STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

August 2, 2017

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: Application for Section 404 Nationwide Permit 13 for the Proposed Replacement of Bridge 148 on SR 1127 over Persimmon Creek in Cherokee County, Federal Aid Project No. BRZ-1127(12); TIP B-4462, Division 14; Work Order WBS Element 38376.1.2.

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace bridge number 148 on SR 1127 (Bell Hill Road) over Persimmon Creek in Cherokee County with a single span, 70 feet long cored slab bridge to the north of the existing alignment. The existing bridge will be utilized as an onsite detour during construction. This action will result in 20 lf feet of permanent impacts resulting from bank stabilization and there will be < 0.01 acres (50 lf) of temporary impacts to surface waters from bank stabilization installation and temporary shoring. Impacts are considered not a loss of waters; therefore, no mitigation will be acquired for this project.

Please see enclosed copies of the Pre-Construction Notification (PCN), Stormwater Management Plan, Permit Drawings, and Roadway Plansheets. A Programmatic Categorical Exclusion (PCE) was completed in October 2016 and distributed shortly thereafter. Additional copies are available upon request.

This project is not located in a trout watershed according to USACE Designated Trout Watershed mapping; therefore comments from the NCWRC will not be required for authorization by the USACE or NCDWR.

This project calls for a letting date of December 19, 2017 and a review date of October 31, 2017.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

A copy of this permit application 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 Jeff Hemphill at (919) 707-6126.

Sincerely,

Philip S. Harris, P.E., Manager
Environmental Analysis Unit

cc:
NCDOT Permit Application Standard Distribution List

Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

June 28, 2017 Ver 1.8

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Below is a link to the DRAFT online help file.

http://edocs.deq.nc.gov/WaterResources/0/doc/549884/Page1.aspx

A. Processing Information

County (or Counties) where the project is located:*

Cherokee

Is this project a public transportation project?*

(•) Yes ( ) No

Is this a NCDOT Project?*

(•) Yes ( ) No

(NCDOT only) T.I.P. or state project number:

B-4462

WBS #

38376.1.2

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps:*

- [x] Section 404 Permit (wetlands, streams and waters, Clean Water Act)
- [ ] Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization?*

- [x] Nationwide Permit (NWP)
- [ ] Regional General Permit (RGP)

Nationwide Permit (NWP) Number: **13 - Bank Stabilization**

NWP Number Other:

List all NW numbers you are applying for not on the drop down list.

1c. Type(s) of approval sought from the DWR:*

check all that apply

- [x] 401 Water Quality Certification - Regular
- [ ] 401 Water Quality Certification - Express
- [ ] Non-404 Jurisdictional General Permit
- [ ] Riparian Buffer Authorization

1d. Is this notification solely for the record because written approval is not required? *

For the record only for DWR 401 Certification: (•) Yes ( ) No

For the record only for Corps Permit: ( ) Yes (•) No

1e. 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

1f. Is the project located in any of NC's twenty coastal counties? *

( ) Yes (•) No

B. Applicant Information

1a. Who is the Primary Contact? *

Jeff Hemphill

1b. Primary Contact Email: *

jhemphill@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6126

1d. Who is applying for the permit?

[x] Owner [ ] Applicant (other than owner) [ ] Agent/Consultant

(Check all that apply)

2. Owner Information

2a. Name(s) on recorded deed:

NCDOT

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2e. Telephone Number:

(xxx)xxx-xxxx

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

jhemphill@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project: *

Replacement of Bridge 148 over Persimmon Creek on SR 1127 (Bell Hill Road)

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town: *

Murphy

1d. Driving directions *

If it is a new project and can not easily be found in a GPS mapping system. Please provide directions.

See Vicinity Map inset on title page of Permit Drawings (attached)

2. Project Identification

2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

35.05323

ex: 34.208504

Longitude: *

-84.18059

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Lake Hiwassee

3b. Water Resources Classification of nearest receiving water: *

C

Surface Water Lookup

3c. What river basin(s) is your project located in? *

Hiwassee

River Basin Lookup

4. Project Description

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

Agricultural, rural residential.

