STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

July 24, 2013

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Ms. Loretta Beckwith
NCDOT Coordinator

Subject: **Request for Modification to Nationwide Permit 13/23/33 and 401 Water Quality Certification** for the proposed replacement of Bridge No. 113 over Kyles Creek on SR 1574 (Fruitland Road) in Henderson County, Federal Aid Project No. BRZ-1547(2); Division 14; TIP No. B-4765
$570.00 debit WBS No. 38537.1.1

Reference: Permit Application dated March 6, 2013
Section 404 NWP (Action ID 2013-00666) dated April 18, 2013
Section 401 WQC (DWQ Project 2013015) dated March 28, 2013

Dear Madam:

The North Carolina Department of Transportation (NCDOT) recently received a 404 Nationwide Permit and associated 401 Water Quality Certification for the proposed replacement of Bridge No. 113 over Kyles Creek.

Subsequent to receipt of the Permit (ACTION ID 2013-00666) and Water Quality Certification (dated March 28, 2013), NCDOT was able to determine that a temporary bridge could be utilized at Site 3 for the on-site detour to minimize disturbance to Kyles Creek. As such, NCDOT has modified the project to utilize a 50-foot temporary bridge over Kyles Creek, rather than the permitted 2 @ 78" Corrugated Steel Pipes, for the on-site detour at Site 3. The 120 linear feet of permanent impacts to a UT to Kyles Creek for filling and relocation associated with the bridge replacement remain unchanged. Based on the modification requested, the bank stabilization impacts to Kyles Creek have been reduced from 92 linear feet to 81 linear feet. The temporary stream impacts associated with the on-site temporary detour have been revised from a total of 0.06 acre (282 linear feet) to 0.05 acre (269 linear feet). Note that the reduction in temporary impacts is minimal in number; however, the modification is substantial in that it utilizes a temporary

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-212-5785
WEBSITE:NCDOT.GOV

LOCATION:
CENTURY CENTER, BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

bridge as opposed to placing pipes in the stream for the detour route. The temporary impacts associated with the temporary bridge are to allow a sufficient work area for the installation and removal of the temporary bridge.

Please see enclosed copies of a modified Pre-Construction Notification (PCN), modified Stormwater Management Plan, and modified permit drawings. The request to EEP remains unchanged.

This project calls for a letting date of October 15, 2013 and a review date of August 27, 2013; however, the let date may advance as additional funding becomes available.

A copy of this permit application Modification and its distribution list will be posted on the NCDOT Website at: http://connect.ncdot.gov/resources/Environmental. If you have any questions or need additional information, please call Bill Barrett at (919) 707-6103.

Sincerely,

E. L. Fuse

for Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

cc:
NCDOT Permit Application Standard Distribution List

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: Modification of 23, 33, and 13 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No
1d. Type(s) of approval sought from the DWQ (check all that apply): ☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☒ Yes	☐ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes	☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes	☒ No

2. Project Information

2a. Name of project:	Replacment of Bridge 113 over Kyles Creek on SR 1574
2b. County:	Henderson
2c. Nearest municipality / town:	Fruitland
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	TIP No. B-4765

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6103
3g. Fax no.:	(919) 212-5785
3h. Email address:	wabarrett@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	*not applicable*
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 35.393694 (DD.DDDDDD)	Longitude: - 82.39575 (-DD.DDDDDD)
1c. Property size:	1.781 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Kyles Creek	
2b. Water Quality Classification of nearest receiving water:	C;Tr	
2c. River basin:	French Broad	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Rural, with single-family homes		
3b. List the total estimated acreage of all existing wetlands on the property: N/A		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 993		
3d. Explain the purpose of the proposed project: To replace a structurally deficient (sufficiency rating of 32.5 out of 100) and functionally obsolete (deck geometry appraisal of 2 out of 9) bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 52-foot long bridge with a 65-foot, single-span bridge on the existing alignment with an on-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☒ Yes ☐ No ☐ Unknown	
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary ☒ Final	
4c. If yes, who delineated the jurisdictional areas? Name (if known): Bill Barrett	Agency/Consultant Company: NCDOT Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. Corps SAW-2009-1526 (August 25, 2009), NCDWQ (September 8, 2009)		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☒ Yes ☐ No ☐ Unknown	
5b. If yes, explain in detail according to “help file” instructions. Action ID 2013-00666		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes ☒ No	
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☐ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	X Permanent X Temporary

2h. Comments:

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☐ P ☒ T	Pipe for on-site detour	UT to Kyles Creek (SC)	☒ PER ☐ INT	☒ Corps ☐ DWQ	3	55 (0.01 ac)
Site 2 ☐ P ☒ T	Pipe for on-site detour	UT to Kyles Creek (SB)	☐ PER ☒ INT	☒ Corps ☐ DWQ	3	82 (0.01 ac)
Site 3 ☐ P ☒ T	Temporary 50' bridge	Kyles Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	12	72 (0.02 ac)
Site 3 ☐ P ☒ T	Bank stabilization	Kyles Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	12	15 (0.02 ac)
Site 3 ☒ P ☐ T	Bank stabilization	Kyles Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	12	81
Site 4 ☒ P ☐ T	Fill (channel relocation)	UT to Kyles Creek (SA)	☐ PER ☒ INT	☒ Corps ☐ DWQ	2	120
Site 4 ☐ P ☒ T	Pipe for on-site detour	UT to Kyles Creek (SA)	☐ PER ☒ INT	☒ Corps ☐ DWQ	2	45 (0.01 ac)
					3h. **Total stream and tributary impacts**	201 Perm 269 Temp (0.05 ac)

