STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J.R. "JOEY" HOPKINS
SECRETARY

December 8, 2023

U.S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

NCDEQ – Water Resources
1611 Mail Service Center
Raleigh, NC 27699-1611

ATTN: Mr. Eric Alsmeyer and Mr. Rob Ridings

Subject: Request for Modification of the Phased Section 404 Individual Permit and Section 401 Individual Water Quality Certification, Neuse River Riparian Buffer Authorization for the construction of the Triangle Expressway Southeast Extension from NC-55 Bypass in Apex to I-40, Wake and Johnston Counties. TIP Nos. R-2721, R-2828, and R-2829. Debit $570.00 from WBS 35516.1.TA1.

Reference: USACE Section 404 Authorization SAW-2009-02240, issued October 24, 2019, modified February 4, 2020 (corrected revision issued February 7, 2020), April 29, 2020, January 7, 2021, March 19, 2021, March 3, 2022, July 1, 2022, September 13, 2022, February 17, 2023, June 21, 2023, July 19, 2023, and August 4, 2023.

NCDWR Water Quality Certification Number 4179 and Neuse River Riparian Buffer Authorization, issued February 15, 2019, modified January 30, 2020, April 20, 2020, June 1, 2020, December 29, 2020, March 9, 2021, April 8, 2021, November 1, 2021, May 18, 2022, July 22, 2022, February 15, 2023, July 19, 2023, and August 4, 2023.

Dear Sirs:

As you are aware, the North Carolina Department of Transportation (NCDOT) applied for a phased Section 404 Individual Permit, Section 401 Individual Water Quality Certification (WQC), Neuse River Riparian Buffer Authorization, Non-404 Jurisdictional Wetlands and Waters Permit for the subject project in September 2018. The project, also known as Complete 540, encompasses three NCDOT Transportation Improvement Plan (TIP) projects: R-2721 (NC-55 Bypass to US-401), R-2828 (east of US-401 to I-40 Interchange) and R-2829 (east of I-40 to US 64/264). Revised permit applications were submitted in February 2019 and the NCDWR 401 and USACE 404 Permits were issued in February and October of 2019. Additionally, NCDOT received a modified 401 WQC for the Complete 540 Project on January

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TURNPIKE AUTHORITY
1578 MAIL SERVICE CENTER
RALEIGH, NC 27699-1578

TELEPHONE: 919-707-2700
FAX: 919-715-551
Customer Service: 1-877-3684968

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601

WEBSITE: NCDOT.GOV

30, 2020, April 23, 2020, June 1, 2020, December 29, 2020, March 9, 2021, April 8, 2021, November 1, 2021, May 18, 2022, July 22, 2022, February 15, 2023, June 19, 2023, July 19, 2023, and August 4, 2023 from the NC Division of Water Resources (NCDWR) and a modified Department of the Army authorization #SAW-2009-02240 on February 4, 2020 (revision issued on February 7, 2020), April 29, 2020, January 7, 2021, March 19, 2021, March 3, 2022, July 1, 2022, September 13, 2022, February 17, 2023, June 21, 2023, July 19, 2023, and August 4, 2023

This letter is a request for a modification to the R-2828 section of the Complete 540 project that will add impacts at Site 41 for a realignment and restoration of Stream SCY. Due to recent storms, it appears the stream section behind the noise wall has eroded and is at risk of losing the bank, which would impact the stability of the noise wall and the ditch behind it.

Avoidance/Minimization

The stream channel (SCY) at Site 41 located at STA 814+00 to 815+00 -L- Lt has become deeply incised with failing and unstable banks in close proximity to the proposed noise wall and ditchline location. Alternatives considered included adding additional bank stabilization to the failing banks or utilizing natural channel design to relocate the channel away from the future noise wall and ditchline. It was determined that bank stabilization was not feasible as the existing banks are nearly vertical and approximately 15-feet in height. Bank stabilization would also not address or eliminate the conflict with the long-term stability and durability of the future noise wall and ditchline, as well as the potential safety issues for maintenance of both structures, which will be immediately adjacent to the steep and failing banks. Relocating the channel away from the area of scour was determined to not be practical as the natural topography would require extensive clearing and excavation into the hillside in order to create a stable channel. Additionally, there is not enough room between the existing sections of rip rap lined channel relocation to adequately design a functioning natural channel with appropriate pattern, dimension and profile.

Therefore, the alternative chosen is to connect the two existing sections of rip rap lined channel relocation with an additional section of rip rap lined channel. This modification will effectively control the sheer forces within this channel, manage and protect downstream water quality, while also preventing any continued bank failures, which could jeopardize the noise wall and the permanent ditchline structures.

Jurisdictional Impacts

The proposed activity requires the relocation of the channel and the addition of rip rap, which will result in additional permanent stream impacts due to the realignment of the stream away from the fill slope and the noise wall. The increased permanent stream impacts will impact streams in the Neuse River Basin (HUC 03020201), as detailed below. Included in this package are updated drawings for Site 41 (Permit Sheets 1, 90, 91, 92, and 93 of 171 and Buffer Sheets 1 and 16 of 42) and updated permit summary sheets 166 through 171 of 171 and updated buffer summary sheets 37 through 42 of 42.

Permit Site 41:

The proposed impacts to Site 41 (SCY) are associated with the realignment of the stream and are described below:

- Permit Site 41 (Permit Drawing 90, 91, 92, and 93 of 171, Plan Sheet 24 and 24A)
    - Permanent stream impacts:
        - Increase of 0.03 acre of permanent surface water impacts.
        - Increase of 236 linear feet of permanent surface water impacts.
- Buffer Site 41 (Buffer Drawing 16 of 42, Plan Sheet 24)
    - Riparian buffer impacts
        - Increase of 7,887 square feet of buffer zone 1 impacts

Revised Impacts Summary R-2828

Due to the changes described above for R-2828, the total project impacts will now be as listed below.

Revised Table 4. R-2828 Jurisdictional Resources Impacts

Riparian Wetlands Temp./ Perm. (ac)	Non-Riparian Wetlands Perm. (ac)	Isolated Wetlands (ac)	Ponds (ac)	Isolated Ponds (ac)	Streams (lf)			Mitigable Riparian Buffer Impacts (sq ft) Zone 1/2
					Perm.	Temp.	Structure* Stab.	After Mitigation Ratio
4.85 / 19.55	0.07	0.25	8.32	n/a	17,078 (+236)	1,772	2,122	2,616,678/ 820,848

***Structure stabilization is pipe, culvert, and bank stabilization.**

Revised Table 19 has been modified to show the updated riparian buffer impacts and the amount that each total increased is noted in parenthesis below.

Revised Table 19. Riparian Buffer Impacts (sq ft)

Mitigation Requirement	Allowable with mitigation*	Allowable with mitigation**	Allowable^	Total Impacts^	Wetlands in Buffer^^	Impacts Requiring Mitigation
Zone 1 Impact	**166,196** (+7,887)	885,686 (0)	132,820 (0)	1,184,702 (+7,887)	179,656 (0)	**872,226** (+7,887)
Zone 2 Impact	103,074 (0)	528,324 (0)	84,663 (0)	716,061 (0)	84,166 (0)	**547,232** (0)

* Impacts other than Road Crossing. **Road Crossing, ^ Includes utility impacts, ^^ Allowable non-mitigable buffer impacts have been deducted from wetlands in buffers.

Compensatory Mitigation

NCDOT has requested additional stream mitigation for R-2828 from the North Carolina Division of Mitigation Services (NCDMS) due to an increase in stream impacts from 16,842 to 17,078 feet, a difference of 236 feet. NCDOT has requested additional riparian buffer mitigation in the Neuse River Basin due to an increase from 864,339 square feet of Zone 1

buffer impacts to 872,226 square feet, a difference of 7,887 square feet. Zone 1 is calculated at a 3:1 ratio from NCDMS. The revised NCDMS acceptance letter for the increased mitigation is attached.