4b. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4c. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4d. List the total estimated acreage of all existing wetlands on the property:

0

4e. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

125'

4f. Explain the purpose of the proposed project:

To replace a structurally deficient and functionally obsolete bridge.

4g. Describe the overall project in detail, including the type of equipment to be used:

The project involves replacing a single span 36-foot timber deck & steel I beam bridge with a single span, 70-foot cored slab bridge on a new alignment to the north.The existing bridge will be utilized as an onsite detour for this project. Standard road building equipment, such as trucks, dozers, and cranes will be used.

4h. Please upload project drawings for the proposed project.

Click the upload button or drag and drop files here to attach document

B-4462 Permit Drawings.pdf	2.02MB
B-4462 Roadway Plans.pdf	1.61MB
B-4462 Permit Application Cover Letter.pdf	40.31KB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

○ Yes ◉ No ○ Unknown

Comments:

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

○ Preliminary ○ Approved ◉ Unknown

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known):

Agency/Consultant Company:

Other:

5d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

5d1. Jurisdictional determination upload

Click the upload button or drag and drop files here to attach document

File type must be PDF

6. Project History

6a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past? *

○ Yes ◉ No ○ Unknown

7. Future Project Plans

7a. Is this a phased project? *

○ Yes ◉ No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with 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.

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. Site # - Reason for impact	3b.Impact type	3c. Type of impact	3d. Stream name	3e. Stream Type	3f. Jurisdiction type	3g. Stream width	3h. Impact length
Site 1 Map label (e.g. Road Crossing 1)	**P** Permanent (P) or Temporary (T)	**Bank Stabilization**	**Persimmon Creek**	**Perennial** Perennial (PER) or intermittent (INT)	**Corps**	Average **17** (feet)	**20** (linear feet)
Site 1 Map label (e.g. Road Crossing 1)	**T** Permanent (P) or Temporary (T)	**Bank Stabilization**	**Persimmon Creek**	**Perennial** Perennial (PER) or intermittent (INT)	**Corps**	Average **17** (feet)	**50** (linear feet)

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

20

3i. Total temporary stream impacts:

50

3i. Total stream and tributary impacts:

70

3j. Comments:

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.

5. Pond or Lake Construction

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

6. Buffer Impacts (for DWR)

If project will impact a protected riparian buffer, then complete the chart below. Individually list all buffer impacts below.

E. Impact Justification and Mitigation

1. Avoidance and Minimization

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

See Stormwater Management Plan. The proposed bridge will have no direct discharge into the water. The minimum number of deck drains necessary to maintain safe passage by the traveling public will be installed over the overbank floodplain areas. Drains will be installed as far from the stream as possible to maximize opportunity to diffuse flow. No deck drains will be installed over water. The majority of stormwater runoff from the proposed bridge is to flow to two proposed drop inlets, located at the east approach of the bridge. Stormwater runoff will be discharged at minimum practicable slopes, yielding minimum velocities and diffused with riprap pads at pipe outlets, which the existing drainage does not benefit from. All proposed stormwater runoff is discharged as far away from the stream and at lowest velocities as practicable. Design maintains existing flow patterns to minimize impacts. The new bridge spans the creek.

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

Best Management Practices for Surface Waters will be used during all phases of construction.

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

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

1a. Does this project require a Stormwater Management Plan?

◉ Yes ○ No

1b. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan:

See Permit Drawings (attached)

1c. What is the overall percent imperviousness of this project?

%

1d. Who will be responsible for the review of the Stormwater Management Plan? *

☐ Certified Local Government
☐ DEMLR Stormwater Review
☑ DWR 401 & Buffer Permitting Branch
☐ DWR Transportation Permitting Branch

2. Diffuse Flow Plan

2a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

○ Yes ◉ No

If no, explain why:

5. DWR 401 Stormwater Review

5a. Is the Stormwater Management Plan (including BMP Supplemental Forms and Operation and Maintenance Agreements) attached?