3i. Comments: Subsequent to receipt of the Permit (ACTION ID 2013-00666) and Water Quality Certification (dated March 28, 2013), NCDOT was able to determine that a temporary bridge could be utilized at Site 3 for the on-site detour to minimize disturbance to Kyles Creek. As such, NCDOT has modified the project to utilize a 50-foot temporary bridge over Kyles Creek, rather than the permitted 2 @ 78" Corrugated Steel Pipes, for the on-site detour at Site 3. The 120 linear feet of permanent impacts to a UT to Kyles Creek for filling and relocation associated with the bridge replacement remain unchanged. Based on the modification requested, the bank stabilization impacts to Kyles Creek have been reduced from 92 linear feet to 81 linear feet. The temporary stream impacts associated with the on-site temporary detour have been revised from a total of 0.06 acre (282 linear feet) to 0.05 acre (269 linear feet). Note that the reduction

in temporary impacts is minimal in number; however, the modification is substantial in that it utilizes a temporary bridge as opposed to placing pipes in the stream for the detour route. The temporary impacts associated with the temporary bridge are to allow a sufficient work area for the installation and removal of the temporary bridge.

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
	5f. Total							

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?			☐ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☐ Other:
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ P ☐ T			☐ Yes ☐ No		
B2 ☐ P ☐ T			☐ Yes ☐ No		
B3 ☐ P ☐ T			☐ Yes ☐ No		
		6h. **Total buffer impacts**			
6i. Comments:					

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

The proposed bridge is 13 feet longer than the existing bridge; the existing bridge has two bents in the stream, while the new bridge will span the stream; the proposed bridge will be at approximately the same grade as the existing structure; a temporary bridge will be utilized at Site 3 for the temporary detour in place of the permitted 2 @ 78" temporary corrugated steel pipe, 3:1 fill slopes where practicable; there will be no direct discharge from impervious surfaces into the receiving water.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

Use of Best Management Practices (BMP) and measures used in the project are non-structural and are an attempt to reduce the stormwater impacts to the receiving stream due to erosion and runoff as well as attenuate and disperse stormwater before entering the receiving waters.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☒ Yes ☐ No If no, explain:
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☒ Corps
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☒ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☒ Yes
4b. Stream mitigation requested:	120 linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☒ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments: Mitigation not required for the bank stabilization impacts.

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?			☐ Yes ☐ No	
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: If required from 1a, see attached buffer permit drawings.	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes	☒ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NHP database and NCDOT field surveys. Surveys for bunched arrowhead and mountain sweet pitcher plant conducted on April 27, 2009. Survey for small whorled pogonia conducted on June 17, 2009. Survey for white irisette conducted on May 19, 2011. No individuals of any of the species identified. No populations located within one mile of project, per NHP.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. J. Luck Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	7-24-13 Date

STORMWATER MANAGEMENT PLAN

B-4765, WBS No. 38537.1.1
HENDERSON COUNTY
Hydraulics Project Manager: Stephen R. Morgan, PE
Date: 06/28/2013

ROADWAY DESCRIPTION

The project involves the replacement of bridge number 113 over Kyles Creek on SR 1574 (Fruitland RD.) in Henderson County. The overall length of the project is 0.147 mile. The project will replace an existing 52 foot length bridge with a 65 foot single span 24" Cored Slab. An on-site detour will be required.

ENVIRONMENTAL DESCRIPTION

The project is located within the French Broad River Basin. The proposed bridge is over Kyles Creek which is classified as C-Tr. Three unnamed tributaries (UTs) to Kyles Creek are located within the project and will be impacted. Land uses include agriculture and rural residential.

IMPACTS

269 feet of stream will be temporarily impacted due to the on-site detour and bank stabilization efforts. Permanent impacts include a relocation of 120' of an unnamed tributary to Kyles Creek and 81' of stream bank stabilization along Kyle's Creek. Following the detour phase, the site will be graded to pre-project contours outside of the proposed roadway footprint.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