REGULATORY APPROVALS

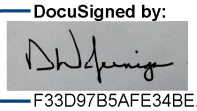
Section 404: We are requesting a modification to the USACE Permit Number SAW-2009-02240 Section 404 Individual Permit for the above-described activities.

Section 401: We are requesting a modification to the WQC Permit Number 4179 Section 401 Individual Water Quality Certification and the Neuse Riparian Buffer Authorization. We are providing this application to NCDEQ, for their approval. Authorization to debit the $570.00 Permit Modification Fee from TIP No. R-2828/WBS 37673.1.TA2 is hereby given.

The individual permit modification package for the Complete 540 project (STIP Projects R-2721, R-2828, and R-2829) is available at https://xfer.services.ncdot.gov/pdea/PermApps/

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Deanna Riffey at driffey@ncdot.gov or 919-707-6151.

Sincerely,

DocuSigned by:

F33D97B5AFE34BE...

North Carolina Turnpike Authority
Deputy Chief Engineer

cc: NCDOT Permit Application Standard Distribution List

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
MARC RECKTENWALD
Director

NORTH CAROLINA
Environmental Quality

December 4, 2023

Mr. Jamie Lancaster, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
Mail Service Center 1598
Raleigh, North Carolina 27699-1598

Dear Mr. Lancaster:

Subject: Mitigation Acceptance Letter: **TIP R-2828**, NC 540 from East of US 401 to I-40 Interchange, Wake County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the mitigation for the subject project. Based on the information supplied by you on November 29, 2023, the impacts are located in CU 03020201 of the Neuse River basin as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Neuse	03020201	CP	0	0	236.000	0	0	0

*Some of the impacts may be proposed to be mitigated at various ratios. See permit application for details. DMS will provide the amount of stream and wetland mitigation included in the environmental permits.

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWR's Buffer Authorization Certification, DMS will transfer funds from the NCDOT 2984 Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for TIP R-2828. Subsequently, DMS will conduct a review of current NCDOT ILF Program mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Program.

Buffer	River Basin	CU	Eco-Region	Buffer Impacts		
				Zone 1	Zone 2	TOTAL
Impacts	Neuse	03020201	CP	7,887.000	0.000	7,887.000

DMS commits to implementing sufficient mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ-DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

Elizabeth Harmon

Elizabeth Harmon
DMS NCDOT ILF Coordinator

cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
Mr. Brad Chilton, NCDOT
File: R-2828 Additional

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2828	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
35516.3.GV1	NHP-0540(043)	DESIGN-BUILD
35516.2.3	NHP-0540(043)	R/W
35516.2.TA1	NHP-0540(043)	R/W

Permit Drawing Package
Last Revised on 12/04/2023

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

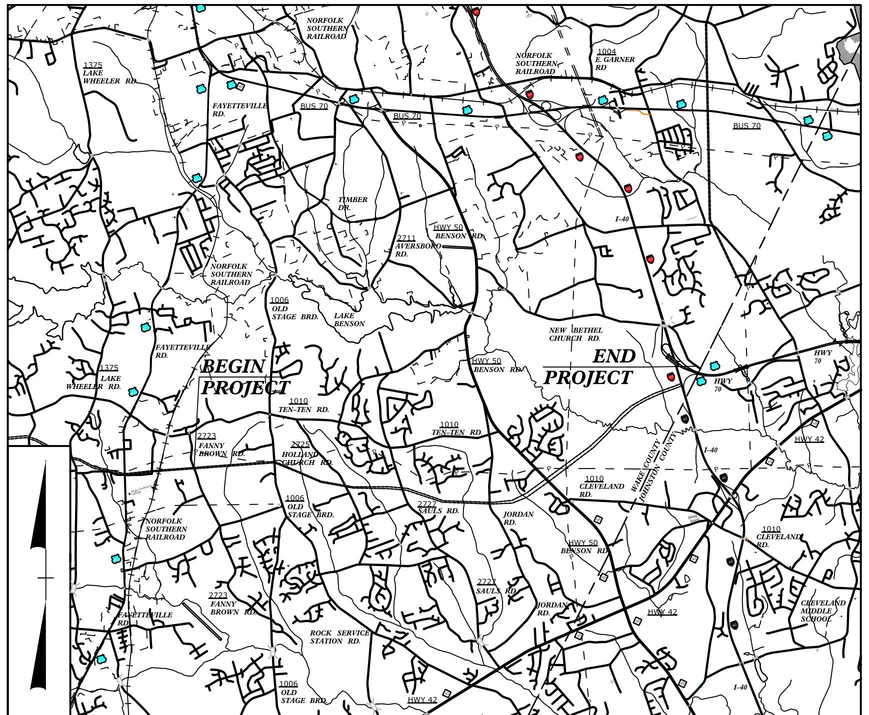
WAKE & JOHNSTON COUNTY

LOCATION: TRIANGLE EXPRESSWAY SOUTHEAST EXTENSION FROM EAST OF US 401 TO EAST OF I-40

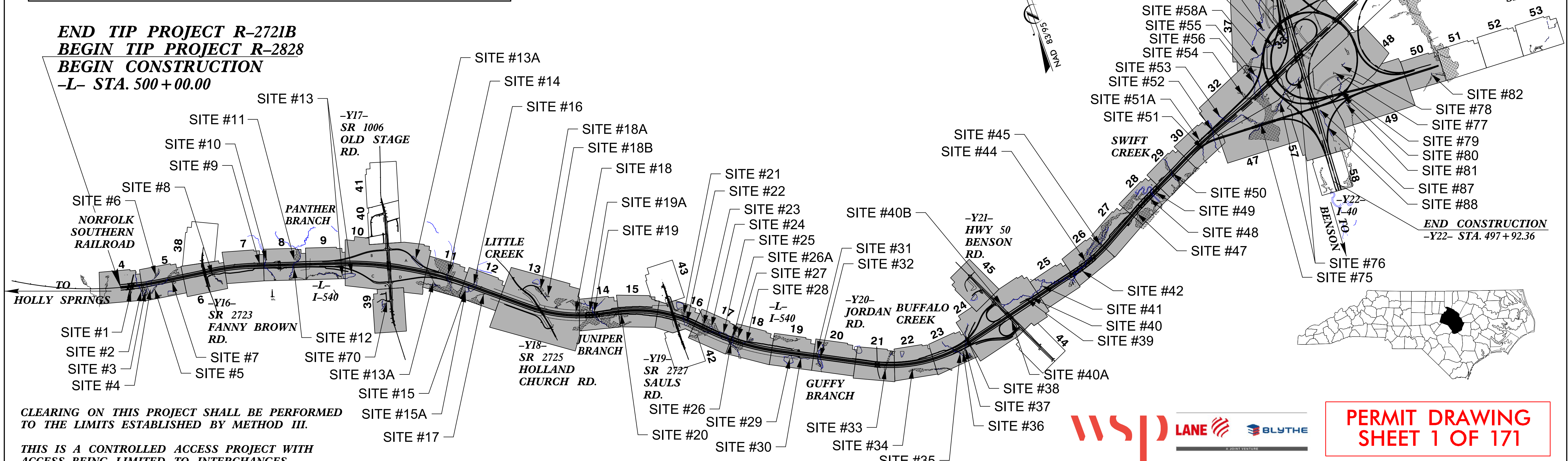
TYPE OF WORK: DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK CONTAINED IN THE REQUEST FOR PROPOSALS

WETLAND AND SURFACE WATER IMPACTS PERMIT

PACKAGE R-2828
DATE: DECEMBER 04, 2023



VICINITY MAP (NOT TO SCALE)



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

PERMIT DRAWING SHEET 1 OF 171

WSP LANE BLYTHE

TIP PROJECT: R-2828
CONTRACT: C204197

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 2018 = NA
ADT 2040 = 53,400
DHV = 12 %
D = 65 %
T = 11 % *
V = 75 MPH
*(TTST 4 + DUAL 7)

FUNCTIONAL CLASS: FREEWAY

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT R-2828	=	8.055 Miles
LENGTH OF STRUCTURE PROJECT R-2828	=	0.562 Miles
TOTAL LENGTH OF TIP PROJECT R-2828	=	8.617 Miles