◉ Yes ○ No

Stormwater Management Plan Upload

Click the upload button or drag and drop files here to attach document

file type must be pdf

G. Supplementary Information

1. Environmental Documentation

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.) *

◉ Yes ○ No

NEPA or SEPA Final Approval Letter

Click the upload button or drag and drop files here to attach document

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR 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 (DWR 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 "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 (DWR Requirement)

4a. Describe, in detail, the treatment methods and dispositions (non-discharge or discharge) of wastewater generated from the proposed project. If the wastewater will be treated at a treatment plant, list the capacity available at that plant.

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.

Asheville

5d. Is this a DOT project located within Division's 1-8? *

( ) Yes
(•) No

5e. Will you cut any trees in order to conduct the work in waters of the U.S.? *

(•) Yes ( ) No

5f. Does this project involve bridge maintenance or removal? *

(•) Yes ( ) No

5f(1). If yes, have you inspected the bridge for signs of bat use such as staining, guano, bats, etc.? Representative photos of signs of bat use can be found in the NLEB SLOPES, Appendix F, pages 3-7.

(•) Yes ( ) No

Link to the NLEB SLOPES document: http://saw-reg.usace.army.mil/NLEB/1-30-17-signed_NLEB-SLOPES&apps.pdf

If you answered "Yes" to 5f(1), did you discover any signs of bat use? *

( ) Yes (•) No ( ) Unknown

If yes, please show the location of the bridge on the permit drawings/project plans.

Click the upload button or drag and drop files here to attach document

File must be PDF

5g. Does this project involve the construction/installation of a wind turbine(s)?* *

( ) Yes (•) No

If yes, please show the location of the wind turbine(s) on the permit drawings/project plans.

Click the upload button or drag and drop files here to attach document

File must be PDF

5h. Does this project involve (1) blasting, and/or (2) other percussive activities that will be conducted by machines, such as jackhammers, mechanized pile drivers, etc.? *

(•) Yes ( ) No

If yes to either, please provide details to include type of percussive activity, purpose, duration, and specific location of this activity on the property.

Click the upload button or drag and drop files here to attach document

File must be PDF

5i. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

N.C. Natural Heritage Program database; USFWS-website; biological surveys for protected species listed for Cherokee County. A bat survey report dated June 19, 2017 found summer roosting habitat for Indiana bat (MANLAA). Consultation with NCDOT's Biological Surveys Group on August 2, 2017 confirmed that the potential roost tree identified in the 6/19/17 bat report will not be impacted by this project; therefore, the biological conclusion for Indiana bat is changed to No Effect. No roosting habitat nor nearby occurrences for Gray bat (No Effect), and NLEB is 4(d) compliant (part of Concurrence Letter sent to USFWS). Aquatic screenings/surveys were conducted in 2006 & 2013 and found no mussels – No Effect for Cumberland bean, Tan riffleshell and Little-wing pearlymussel. A Small whorled pogonia survey was conducted on February 25, 2013 - No Habitat/No Effect. An eagle survey was conducted in February 2013 & May 2017 with no nests or specimens observed.

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

○ Yes ◉ No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

NMFS County Index

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: http://gis.ncdcr.gov/hpoweb/

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

7c. Historic or Prehistoric Information Upload

Click the upload button or drag and drop files here to attach document

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: https://msc.fema.gov/portal/search

8a. Will this project occur in a FEMA-designated 100-year floodplain? *

○ Yes ◉ No

8b. If yes, explain how project meets FEMA requirements:

8c. What source(s) did you use to make the floodplain determination? *

FEMA Flood Maps

Miscellaneous attachments not previously requested.