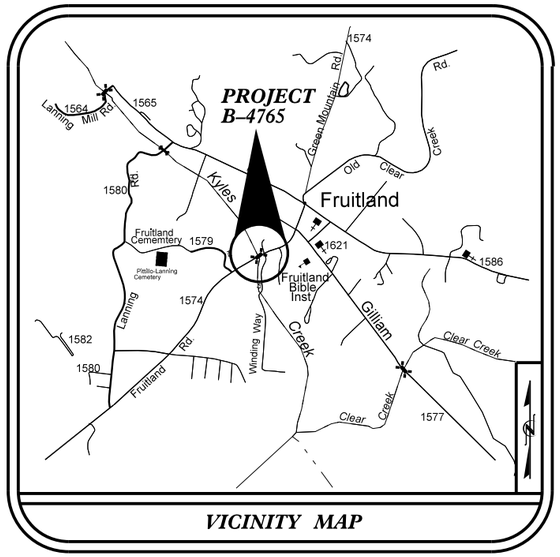
Best Management Practices (BMPs) and measures used in the project are non-structural and are an attempt to reduce the storm water impacts to the receiving stream due to erosion and runoff as well as attenuate and disperse storm water before entering the receiving waters. The primary storm water system conveyance is open ditches and sheet flow. A short pipe system with rip rap ditch outfall will convey storm water along the southwest quadrant. In this location the existing roadway ditch and minor stream channel are eroded and unstable. There is no direct discharge from impervious surfaces into the receiving water. A nearly vertical stream bank downstream of the bridge will be re-graded and armored to prevent further erosion.

09/08/99

TIP PROJECT: B-4765

CONTRACT: C203249

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

MODIFICATION
PERMIT DRAWING
SHEET 1 OF 6

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4765	1	

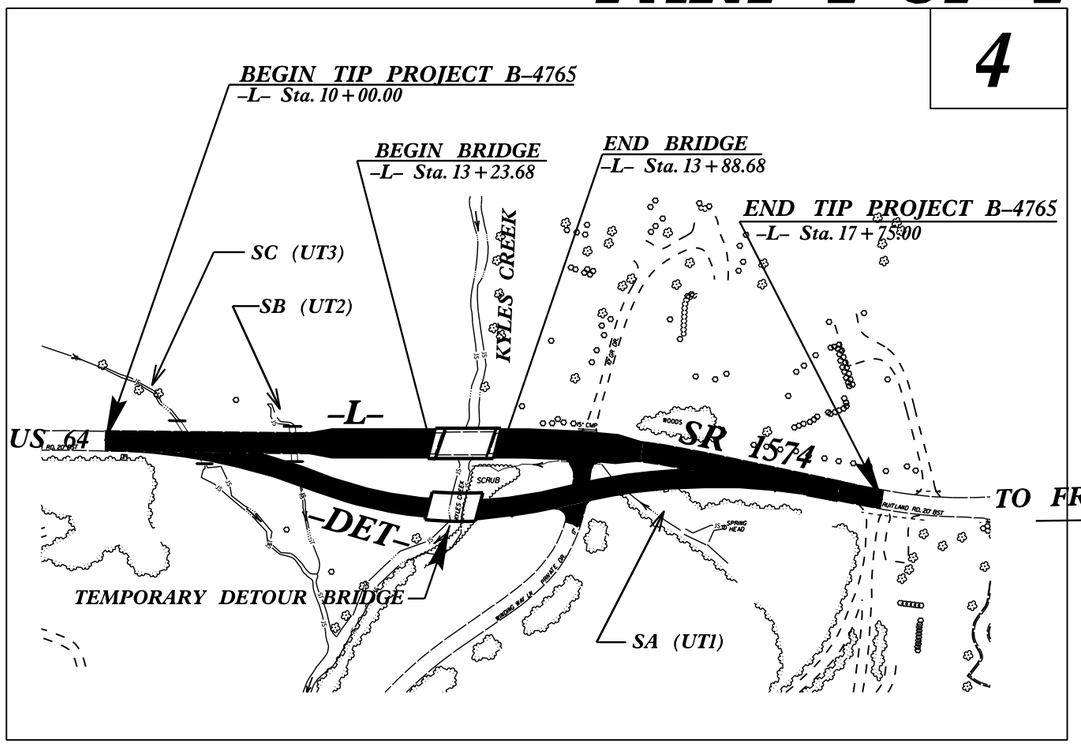
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38537.1.2	BRZ-1574(4)	P.E.
38537.2.1	BRZ-1574(4)	R/W & UTIL.
38537.3.1	BRZ-1574(4)	CONST.

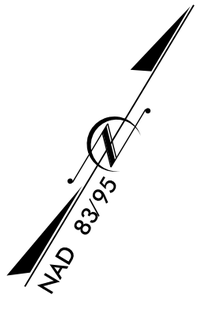
LOCATION: BRIDGE NO. 113 ON SR 1574 (FRUITLAND ROAD) OVER KYLES CREEK (A.K.A. TAZEWELL CREEK).

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

PART 2 OF 2

4

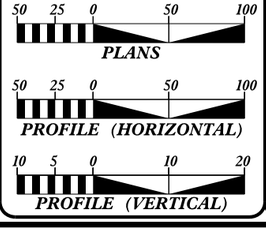




THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

WETLAND AND SURFACE WATER IMPACTS PERMIT

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 4662
ADT 2035 = 10500
DHV = 10 %
D = 65 %
T = 5 % *
V = 30 MPH
* TTST =1% DUAL 4%
FUNC CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4765 = 0.134 Mi.
LENGTH STRUCTURE TIP PROJECT B-4765 = 0.013 Mi.
TOTAL LENGTH TIP PROJECT B-4765 = 0.147 Mi.