NCDOT CONTACT: DESIGN BUILD PROJECT ENGINEER – TRANSPORTATION PROGRAM MANAGEMENT UNIT

Prepared in the Office of: WSP USA, 434 FAYETTEVILLE STREET, SUITE 1500, RALEIGH, NC 27601, TEL: 1-919-836-4040, FAX: 1-919-836-4099, LICENSE NO. F-0165
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPT. 09, 2019

LETTING DATE: DEC. 11, 2019

DANIEL BRIDGES, PE — PROJECT ENGINEER

RONYELL THIGPEN, PE — PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99

11/4/2019 \\prdpwics01\ics_workingdir\7583\336429_3952\R2828_hyd_prm_wet_psh_01.dgn PRDPWICS01$

Permit Drawing Package
Last Revised on 12/04/2023

INSET A

SITE #41

SCY

PIPE OUTLET CHANNEL STABILIZATION CLASS I SEE DETAIL 2-33

18" CSP W/ELBOWS

SURFACE WATER IMPACT

JB w/MH

TEMPORARY SURFACE WATER IMPACT

18" RCP III

18" CSP

PROPOSED NOISE WALL

SWIFT CREEK BASIN

SITE #40B

SCZ

SITE #41 SEE INSET A

SCY

SCX

PROPOSED NOISE WALL

SEE SHEET 24A

SITE #41

SITE #40

SITE #39

WDS

SDB

SDC

SCY

SITE #40A ISOLATED WETLAND

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO. R-2828 | SHEET NO. 24

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

MATCH LINE SEE SHEET 23 -L- STA. 788+00.00

MATCH LINE SEE SHEET 45 -Y21- STA. 49+50.00

MATCH LINE SEE SHEET 44 -Y21- STA. 34+00.00

MATCH LINE SEE SHEET 25 -L- STA. 816+00.00

PROPOSED DOUBLE FACED GUIDERAIL

PONDS SHALL BE DRAINED IN ACCORDANCE WITH THE "POND DRAINAGE PLAN REQUIREMENT" AS APPROVED BY THE ENGINEER.

PERMIT DRAWING SHEET 90 OF 171

GRAPHIC SCALE

1/7/2023

Permit Drawing Package
Last Revised on 12/04/2023

INSET A

SITE #41

TEMPORARY SURFACE WATER IMPACT

SCY

PIPE OUTLET CHANNEL STABILIZATION CLASS I SEE DETAIL 2-33

18" CSP W/ELBOWS

SURFACE WATER IMPACT

JB w/MH

18" RCP III

CB

18" CSP

PROPOSED NOISE WALL

MATCH LINE SEE SHEET 45 -Y21- STA. 49+50.00

SWIFT CREEK BASIN

SITE #40B

SCZ

SITE #41 SEE INSET A

SCY

SCX

PROPOSED NOISE WALL

SEE SHEET 24A

SITE #41

SITE #40

SITE #39

WDS

SDB

SDC

SCY

S 78° 57' 47" W

N 70° 50' 06" E

N 70° 40' 06" E

N 18° 23' 42" E

N 65° 08' 59" E

SITE #40A ISOLATED WETLAND

MATCH LINE SEE SHEET 44 -Y21- STA. 34+00.00

MATCH LINE SEE SHEET 23 -L- STA. 788+00.00

MATCH LINE SEE SHEET 25 -L- STA. 816+00.00

PROPOSED DOUBLE FACED GUIDERAIL

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. R-2828 | SHEET NO. 24

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

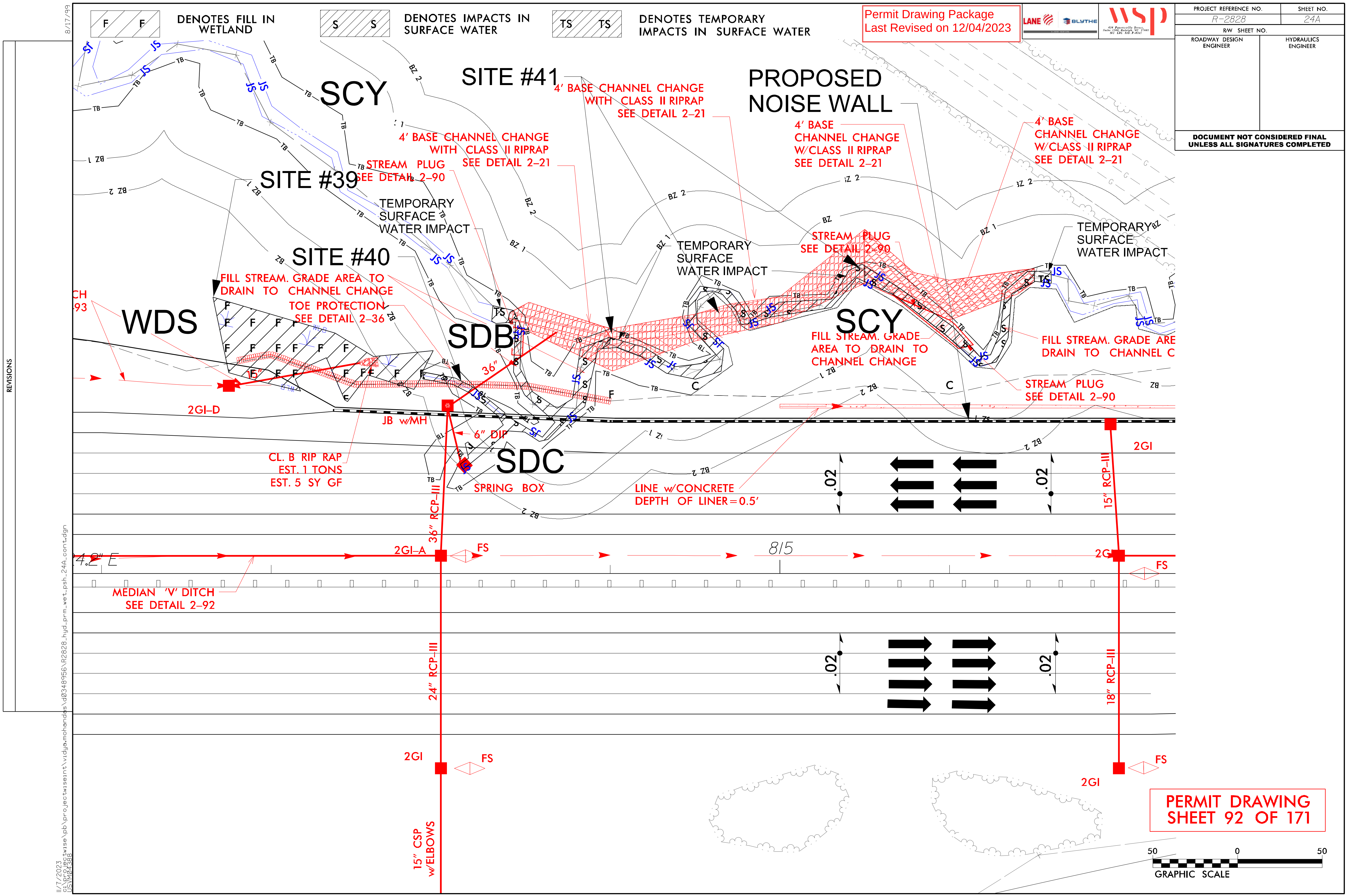
PONDS SHALL BE DRAINED IN ACCORDANCE WITH THE "POND DRAINAGE PLAN REQUIREMENT" AS APPROVED BY THE ENGINEER.

