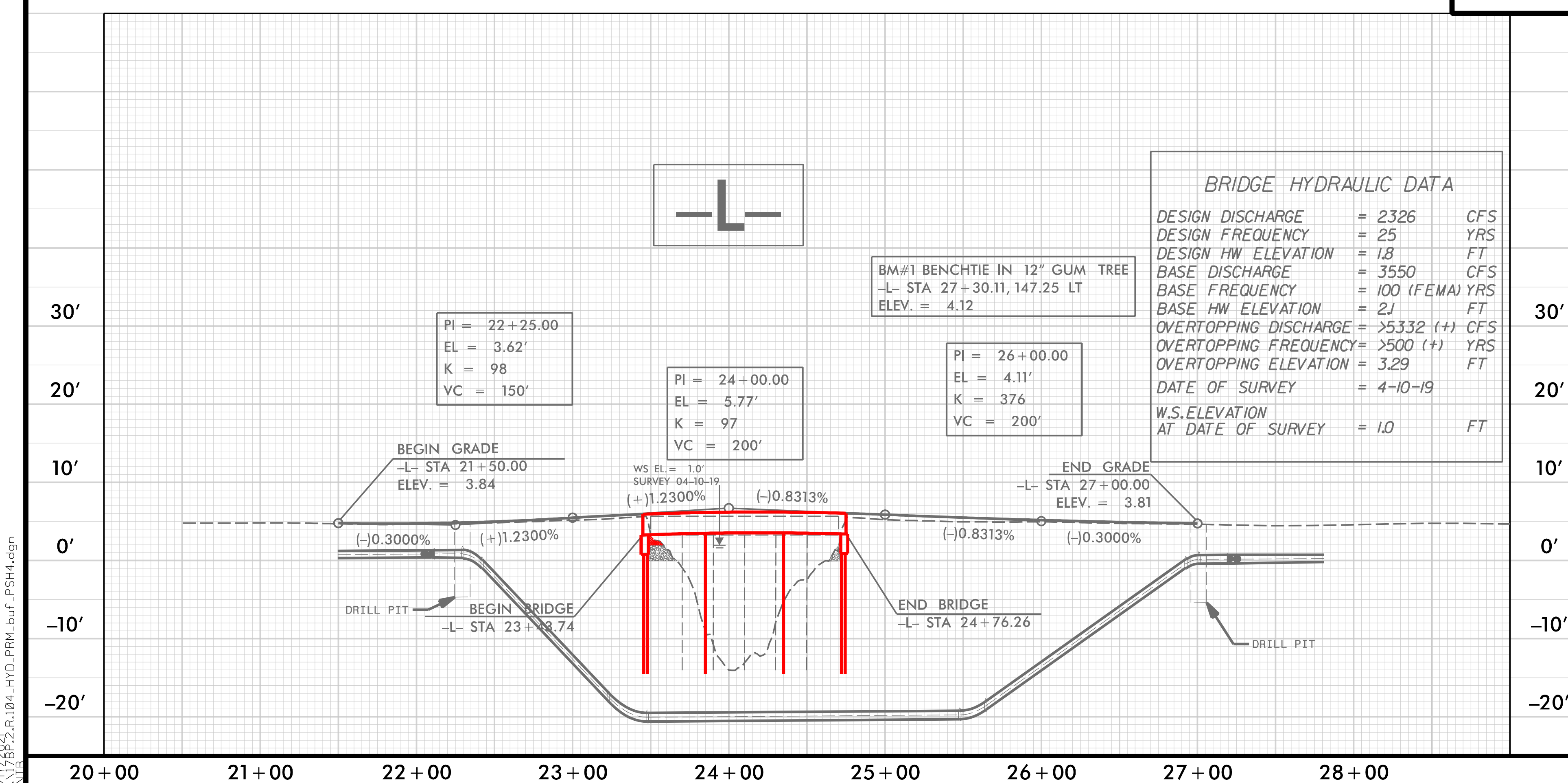
B4
ZONE 1 BUFFER IMPACTS = 1666 SF
ZONE 2 BUFFER IMPACTS = 1056 SF