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 23, 2012

LETTING DATE: OCTOBER 14, 2013

KEVIN E. MOORE, P.E.
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

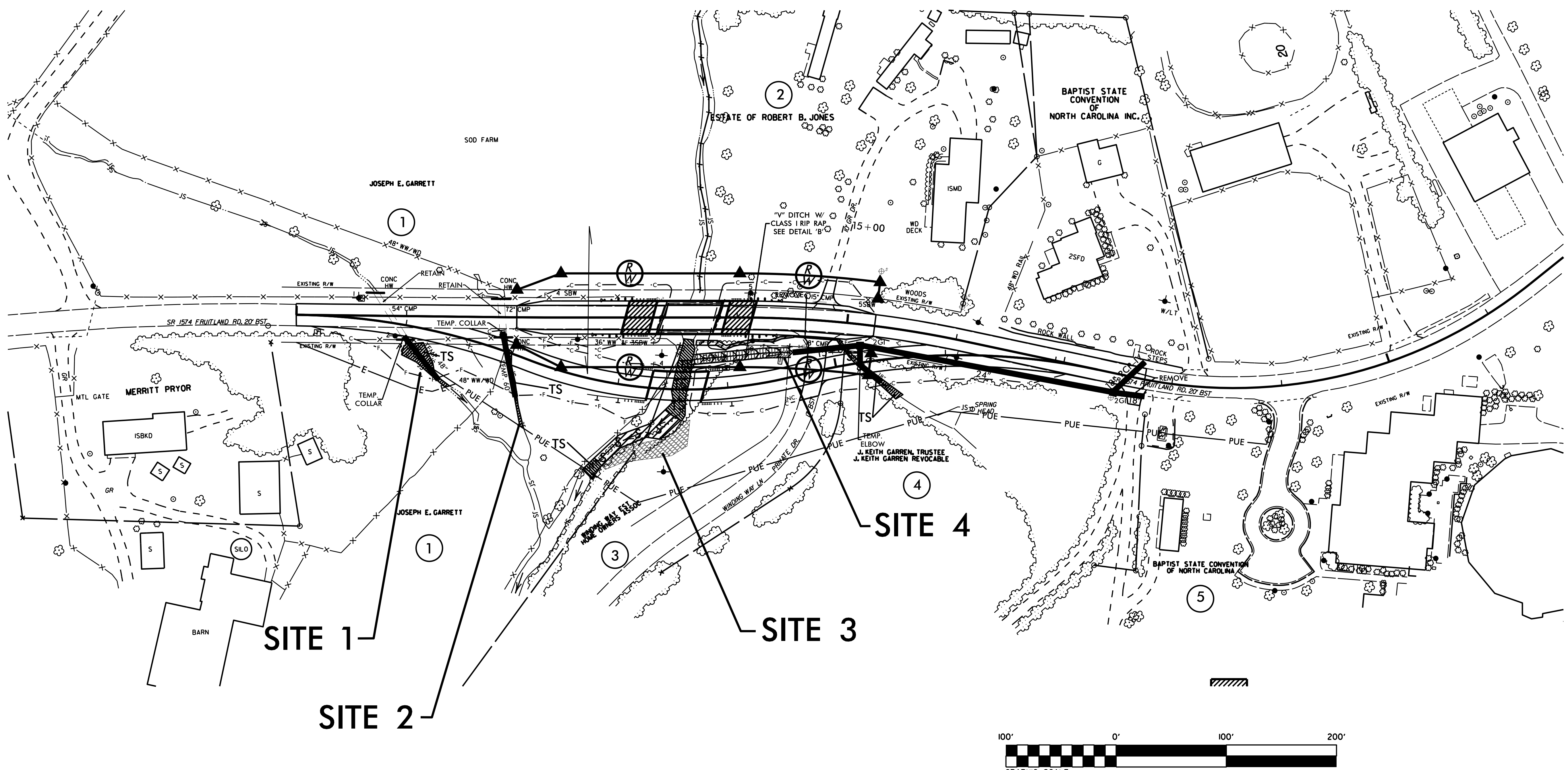
$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4765	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MODIFICATION