PERMIT DRAWING SHEET 91 OF 171

GRAPHIC SCALE 25 0 25

GRAPHIC SCALE 100 0 100

1/7/2023



DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
Permit Drawing Package
Last Revised on 12/04/2023
PROJECT REFERENCE NO.
R-2828
SHEET NO.
24A
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SCY
SITE #41
4' BASE CHANNEL CHANGE WITH CLASS II RIPRAP SEE DETAIL 2-21
PROPOSED NOISE WALL
4' BASE CHANNEL CHANGE W/CLASS II RIPRAP SEE DETAIL 2-21
4' BASE CHANNEL CHANGE WITH CLASS II RIPRAP SEE DETAIL 2-21
STREAM PLUG SEE DETAIL 2-90
SITE #39
TEMPORARY SURFACE WATER IMPACT
SITE #40
FILL STREAM. GRADE AREA TO DRAIN TO CHANNEL CHANGE
TOE PROTECTION SEE DETAIL 2-36
WDS
SDB
36"
STREAM PLUG SEE DETAIL 2-90
TEMPORARY SURFACE WATER IMPACT
SCY
FILL STREAM. GRADE AREA TO DRAIN TO CHANNEL CHANGE
FILL STREAM. GRADE AREA TO DRAIN TO CHANNEL C
STREAM PLUG SEE DETAIL 2-90
2GI-D
JB w/MH
6" DIP
CL. B RIP RAP EST. 1 TONS EST. 5 SY GF
SDC
SPRING BOX
LINE w/CONCRETE DEPTH OF LINER=0.5'
.02
2GI
15" RCP-III
36" RCP-III
2GI-A
FS
815
MEDIAN 'V' DITCH SEE DETAIL 2-92
24" RCP-III
18" RCP-III
2GI
FS
15" CSP w/ELBOWS
PERMIT DRAWING SHEET 92 OF 171
GRAPHIC SCALE
50
0
50
REVISIONS

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

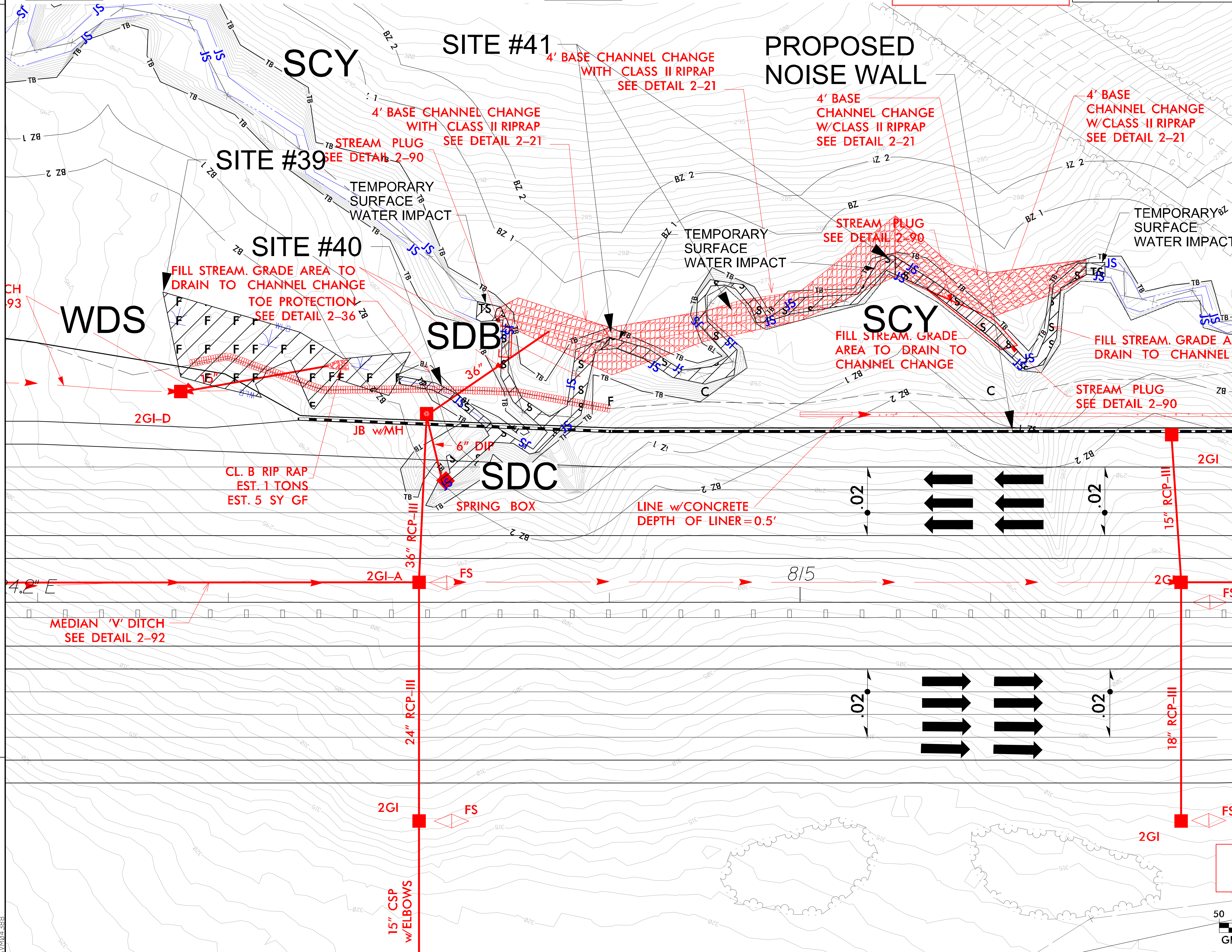
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

Permit Drawing Package
Last Revised on 12/04/2023

PROJECT REFERENCE NO.	SHEET NO.
R-2828	24A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



SITE #41
4' BASE CHANNEL CHANGE WITH CLASS II RIPRAP SEE DETAIL 2-21
PROPOSED NOISE WALL
SCY
4' BASE CHANNEL CHANGE WITH CLASS II RIPRAP SEE DETAIL 2-21
STREAM PLUG SEE DETAIL 2-90
SITE #39
4' BASE CHANNEL CHANGE W/CLASS II RIPRAP SEE DETAIL 2-21
TEMPORARY SURFACE WATER IMPACT
SITE #40
FILL STREAM. GRADE AREA TO DRAIN TO CHANNEL CHANGE
TOE PROTECTION SEE DETAIL 2-36
WDS
SDB
36"
TEMPORARY SURFACE WATER IMPACT
STREAM PLUG SEE DETAIL 2-90
TEMPORARY SURFACE WATER IMPACT
SCY
FILL STREAM. GRADE AREA TO DRAIN TO CHANNEL CHANGE
FILL STREAM. GRADE AREA TO DRAIN TO CHANNEL C
STREAM PLUG SEE DETAIL 2-90
2GI-D
JB w/MH
6" DIP
SDC
CL. B RIP RAP EST. 1 TONS EST. 5 SY GF
SPRING BOX
LINE w/CONCRETE DEPTH OF LINER=0.5'
2GI
.02
.02
36" RCP-III
15" RCP-III
2GI-A
FS
815
2GI
FS
MEDIAN 'V' DITCH SEE DETAIL 2-92
24" RCP-III
18" RCP-III
2GI
FS
FS
2GI
15" CSP w/ELBOWS