Click the upload button or drag and drop files here to attach document

File must be PDF

Signature

*

☑ By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");

- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: *

Colin Mellor

Signature

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

WBS Element:	38376.1.2	TIP No.:	B-4462	County(ies):	Cherokee	Page	1	of	1

General Project Information

WBS Element:	38376.1.2	**TIP Number:**	B-4462	**Project Type:**	Bridge Replacement	**Date:**	3/20/2017
NCDOT Contact:	Stephen Morgan, PE			**Contractor / Designer:**	TGS Engineers (David B. Petty, PE)		
	Address: 1590 Mail Service Center Raleigh, NC 27699-1590				**Address:** 706 Hillsborough St. Suite 200 Raleigh, NC 27603		
	Phone: 919-707-6739				**Phone:** 919-773-8887 ext. 104		
	Email: smorgan@ncdot.gov				**Email:** dpetty@tgsengineers.com		
City/Town:	Murphy			**County(ies):**	Cherokee		
River Basin(s):	Hiwassee			**CAMA County?**	No		
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	724'	**Surrounding Land Use:**	forest, cropland and some rural residential

	Proposed Project	Existing Site
Project Built-Upon Area (ac.)	0.4 ac.	0.3 ac.
Typical Cross Section Description:	Two 10' wide paved travel lanes w/ pavement to face of guardrail, 0 to 3' paved shoulders and 1' to 3' grassed shoulders and 2(H):1(V) grassed side slopes.	Two 9' paved travel lanes w/ 2' to 5' wide grassed shoulders, w/ grassed side slopes ranging from about 3(H):1(V) to 4(H):1(V).
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 310 Year: 2037	Existing: 220 Year: 2017

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

Replacement of Bridge No. 190148 on SR 1127 (Bell Hill Rd.) over Persimmon Creek (Lake Cherokee) in Cherokee County southwest of Murphy, NC. Proposed 70' long by 27' wide single-span bridge to replace existing 36' long by 20' wide single-span bridge. The proposed grade across the bridge exceeds existing by about 1.5' to maintain clearance and has been realigned to resolve sight distance issues with the adjacent intersection. Stormwater runoff on the existing bridge discharges directly into the water along the full length of the bridge. The proposed bridge will have no direct discharge into the water. The minimum number of deck drains necessary to mainitain safe passage by the traveling public will be installed over the overbank floodplain areas. Drains will be installed as far from the stream as possible to maximize opportunity to diffuse flow. No deck drains will be installed over water. The majority of stormwater runoff from the proposed bridge is to flow to two proposed drop inlets, located at the east approach of the bridge. Stormwater runoff will be discharged at minimum practicable slopes, yielding minimum velocities and diffused with riprap pads at pipe outlets, which the existing drainage does not benefit from. All proposed stormwater runoff is discharged as far away from the stream and at lowest velocities as practicable.

Waterbody Information

Surface Water Body (1):	Persimmon Creek (Lake Cherokee)		**NCDWR Stream Index No.:**	1-63	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	Persimmon Creek			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

09/08/99

See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

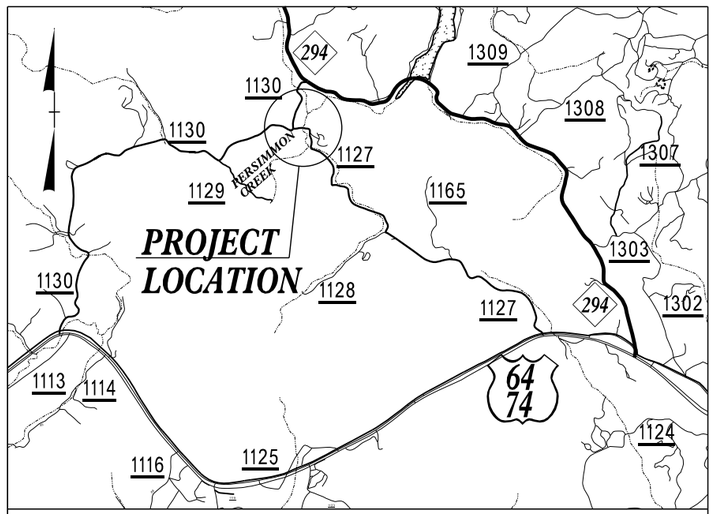
CHEROKEE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4462	1	