B3
ZONE 1 BUFFER IMPACTS = 222 SF
ZONE 2 BUFFER IMPACTS = 143 SF

MATERIAL TO BE REMOVED

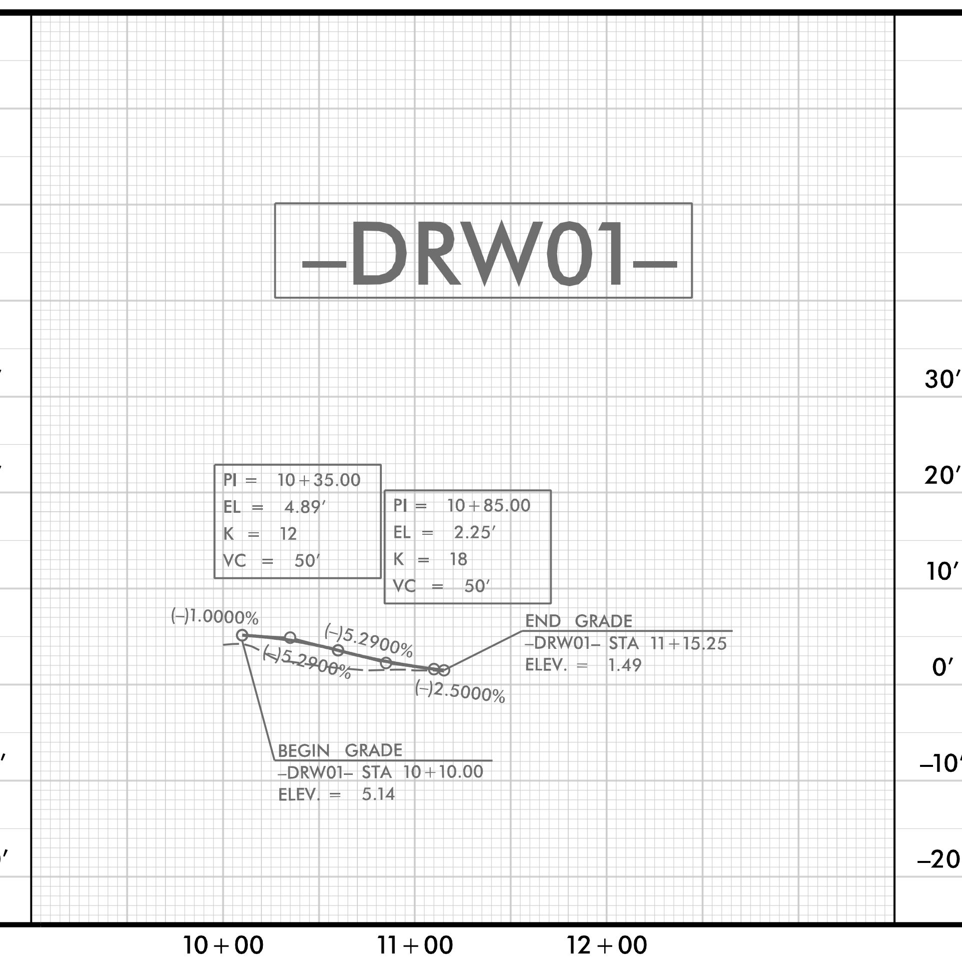
SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT





BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	2326	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	1.8	FT
BASE DISCHARGE	=	3550	CFS
BASE FREQUENCY	=	100 (FEMA)	YRS
BASE HW ELEVATION	=	2.1	FT
OVERTOPPING DISCHARGE	=	>5332 (+)	CFS
OVERTOPPING FREQUENCY	=	>500 (+)	YRS
OVERTOPPING ELEVATION	=	3.29	FT
DATE OF SURVEY	=	4-10-19	
W.S.ELEVATION AT DATE OF SURVEY	=	1.0	FT



8/17/99
5/17/2021
17BP.2.R.104_HYD_PRM_buf_PSH4.dgn

8/17/99

BUFFER IMPACTS

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.2.R.104	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 5 OF 9

404 WETLANDS

CAMA WETLANDS

B1
ZONE 1 BUFFER IMPACTS = 136 SF
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B2
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ZONE 2 BUFFER IMPACTS = 143 SF

BEGIN PROJECT 17BP.2.R.104
-L- POC STA. 21+50.00
PCS PHOSPHATE COMPANY, INC

END PROJECT 17BP.2.R.104
-L- POC STA. 27+00.00

-L- PC Sta. 30+25.56
YANCEY TYRE, HEIRS

-L- PT Sta. 27+17.19

-L- PCC Sta. 21+87.19

-L- Sta. 25+24.24

DRW01 Sta. 10+00.00

N 74° 53' 05.9" E

S 9° 19' 36.9" E

S 62° 08' 32.2" W

-DRW01- PC Sta. 10+10.45

-DRW01- PT Sta. 10+54.11

-DRW01- PC Sta. 10+80.26

END CONSTRUCTION
-DRW01- PT Sta. 11+15.25

1 PCS PHOSPHATE COMPANY, INC

2 BURNETT PURNELL

3 YANCEY TYRE, HEIRS

MODIFIED CONCRETE FLUME
STA. 22+91.08 LT

CLASS 'I' RIP-RAP
EST. 2 TONS
EST. 8 SYGF

CLASS 'B' RIP-RAP
EST. 1 TONS
EST. 5 SYGF

ROCK EMBANKMENT FOR 2:1 SLOPES

TRANSPORTATION FACILITY LINE

15" RCP-V

TB2GI

DRILL PIT (ENTRY)