PERMIT DRAWING
SHEET 2 OF 6



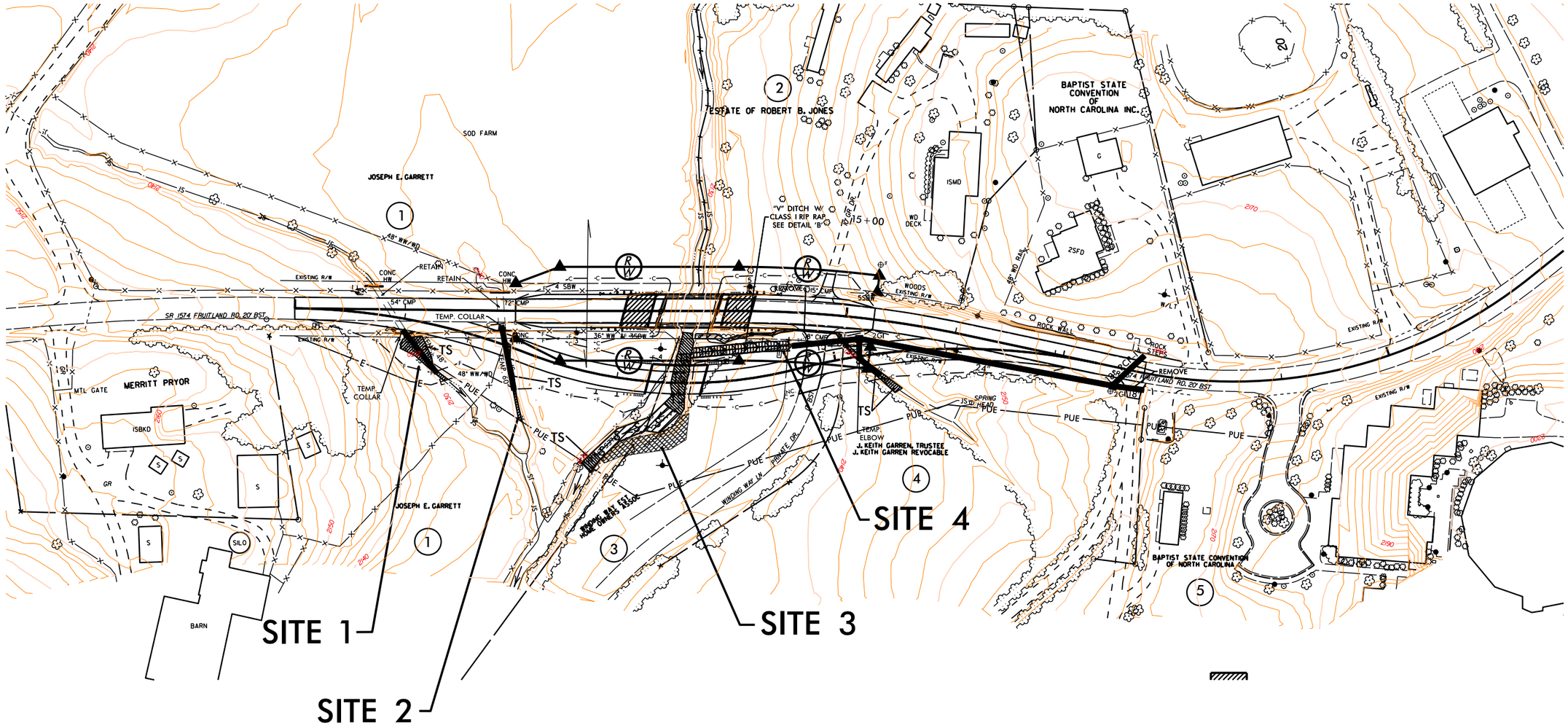
NAD 83/95
SOD FARM
JOSEPH E. GARRETT
ESTATE OF ROBERT B. JONES
BAPTIST STATE CONVENTION OF NORTH CAROLINA INC.
MERRITT PRYOR
J. KEITH GARREN, TRUSTEE
J. KEITH GARREN REVOCABLE
BAPTIST STATE CONVENTION OF NORTH CAROLINA
SR 1574 FRUITLAND RD. 20' BST
"V" DITCH W/ CLASS I RIP RAP SEE DETAIL 'B'
15+00
54" CMP
72" CMP
TEMP. COLLAR
48" WW/WD
WINDING WAY LN
PRIVATE DR
ROCK WALL
ROCK STEPS
REMOVE
BARN
SILO
ISBKD
ISMD
2SFD
WOODS
SITE 1
SITE 2
SITE 3
SITE 4
100' 0' 100' 200'
GRAPHIC SCALE

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REVISIONS

8/17/99



8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4765	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