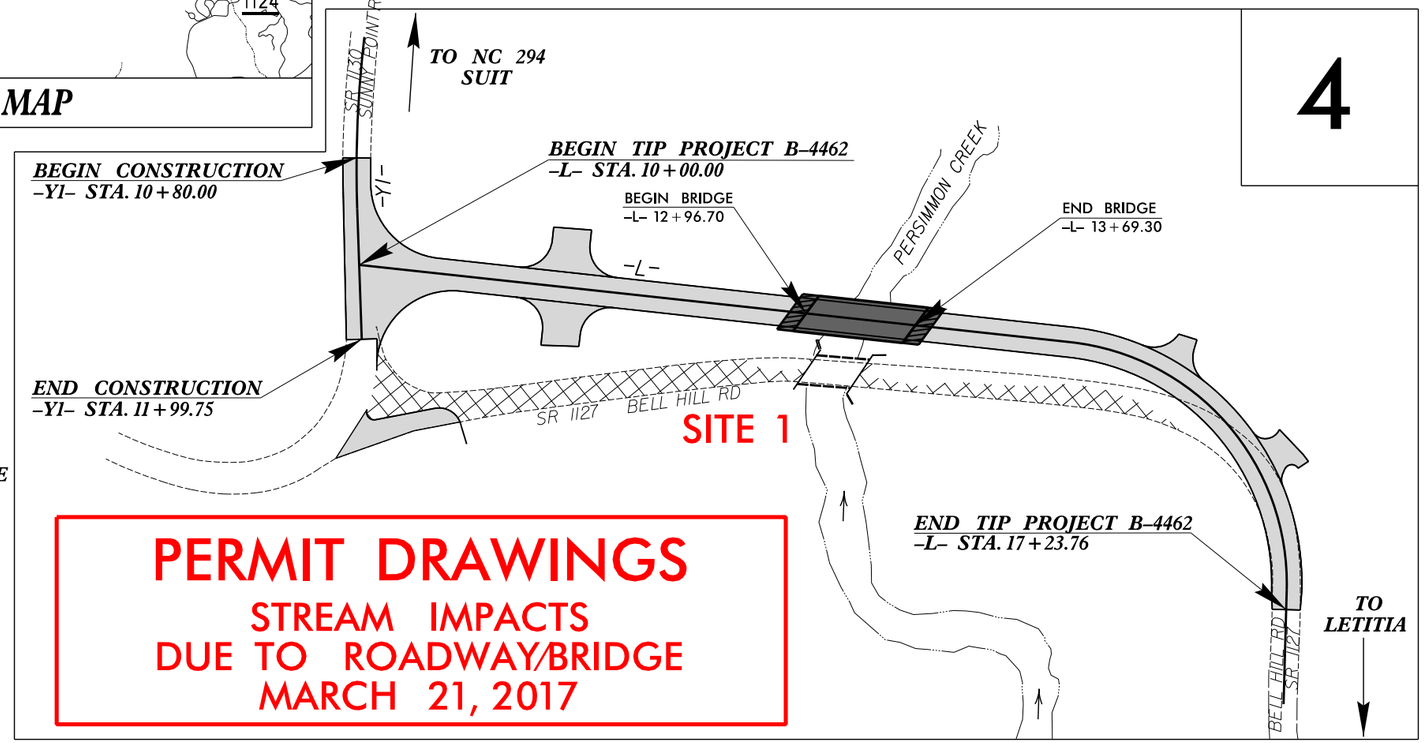
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38376.1.2	BRZ–1127(12)	P.E
38376.2.1		R/W

LOCATION: BRIDGE NO. 148 OVER PERSIMMON CREEK ON SR 1127 (BELL HILL RD)

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



VICINITY MAP



4

NAD 83/95

PERMIT DRAWINGS
STREAM IMPACTS
DUE TO ROADWAY/BRIDGE
MARCH 21, 2017

PERMIT DRAWING
SHEET 1 OF 7

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS NOT A CONTROL OF ACCESS PROJECT.