PERMIT DRAWING
SHEET 93 OF 171

50 0 50
GRAPHIC SCALE

Permit Drawing Package
Last Revised on 02/24/20

WETLAND AND SURACE 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*	503+27 (RT)	RDWY Fill (WCD)	0.161									
2	505+24, 505+63 (LT)	9'x8' RCBC (SBP)						0.03	0.002	519.00	20.000	
2	505+24, 505+63 (LT)	9'x8' RCBC Pipe Stabil. (SBP)						0.01		95.00		
3	506+50 (RT)	42" RCP(WCE(1),WCE(2),SBR)	0.546			0.007		0.00	0.000	90.00	10.000	
3	506+50 (RT)	42" RCP Pipe Stabilization (SBR)						0.00		35.00		
4	508+50 (LT)- 511+70 (RT)	Drain Pond (PM)						1.57				
5**	508+60-515+40 (RT)	RDWY Fill (WCF) / Stream (SBR)	0.033					0.03		462.00		
6	512+15 (LT)	RDWY Fill (WCH) / Stream (SBU)	0.018		0.009	0.035		0.02	0.004	173.00	33.000	
7	515+32 (LT) - 520+00 (LT)	RDWY Fill (WCI) / Stream (SBS)	0.673		0.067	0.054		0.00		27.00		
8	529+75 - 531+00 (RT)	Roadway Fill (WCJ)	0.118			0.010						
9	545+63 - 548+40	Roadway Fill (WCL)	0.220									
10	548+68 (LT)-549+40 (RT)	6'x8' RCBC (SBY, WCM)				0.003		0.05	0.002	485.00	18.000	
10	548+68 (LT)-549+40 (RT)	Culvert Stabilization (SBY)						0.01		77.00		
10	548+68 (LT)-549+40 (RT)	Bank Stabilization (SBY)						0.00		14.00		
11	557+67 (RT)-559+60 (LT)	9'x8' RCBC (WCQ, SBX)	0.077			0.043		0.08	0.004	484.00	22.000	
11	557+67 (RT)-559+60 (LT)	9'x8' RCBC Culvert Stabil. (SBX)						0.01		70.00		
11	557+67 (RT)-559+60 (LT)	Bank Stabilization (SBX)						0.00		7.00		
12	558+00 (RT)	Roadway Fill (WCR)	0.055									
13	Ramp Quad C (-Y17-)	Drain Pond (PN)						1.04				
13	Ramp Quad C (-Y17-)	Roadway Fill (WCV)	0.020			0.005						
13**	Ramp Quad C (-Y17-)	Roadway Fill (WCW)	0.043									
13A	Ramp Quad A (-Y17-)	Drain Pond (PP)						1.01				
13A	Ramp Quad A (-Y17-)	Roadway Fill WCZ(2)	0.400	0.001								
SHEET 1 SUBTOTALS***:			**2.36**	**0.00**	**0.08**	**0.16**	**0.00**	**3.88**	**0.01**	**2538**	**103**	**0**

NOTES:
*Represents an isolated wetland impact (also non-riparian)
**Represents any non-riparian wetland impact
***Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 02/24/20

WETLAND AND SURACE 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)
14	609+07 (LT)-610+38 (RT)	Roadway Fill (WCZ(1))	1.284			0.271						
14	609+07 (LT)-610+38 (RT)	10'x8' RCBC (SCC)						0.02	0.001	322.00	10.000	
14	609+07 (LT)-610+38 (RT)	Culvert Stabilization (SCC)						0.01		78.00		
14	609+07 (LT)-610+38 (RT)	10'x8' RCBC (SCK)						0.02	0.001	257.00	10.000	
14	609+07 (LT)-610+38 (RT)	Culvert Stabilization (SCK)						0.00		26.00		
15	616+50 (RT)	Drain Pond PQ, WCZ(2)						0.35				
15A	616+50 (RT)	Energy Dissipator (WCZ(2)	0.000			0.002						
16	618+00 (RT)	Drain Pond (PR)						1.01				
17	622+30 - 622+54 (RT)	Roadway Fill (WCZ(1))	0.014			0.005						
18	653+75 - 655 + 50 (LT)	Roadway Fill (WDB)	0.356			0.037						
18A	-Y18A- 15+00 - 17+50	Roadway Fill (WDD)	0.196			0.096						
18B	-Y18A- 19+50	18" RCP (SCF)						0.01	0.001	47.00	10.000	
18B	-Y18A- 19+50	18" RCP Pipe Stabil. (SCF)						0.01		17.00		
19	BRIDGE	Bank Stabilization (SCG)						0.00	0.003	10.00	17.000	
19A	BRIDGE	Roadway Fill (WDB)	0.033			0.020	0.853					
20	662+00 - 671+00	Roadway Fill (WDB)	2.000			0.117						
21	689+00 - 691+00 (LT)	Roadway Fill (WDF)	0.186		0.018	0.049						
22	690+00 - 691+75 (RT)	Drain Pond (PU)						0.87				
23	692+20 - 703+00	Roadway Fill (WDG(1))	2.754		0.375	0.261						
24	699+00 - 700+00 (LT)	Drain Pond (PW)						0.12				
25	703+00 - 705+40	Drain Pond (PV)						0.93				
26	697+00 -709+00	Roadway Fill (SCL)						0.06	0.001	1047.00	10.000	
26	697+00 -709+00	Culvert Stabilization (SCL)						0.00		30.00		
SHEET 2 SUBTOTALS***:			**6.823**	**0.000**	**0.394**	**0.858**	**0.853**	**3.404**	**0.007**	**1834.000**	**57.000**	**0.000**

NOTES:
*Represents an isolated wetland impact (also non-riparian)
** Represents an isolated wetland impact
***Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 02/16/21

WETLAND AND SURACE 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)
26A	707+50	Roadway Fill (SCM)						0.01	0.002	266.00	35.000	
26A	707+50	Culvert Stabilization (SCM)						0.00		65.00		
27	705+75 - 714+00	Roadway Fill (WDH)	2.443		0.030	0.236						
28	711+00 - 714+00 (LT)	Roadway Fill (SCN)						0.01	0.001	156.00	10.000	
29	726+50 - 728+00 (RT)	Drain Pond (PY)						1.40				
30	728+00 - 734+50 (RT)	Channel Change (SCQ)						0.06		673.00		
31	736+00	Roadway Fill (WDJ, SCQ)	0.375			0.092		0.03	0.007	130.00	58.000	
32	736+70 (LT) - 738+00 (RT)	2 @ 8'x9' RCBC (SCP)						0.07	0.016	379.00	92.000	
32	736+70 (LT) - 738+00 (RT)	Culvert Stabilization (SCP)						0.01		44.00		
32	736+70 (LT) - 738+00 (RT)	Bank Stabilization (SCP)						0.00		29.00		
33	759+00 (RT) - 759+82 (LT)	Roadway Fill (WDM)	0.392			0.030						
34	767+65 (RT)	Roadway Fill (WDN)				0.001						
35	782+00 (LT)	9'x8' RCBC (SCT)						0.05	0.004	441.00	37.000	
35	782+00 (LT)	Culvert Stabilization (SCT)						0.01		47.00		
35	782+00 (LT)	Bank Stabilization (SCT)						0.00		18.00		
36	782+00 - 787+20	Roadway Fill (WDO)	0.707		0.002	0.060						
37	785+90 (RT) - 787+70 (LT)	48" RCP (SCV)						0.03	0.003	394.00	20.000	
37	785+90 (RT) - 787+70 (LT)	Pipe Stabilization (SCV)						0.00		37.00		
38	788+00 (LT)	Roadway Fill (WDP)				0.006						
39	812+00 - 813+00 (LT)	Roadway Fill (WDS)	0.080									
40	812+90 - 813+37 (LT)	Channel Change (SDB)						0.01		54.00		
40	813+50 (LT)	Channel Change (SDC)						0.01		93.00		
40A*	-Y21- 40+00 (LT)	Roadway Fill (WDR)	0.091									
40B	-Y21- 44+40 (RT)	Roadway Fill (SCZ)						0.00	0.001	52.00	13.000	
SHEET 3 SUBTOTALS***:			**4.09**	**0.00**	**0.03**	**0.43**	**0.00**	**1.70**	**0.03**	**2878**	**265**	**0**

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NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 12/04/2023