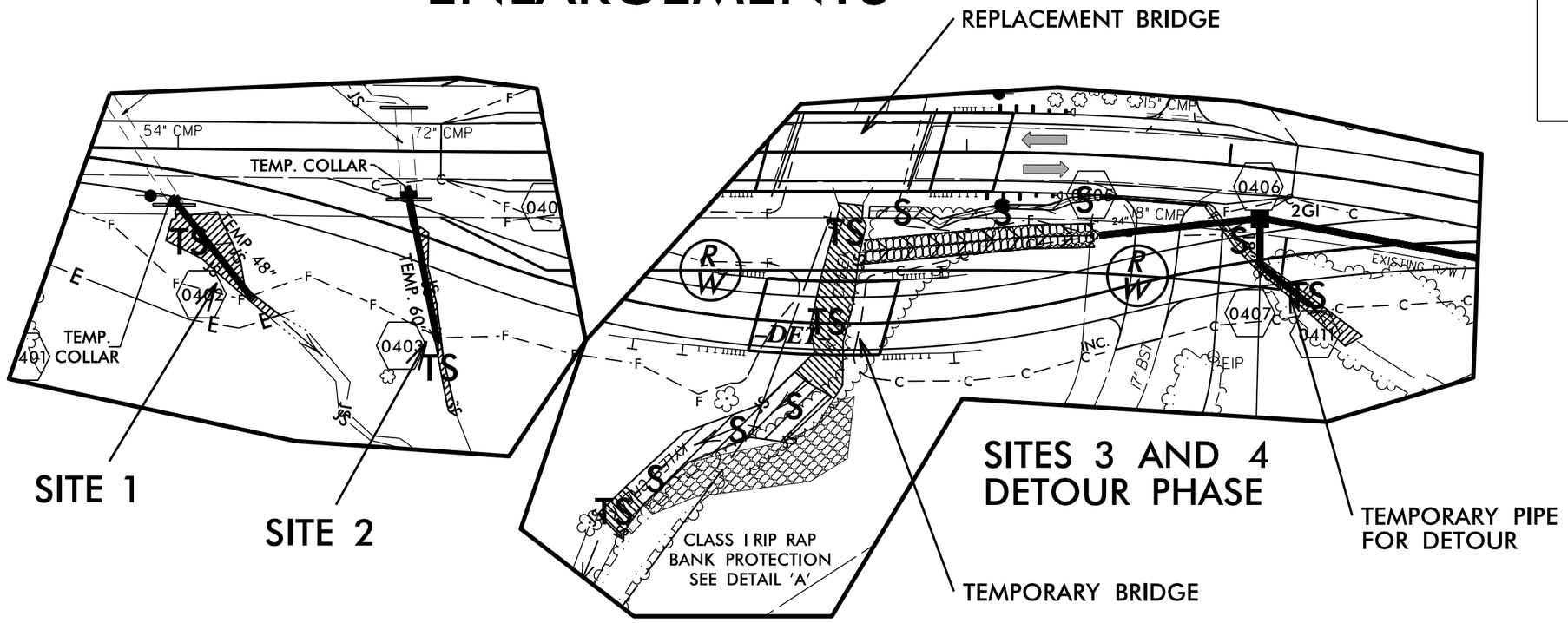
MODIFICATION

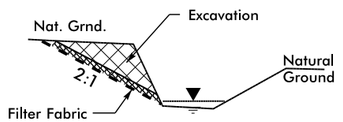
PERMIT DRAWING
SHEET 3 OF 6

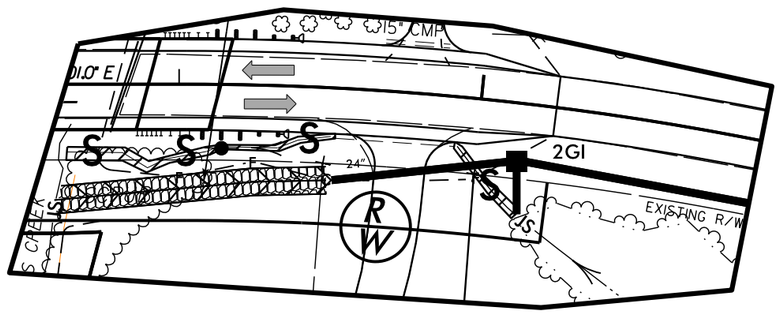
S ▨ S DENOTES IMPACTS IN SURFACE WATER

TS ▨ TS OR TS ▨ TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$
$$$$USERNAME$$$$







PROJECT REFERENCE NO.	SHEET NO.
B-4765	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