DRILL PIT (EXIT)

SOUTH CREEK

SOUTH CREEK DRAINAGE DITCH

SOIL PATH

SR 1923 (WEST ROAD) 19' BST

EXISTING R/W

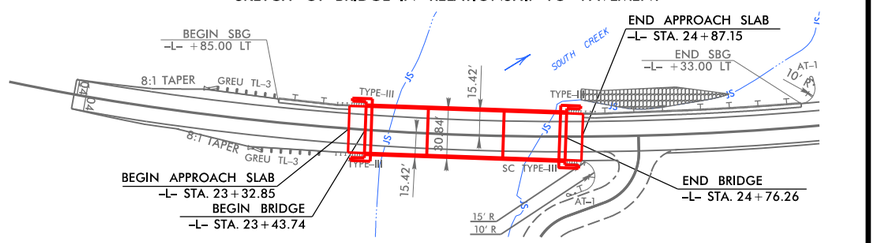
MATERIAL TO BE REMOVED

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

NC GRID NAD 83 NA 2011

SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT



-L-

BM#1 BENCHTIE IN 12" GUM TREE
-L- STA 27+30.11, 147.25 LT
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EL = 3.62'
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VC = 150'

PI = 24+00.00
EL = 5.77'
K = 97
VC = 200'

PI = 26+00.00
EL = 4.11'
K = 376
VC = 200'

BEGIN GRADE
-L- STA 21+50.00
ELEV. = 3.84

WS EL= 1.0'
SURVEY 04-10-19

(+)1.2300%
(-)0.8313%
(-)0.3000%
(+)1.2300%
(-)0.8313%
(-)0.3000%

DRILL PIT
BEGIN BRIDGE
-L- STA 23+43.74
END BRIDGE
-L- STA 24+76.26
DRILL PIT

END GRADE
-L- STA 27+00.00
ELEV. = 3.81

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2326	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1.8	FT
BASE DISCHARGE	= 3550	CFS
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OVERTOPPING DISCHARGE	= >5332 (+)	CFS
OVERTOPPING FREQUENCY	= >500 (+)	YRS
OVERTOPPING ELEVATION	= 3.29	FT
DATE OF SURVEY	= 4-10-19	
W.S. ELEVATION AT DATE OF SURVEY	= 1.0	FT

-DRW01-

PI = 10+35.00
EL = 4.89'
K = 12
VC = 50'

PI = 10+85.00
EL = 2.25'
K = 18
VC = 50'

(-)1.0000%
(-)5.2900%
(-)5.2900%
(-)2.5000%

BEGIN GRADE
-DRW01- STA 10+10.00
ELEV. = 5.14

END GRADE
-DRW01- STA 11+15.25
ELEV. = 1.49

30'
20'
10'
0'
-10'
-20'

20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00

10+00 11+00 12+00

5/17/2022
17BP.2.R.104_HYD_PRM_buf_PSH4.dgn
HNTB

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.2.R.104	X–11

PERMIT DRAWING
SHEET 6 OF 9

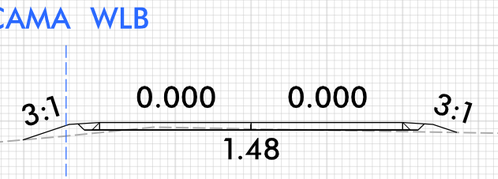
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55

20
15
10
5
0
–5
–10
–15

END GRADE –DRW01– STA. 11+15.25

CAMA WLB

JS



11+00.00

–DRW01–

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

2/20/2020
\17BP2R104_prm_DRW01_xp1.dgn
HNTB

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)
W1	-L- 23+55 to 23+64							0.001	0.015			
W2	-L- 24+64 to 25+86							0.024	0.012	144		
W4	-L- 24+64 to 25+15		0.002									
TOTALS*:			0.002					0.025	0.027	144	0	0

*Rounded totals are sum of actual impacts

NOTES:
Permanent Fill in Wetlands: 92 SF
Permanent Surface Water Impacts: 1086 SF
Temporary Surface Water Impacts: 1165 SF

NC DEPARTMENT OF TRANSPORTATION
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RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			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)
B1	-L- 23+17 TO 23+67 LT	21" CORED SLAB BRIDGE		X		136	36						
B3	-L- 23+05 TO 23+55 RT	21" CORED SLAB BRIDGE		X		222	143						
B4	-L- 24+41 TO 25+00 RT	21" CORED SLAB BRIDGE		X		1666	1056						
TOTALS*:						**2024**	**1235**	**0**	**0**	**0**	**0**	**0**	**0**

NOTES:

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WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
B4	-L- 24+64 to 24+96 RT		8.37	364.25
TOTAL:			**8.373**	**364.251**

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Revised 2018 Feb

Rev. Jan 2009