WETLAND AND SURACE 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)
41	813+50 (LT) - 829+50 (RT)	Channel Change (SCY)						0.24	0.03	1689	130	
41	-Y21- 44+50 (RT)	18" CSP (SCY)						< 0.01		58		
41	-Y21- 44+50 (RT)	Pipe Stabilization (SCY)						< 0.01		21		
41	829+50 (LT) - 834+00 (RT)	Bank Stabilization (SCY)						0.09		340		
42	BRIDGE 832+50 (RT)	Work Trestle (WDU)					0.02					
44	BRIDGE	Bridge****	0.02		0.02		0.54		0.05		238	
44	BRIDGE	Bank Stabilization						0.01		44		
45	841+78 - 843+00 (LT)	Roadway Fill (WDV)	0.05			0.03						
47	856+50 - 861+50	Roadway Fill (WDV)	0.37			0.05						
48	861+40 - 866+30	Work Trestle (WDV)	0.02			< 0.01	0.65					
49	867+50 - 868+50	Work Trestle (WDY)	< 0.01				0.17					
50	876+00	14'X8' RCBC (SDJ)						0.03	< 0.01	318	46	
50	876+00	Culvert Stabilization (SDJ)						< 0.01		42		
50	876+00	Bank Stabilization (SDJ)						< 0.01		48		
50A	875+50 - 877+00	Roadway Fill (WDZ)	0.56			0.09						
51	890+00	42" RCP (SDK)						< 0.01	< 0.01	32	10	
51	890+00	Pipe Stabilization (SDK)						< 0.01		21		
51A	890+00	Roadway Fill (WEA)	0.29									
52	895+00	60" RCP (SDL)						0.05	< 0.01	588	20	
52	895+00	Pipe Stabilization (SDL)						< 0.01		39		
53	900+50 (LT) - 906+50 (RT)	42" RCP (SDM)						0.05	< 0.01	948	20	
53	900+50 (LT) - 906+50 (RT)	Pipe Stabilization (SDM)						< 0.01		47		
54	911+00 (LT) - 913+75 (RT)	Roadway Fill (WEC)	1.88			0.10						
SHEET 4 SUBTOTALS***:			3.19		0.02	0.27	1.38	0.50	0.09	4235.00	464.00	

NOTES:
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***Rounded totals are sum of actual impacts
****Impacts are rounded to the nearest hundreds

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 02/24/20

WETLAND AND SURACE 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)
55	914+00 (RT)-918+50 (LT)	2@ 9'x9' RCBC (SDW)						0.12	< 0.01	834	10	
55	914+00 (RT)-918+50 (LT)	Culvert Stabilization (SDW)						< 0.01		18		
55	914+00 (RT)-918+50 (LT)	Bank Stabilization (SDW)						< 0.01		4		
56	Y22SLIPRPB 38+50 (LT)	Channel Change (SDV)						0.02	< 0.01	518	10	
57	-Y22RPB- 25+42 (LT)	54" RCP (SDT)						0.01	< 0.01	113	10	
57	-Y22RPB- 25+42 (LT)	Pipe Stabilization (SDT)						< 0.01		22		
57A	-Y22RPB- 26+50 (LT)	Channel Change (SDS)						< 0.01	< 0.01	72	10	
58	Y22FLYBD 46+50-47+75	42" RCP (SDT)						0.01	< 0.01	196	20	
58	Y22FLYBD 46+50-47+75	Pipe Stabilization (SDT)						< 0.01		47		
58A	Y22FLYCC 123+00-127+00	54" RCP (SDT)						0.05	< 0.01	485	20	
58A	Y22FLYCC 123+00-127+00	Pipe Stabilization (SDT)						< 0.01		57		
59	Y22FLYCC 119+00 (RT)	15" CSP (SDX)						< 0.01		17	15	
59	Y22FLYCC 119+00 (RT)	Pipe Stabilization (SDX)						< 0.01	< 0.01	75		
59A	Y22FLYCC 119+00 (RT)	Roadway Fill (WEJ)	< 0.01			< 0.01						
70	-Y17- 28+50	24" Pipe Stabilization SCB(1)						< 0.01	< 0.01	20	10	
72	REMOVED	Non-Jurisdictional Pond (PAB)										
73	Y22FLYBD 34+70 (RT)	30" RCP Extension (SDR)						< 0.01	< 0.01	10	10	
73	Y22FLYBD 34+70 (RT)	Pipe Stabilization (SDR)						< 0.01		57		
75	Y22FLYCC 34+00-41+00	Bridge (WEC, SDV)	0.03			0.02	1.56		0.01		254	
76	Y22FLYCC 143+00 (RT)	42" RCP (WEC, SDO)	< 0.01			< 0.01		0.08	< 0.01	1101	10	
77	Y22FLYCC 71+00 (615' LT)	Roadway Fill (WEY)	0.06									
78	REMOVED	60" RCP Pipe Removal (SET)										
79	Y22FLYBD 83+00 (LT)	54" RCP (SET)						0.04	< 0.01	563	20	
79	Y22FLYBD 83+00 (LT)	Pipe Stabilization (SET)						< 0.01		44		
SHEET 5 SUBTOTALS***:			0.09			0.03	1.56	0.36	0.02	4253	399	0

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NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 12/04/2023

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
80	-Y22FLYBD- 83+50 (RT)	Roadway Fill (WEV)	0.03									
81	-Y22RPDE- 29+50 (RT)	Roadway Fill (WEU)	0.04									
82	-Y22FLYBD- 113+30 (RT)	HSB Outlet SEH, (WFN(2))				0.05			< 0.01		10	
82	-Y22FLYBD- 113+30 (RT)	12" Pipe Stabil. (SEH)						< 0.01		15		
82A	-Y22SEC2- 382+00 - 386+00 (LT)	Channel Change (SEM)						0.04	< 0.01	422	20	
83	-Y22SEC2- 396+50 (LT)	Channel Change (SEK, WFF)				< 0.01		< 0.01	< 0.01	28	13	
84	-Y22SEC2- 405+00 (LT)	60" CMP & 72" WSP (SEL)							< 0.01		10	
84	-Y22SEC2- 405+00 (LT)	Pipe Stabilizatoin (SEL)						< 0.01		37		
85	-Y22SEC2- 416+00 (LT)	30" RCP Pipe Extension (SEV)						< 0.01	< 0.01	59	10	
85	-Y22SEC2- 416+00 (LT)	Pipe Stabilizatoin (SEV)						< 0.01		19		
87	-Y22SEC2- 474+20 (LT)	42" Pipe (SES)							< 0.01		10	
87	-Y22SEC2- 474+20 (LT)	Pipe Stabilization (SES)						< 0.01		10		
88	-Y22SEC2 (LT) - 80+00 (LT)	48" RCP (SES)						0.02	< 0.01	244	20	
88	-Y22SEC2 (LT) - 80+00 (LT)	Pipe Stabilizatoin (SES)						< 0.01		30		
91	Y22FLYCC 121+30/121+90 (RT)	Haul Road (SDQ)							0.01		66	
92	Y22RPB 23+65/24+85 (LT)	Ex. Piers & Bridge Demolition (WEL, SDS)		0.05					< 0.01		92	
93	Y22RPB 26+27 (LT)	Ex. Piers & Bridge Demolition (WEK, SDS)		< 0.01					< 0.01		35	
	SHEET 1 SUBTOTALS		2.36	< 0.01	0.08	0.16		3.88	0.01	2538	103	
	SHEET 2 SUBTOTALS		6.82		0.39	0.86	0.85	3.40	< 0.01	1834	57	
	SHEET 3 SUBTOTALS		4.09		0.03	0.43		1.70	0.03	2878	265	
	SHEET 4 SUBTOTALS		3.19		0.02	0.27	1.38	0.50	0.09	4235	464	
	SHEET 5 SUBTOTALS		0.09			0.03	1.56	0.36	0.02	4253	399	
TOTALS***:			16.62	0.05	0.52	1.79	3.79	9.92	0.19	16602	1574	0

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NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

TIP PROJECT: R-2828

CONTRACT: C204197

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2828	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
35516.3.GV1	NHP-0540(043)	DESIGN-BUILD
35516.2.3	NHP-0540(043)	R/W
35516.2.TA1	NHP-0540(043)	R/W