MODIFICATION

PERMIT DRAWING
SHEET 4 OF 6

ENLARGEMENTS

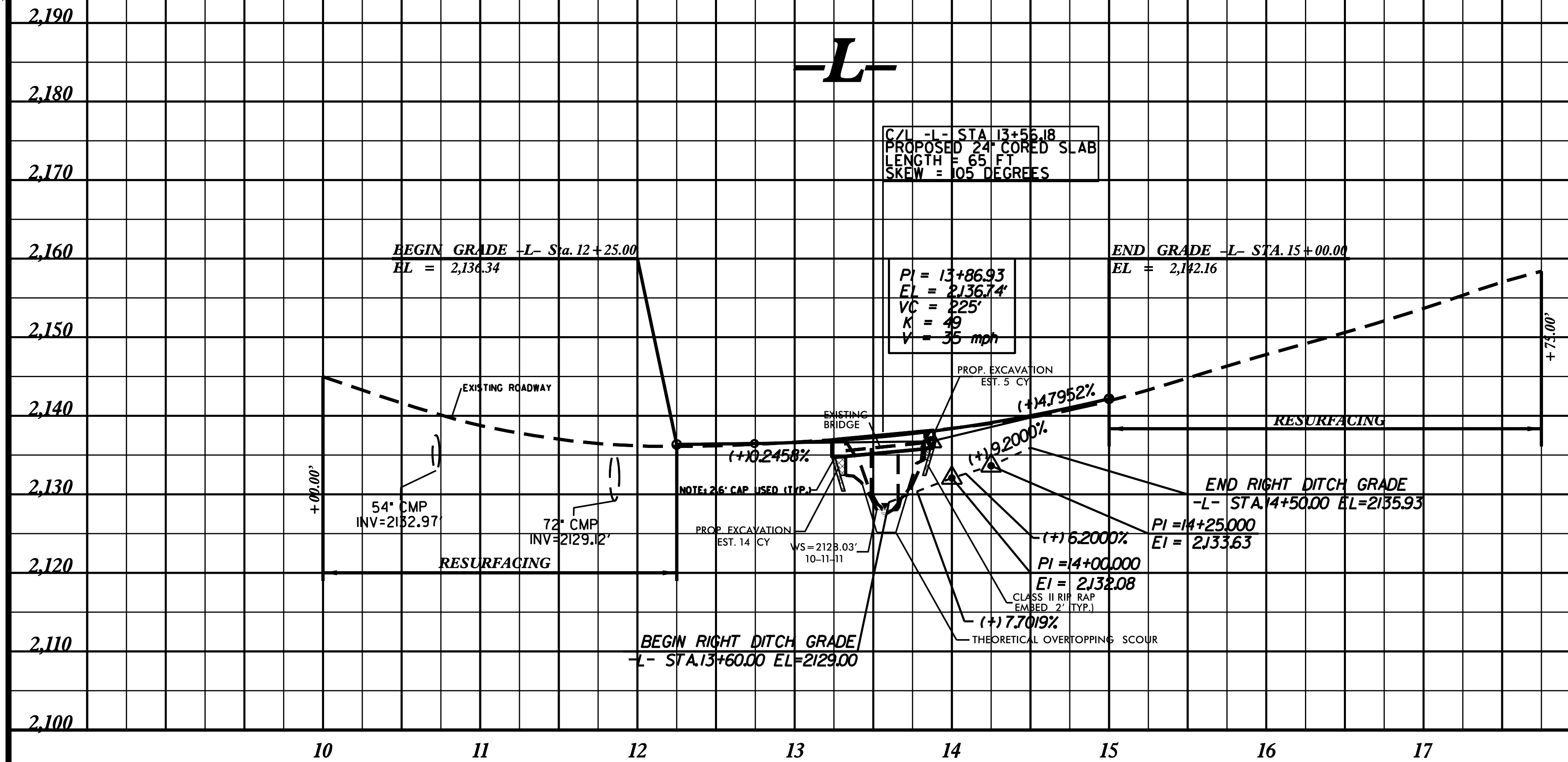
SITE 4 FINAL PHASE

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4765	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