Permit Drawing Package
Last Revised on 12/04/2023

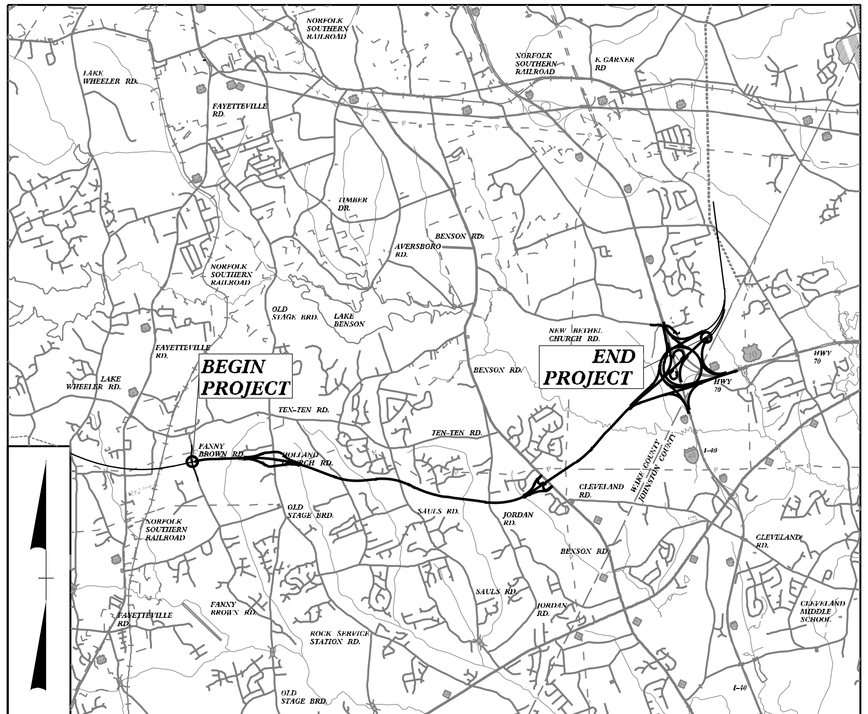
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE & JOHNSTON COUNTY

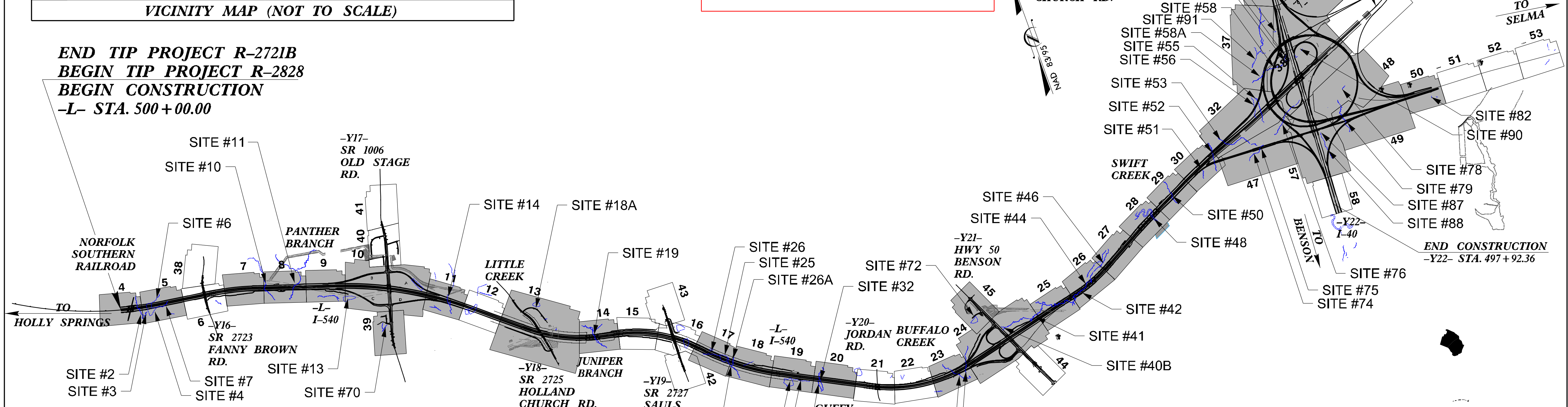
TRIANGLE EXPRESSWAY SOUTHEAST EXTENSION FROM EAST OF US 401 TO EAST OF I-40
DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK CONTAINED IN THE REQUEST FOR PROPOSALS

BUFFER IMPACTS PACKAGE

PACKAGE R-2828
DATE: DECEMBER 04, 2023



VICINITY MAP (NOT TO SCALE)



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

WSP | LANE | BLYTHE

BUFFER DRAWING SHEET 1 OF 42

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 2018 = NA
ADT 2040 = 53,400
DHV = 12 %
D = 65 %
T = 11 % *
V = 75 MPH
*(TTST 4 + DUAL 7)

FUNCTIONAL CLASS: FREEWAY

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT R-2828 = 8.055 Miles

LENGTH OF STRUCTURE PROJECT R-2828 = 0.562 Miles

TOTAL LENGTH OF TIP PROJECT R-2828 = 8.617 Miles

NCDOT CONTACT: DESIGN BUILD PROJECT ENGINEER - TRANSPORTATION PROGRAM MANAGEMENT UNIT

Prepared In the Office of: WSP USA, 434 FAYETTEVILLE STREET, SUITE 1500, RALEIGH, NC 27601, TEL: 1.919.836.4040, FAX: 1.919.836.4099, LICENSE NO. F-0165

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPT. 09, 2019

LETTING DATE: DEC. 11, 2019

DANIEL BRIDGES, PE — PROJECT ENGINEER

RONYELL THIGPEN, PE — PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2/7/2022
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USVM04388

09/08/99

Permit Drawing Package
Last Revised on 12/04/2023

PROJECT REFERENCE NO. R-2828 | SHEET NO. 24
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROPOSED NOISE WALL

MATCH LINE SEE SHEET 45 -Y21- STA. 49+50.00

SITE #40B

SITE #41

SCZ

SCY

SCX

PROPOSED NOISE WALL

SITE #41

SCV

WDP

SITE #37

WDS

SDB

SDC

SCM

MATCH LINE SEE SHEET 23 -L- STA. 788+00.00

MATCH LINE SEE SHEET 25 -L- STA. 816+00.00

MATCH LINE SEE SHEET 44 -Y21- STA. 34+00.00

PONDS SHALL BE DRAINED IN ACCORDANCE WITH THE "POND DRAINAGE PLAN REQUIREMENT" AS APPROVED BY THE ENGINEER.

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

BUFFER DRAWING SHEET 16 OF 42

GRAPHIC SCALE 100 0 100

1/1/2023

RIPARIAN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 02/08/21

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)
2	504+97/506+71	9'x 8' RCBC (SBP)	x						35356	21738	57094		
3	507+31/508+60	42" RCP (SBR)	x						7141	3053	10194		
4	508+63/512+01	Drain Pond (PM)	x						35178	17273	52451		
6	510+58/513+01	Roadfill and ditch (SBU)	x						12287	9439	21726		
7	512+00/515+95	Roadfill (SBR)	x						28472	20582	49054		
7	516+00	Roadfill (SBS)	x			13	1188	1201					
10	547+53/548+95	6'x8' RCBC (SBY)	x						31339	19181	50520		
11	557+20/560+26	9'x8' RCBC (SBX)	x						32579	20144	52723		
13	Y17RPC 17+84/22+90	Drain Pond PN	x						31217	16189	47406		
14	608+59/609+98	10'x8' RCBC (SBX)	x						25640	15608	41248		
18A	636+21/637+82	Roadfill			x				130	3197	3327		
19	659+00/660+60	Bridge (SCG)		x		13347	9046	22393					
19	659+68/660+37 (LT)	Drainage Ditch	x						1018	765	1783		
25	702+59/705+63	Drain Pond (PV)	x						21884	12478	34362		
26	696+93/702+59	Roadfill (SCL)	x						36364	21292	57656		
26	705+63/707+50	Roadfill Ditch (SCL)	x						24121	11956	36077		
26A	707+50/708+33	10'x8' RCBC (SCM)	x						19525	11354	30879		
29	724+43/728+35	Drain Pond (PY)	x						29652	9461	39113		
30	728+35/734+79	Roadfill and Ditch (SCQ)	x						41465	25923	67388		
31	736+09/737+12	Roadfill (SCQ)	x						12230	5453	17683		
32	737+12/737+67	2@ 9'x8' RCBC (SCP)	x						29672	13897	43569		
35	781+52/783+35	9'x8' RCBC (SCT)	x						31457	19477	50934		
37	785+28/788+61	48" RCP (SCV)	x						27178	17260	44438		
TOTALS*:						**13360**	**10234**	**23594**	**513905**	**295720**	**809625**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2
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Permit Drawing Package
Last Revised on 12/04/2023