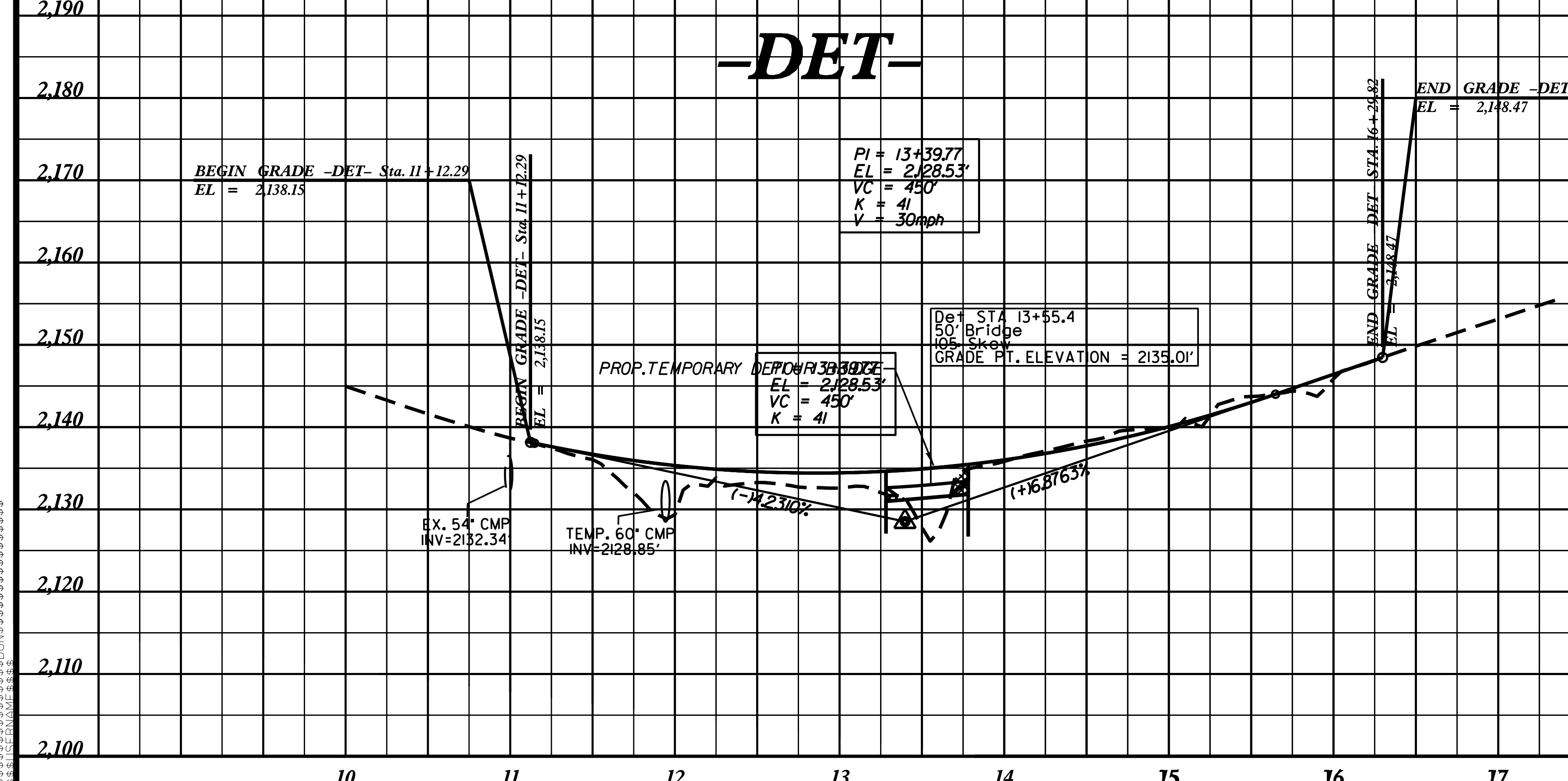
-L-
C/L -L- STA 13+56.18
PROPOSED 24" CORED SLAB
LENGTH = 65 FT
SKEW = 105 DEGREES
BEGIN GRADE -L- Sta. 12+25.00
EL = 2,136.34
END GRADE -L- STA. 15+00.00
EL = 2,142.16
PI = 13+86.93
EL = 2,136.74'
VC = 225'
K = 49
V = 35 mph
EXISTING ROADWAY
PROP. EXCAVATION
EST. 5 CY
EXISTING BRIDGE
(+)4.7952%
(+)0.2458%
(+)9.2000%
+00.00'
+75.00'
RESURFACING
RESURFACING
54" CMP
INV=2132.97'
72" CMP
INV=2129.12'
NOTE: 2.6' CAP USED (TYP.)
PROP. EXCAVATION
EST. 14 CY
WS=2128.03'
10-11-11
END RIGHT DITCH GRADE
-L- STA.14+50.00 EL=2135.93
PI =14+25.000
El = 2,133.63
(+)6.2000%
PI =14+00.000
El = 2,132.08
CLASS II RIP RAP
EMBED 2' (TYP.)
(+)7.7019%
THEORETICAL OVERTOPPING SCOUR
BEGIN RIGHT DITCH GRADE
-L- STA.13+60.00 EL=2129.00
2,190
2,180
2,170
2,160
2,150
2,140
2,130
2,120
2,110
2,100
10
11
12
13
14
15
16
17

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 850	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 2135J	FT
BASE DISCHARGE	= 1799	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2136.7	FT
OVERTOPPING DISCHARGE	= 955	CFS
OVERTOPPING FREQUENCY	= 10+/-	YRS
OVERTOPPING ELEVATION	= 2136.3	FT
	=	FT
DATE OF SURVEY	= 10/11/11	
W.S.ELEVATION AT DATE OF SURVEY	= 2128.03	FT

MODIFICATION

PERMIT DRAWING
SHEET 5 OF 6



-DET-
BEGIN GRADE -DET- Sta. 11+12.29
EL = 2,138.15
BEGIN GRADE -DET- Sta. 11+12.29
EL = 2,138.15
PI = 13+39.77
EL = 2,128.53'
VC = 450'
K = 41
V = 30mph
PI = 13+39.77
EL = 2,128.53'
VC = 450'
K = 41
Det STA 13+55.4
50' Bridge
105 Skew
GRADE PT. ELEVATION = 2135.01'
END GRADE -DET- STA. 16+29.82
EL = 2,148.47
END GRADE -DET- STA. 16+29.82
EL = 2,148.47
(-)4.4231%
(+)6.8763%
EX. 54" CMP
INV=2132.34'
TEMP. 60" CMP
INV=2128.85'
2,190
2,180
2,170
2,160
2,150
2,140
2,130
2,120
2,110
2,100
10
11
12
13
14
15
16
17

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 629	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 2133.9	FT
BASE DISCHARGE	= 1799	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2136.0	FT
OVERTOPPING DISCHARGE	= 955	CFS
DATE OF SURVEY	= 10/11/11	
W.S.ELEVATION AT DATE OF SURVEY	= 2128.03	FT

5/28/99

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	11+00 -L-	Temp. pipe 48"							0.01		55	
2	12+00 -L-	Temp. pipe 60"							0.01		82	
3	13+54 -L-	Temp. 50' Bridge							0.02		72	
3	13+54 -L-	Bank Stabilization							<0.01	81	15	
4	14+50 -L-	Stream Relocation & 18" Pipe						0.02	0.01	120	45	
TOTALS:								0.02	0.05	201	269	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

HENDERSON COUNTY
WBS - 38537.1.1 (B-4765)