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)
40B	803+66/804+26	Roadfill Ditch (SCY)			x				5079	2317	7396		
41	803+66/804+26	18" CSP (SCY)			x				5095	1729	6824		
41	812+81/827+66	Roadfill Ditch (SCY)			x				87128	46967	134095		
41	831+01/831+19	New Channel Tie In	x						1027	911	1938		
41	828+33/838+25	Bridge (SCY)		x		65438	37217	102655					
46	844+25/844+76	36" RCP			x					270	270		
48	866+00/868+47	Bridge (SDG)		x		14740	12098	26838					
50	875+30/877+40	14'X8' RCBC (SDJ)	x						25494	15386	40880		
51	888+93/889+94	42" RCP (SDK)	x			6023	5029	11052					
52	894+45/895+98	60" RCP (SDL)	x						36709	21474	58183		
53	900+35/907+05	42" RCP (SDM)	x						59490	36433	95923		
55	914+63/919+22	2@ 9'x9' RCBC (SDW)	x						50950	33292	84242		
56	913+58/917+59	Roadway Fill (SDV)	x						31949	22268	54217		
57	Y22RPB 24+86/26+00	54" RCP Pipe Extension (SDT)	x			6816	4456	11272					
57A	Y22RPB 25+94/27+66	Roadway Fill (SDS)			x				6090	4471	10561		
58	Y22FLYBD 48+12/46+10	42" pipe (SDT)	x						14654	8100	22754		
58A	Y22FLYCC 127+31/122+31	54" pipe (SDT)	x						32839	21340	54179		
59A	Y22FLYCC 116+13/117+87	Roadfill (SDQ)			x				3201	4149	7350		
70	Y17A 11+15/11+61	24" CSP (SCB1)	x						1931	589	2520		
72	Y21C 10+70/11+70	Roadfill			x				829	1377	2206		
73	Y22FLYBD 35+23/34+64	Roadfill	x			2357	1339	3696					
74	Y22FLYCC 33+58/34+58	Roadfill (SDV)			x				1566	2406	3972		
75	Y22FLYCC 36+14/38+48	Bridge		x		13991	9505	23496					
76	919+00/929+36	Roadfill (SDO)	x						64308	45001	109309		
TOTALS*:						**109365**	**69644**	**179009**	**428339**	**268480**	**696819**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
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WAKE & JOHNSTON
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Permit Drawing Package
Last Revised on 12/04/2023

RIPARIAN BUFFER IMPACTS SUMMARY

			IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
Site No.	Station (From/To)	Structure Size / Type	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)
78	Y22FLYCC 75+50	60" RCP Pipe Removal (SET)	x			785	618	1403	213	969	1182		
79	Y22FLYBD 82+61/84+16	54" RCP (SET)	x						37554	25277	62831		
79A	Y22RPDE 26+30/28+76	Borrow Site Excavation			x				0	721	721		
82	Y22FLYBD 113+57/113+98	Widening HSB (SEH)	x			2133	1426	3559					
82A	Y22 382+23/385+82	New Channel Tie In			x				13251	880	14131		
83	Y22 395+85/397+04	54" RCP (SEK)	x			1507	377	1884					
84	Y22 403+56/405+39	60" CMP & 72" WSP (SEL)	x			2355	565	2920					
87	Y22_SEC2 473+60/474+66	36" RCP (SES)	x			2764	1099	3863	0	397	397		
88	Y22RPDE 19+72/17+57	42" RCP (SES)	x						16259	8963	25222		
88A	Y22RPDE 13+30	Borrow Site Excavation			x				0	1075	1075		
90	Y22LPA 14+70/16+90	Roadway Fill (SDT)			x	551	405	956		857	857		
91	Y22FLYCC 121+30/121+90	Haul Road (SDQ)	x			4000	2577	6577					
92	Y22RPB 23+54/25+28	Ex. Piers & Bridge Demolition		x		4979	3158	8137					
93	Y22RPB 26+27	Ex. Piers & Bridge Demolition		x		2495	3071	5566					
	SHEET 1 SUBTOTALS					13360	10234	23594	513905	295720	809625	0	0
	SHEET 2 SUBTOTALS					109365	69644	179009	428339	268480	696819	0	0
TOTALS*:						**144294**	**93174**	**237468**	**1009521**	**603339**	**1612860**	**0**	**0**

NOTES:

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Revised 2018 Feb

WETLANDS IN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 02/24/20

SITE NO.	STATION (FROM/TO)	DESCRIPTION	WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
2	L 506+46/507+16	9'x 8' RCBC (SBP)	1396	3691
3	L 507+48/508+52	42" RCP (SBR)	4171	2863
4	L 508+26/511+89	Drain Pond PM	631	1726
6	L 511+56/512+37	Roadfill and ditch (SBU)	2384	283
7	L 515+57/515+94	Roadfill (SBR)	2008	2537
10	L 547+49/548+06	6'x8' RCBC (SBY)	650	681
11	L 558+64/559+60	9'x8' RCBC (SBX)	4324	2818
13	Y17RPC 17+84/22+90	Drain Pond PN	1729	159
14	L 608+20/611+17	10'x8' RCBC (SBX)	25393	12147
19	659+00/660+60	Bridge (SCG)	196	0
25	L 702+23/703+26	Drain Pond PV	3121	1106
26	696+93/702+59	Roadfill (SCL)	32328	15602
26	L 705+70/707+62	Roadfill Ditch (SCL)	13385	4752
26A	L 707+62/709+45	10'x8' RCBC (SCM)	19287	9113
31	L 736+24/736+62	Roadfill (SCQ)	5534	1171
32	L 735+32/736+61	2@ 9'x8' RCBC (SCP)	693	3339
35	L 782+01/784+39	9'x8' RCBC (SCT)	12459	2798
37	L 785+57/786+74	48" RCP (SCV)	10913	1451
TOTAL:			140602	66237

NOTE: Only Mitigable Buffers Impacts in Wetlands are calculated.

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WETLANDS IN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 02/24/20

SITE NO.	STATION (FROM/TO)	Description	WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
41	812+81/827+66	Roadfill Ditch (SCY)	34	386
41	828+33/838+25	Bridge (SCY)	0	0
48	866+00/868+47	Bridge (SDG)	0	0
50	875+63/876+59	14'x8' RCBC (SDJ)	15100	5744
51	888+93/889+94	42" RCP (SDK)	0	0
55	914+64/916+53	2@ 9'x9' RCBC (SDW)	10220	5534
56	914+16/914+83	Roadway Fill (SDV)	275	634
59A	Y22FLYCC 116+13/117+87	Roadfill (SDQ)	313	0
74	Y22FLYCC 33+58/34+58	Roadfill (SDV)	232	0
75	Y22FLYCC 36+14/38+48	Bridge	0	0
76	919+00/929+36	Roadfill (SDO)	142	0
TOTAL:			26316	12298

NOTE: Only Mitigable Buffers Impacts in Wetlands are calculated.

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Revised 2018 Feb

Rev. Jan 2009

WETLANDS IN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 12/13/22

SITE NO.	STATION (FROM/TO)	Description	WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
79	Y22FLYBD 82+61/84+16	54" RCP (SET)	2469	0
82	Y22FLYBD 113+57/113+98	Widening HSB (SEH)	0	0
92	Y22RPB 23+54/25+28	Ex. Piers & Bridge Demolition	1873	23
93	Y22RPB 26+27	Ex. Piers & Bridge Demolition	2	
TOTAL:			4344	23

NOTE: Only Mitigable Buffers Impacts in Wetlands are calculated.

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