CONTRACT:

TIP PROJECT: B–4462

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 2017 = 220
ADT 2037 = 310
K = 11 %
D = 55 %
T = 3 % *
V = 25 MPH
* TTST = 1% DUAL = 2%
FUNC CLASS =
LOCAL RURAL
SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4462 = 0.123 MILE
LENGTH STRUCTURE TIP PROJECT B–4462 = 0.014 MILE
TOTAL LENGTH TIP PROJECT B–4462 = 0.137 MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 16, 2016

LETTING DATE:
DECEMBER 19, 2017

KEVIN E. MOORE, PE
PROJECT ENGINEER

NATHAN N. ADIMA, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

3/21/2017
X:\NCDOT\B-4462\Hydraulics\PERMITS_Environmental\Drawings\Permit Package\Roadway_2017032\B-4462_Hyd_prm_wet_tsh.dgn
User:dturner

EXISTING BRIDGE DIMENSIONS 36'X20' (SINGLE-SPAN), 30 DEG. SKEW
PROPOSED BRIDGE DIMENSIONS 70'X27' (SINGLE-SPAN), 120 DEG. SKEW
TOTAL PROJECT LENGTH – 724'

PROPOSED DECK DRAINS:
-L- STA. 13+11 TO 13+20 LT
-L- STA. 13+62 TO 13+71 LT
-L- STA. 12+95 TO 13+04 RT
-L- STA. 13+46 TO 13+55 RT
8"X6" (8"X4" EFFECTIVE AREA) DECK DRAINS @ MAX 3' O.C. HORIZ. THROUGH RAILS.

STREAM AND WETLAND IMPACTS

Surface Water Impacts	
Permanent SW Impacts	Temporary SW Impacts

PERMIT DRAWINGS FOR B-4462 CHEROKEE COUNTY BRIDGE #190148

PROJECT REFERENCE NO.	SHEET NO.
B-4462	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83 NA 2011

INSET: SEE SHEETS 4&5

JOHNNIE BURRELL
KATHERINE BURRELL
1

CARSON E. HALL
JACQUELINE S. HALL
2

RANDOLPH J. CANTOR
SUSAN F. CANTOR
4

BEGIN PROJECT
B-4462
-L- STA. 10+00.00

END PROJECT
B-4462
-L- STA. 17+23.76

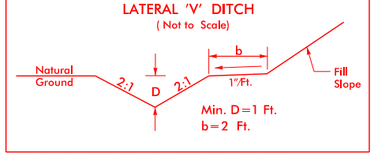
SUNNY POINT RD SR 1130
EXISTING R/W
SR 1127 BELL HILL RD
PERSIMMON CREEK
UT TO PERSIMMON CREEK
ENVIRONMENTALLY SENSITIVE AREA
FILL LOCALIZED DEPRESSION WITH CLASS II RIP RAP TO ELEV. 1546'
CLASS II RIP RAP (TYP.) (STRUCTURES ITEM)
DECK DRAINS
CLASS B RIP RAP DISSIPATOR PAD
SEE DETAIL A
SEE DETAIL C
SEE DETAIL D
GRADE TO DRAIN
REMOVE
RETAIN
TEMP. SHORING
EX. CONC. FOOTING TO BE RETAINED.
EX. WOODEN ABUTMENTS TO BE REMOVED AND SLOPES CUT BACK AT 2:1
18" HDPE
15" CMP
12" CMP
INV. =1557.40
INV. =1554.35
WOODS

PERMIT DRAWING SHEET 2 OF 7

NOTES:
1. PERSIMMON CREEK IS IN THE HIWASSEE RIVER BASIN.
2. NO BUFFER RULES IN EFFECT.
3. CLEARING SHALL BE PERFORMED PER NCDOT METHOD II.

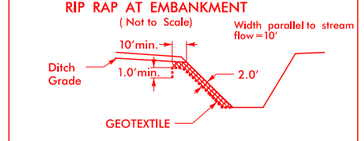
GRAPHIC SCALE
25 0 25 50

DETAIL A
LATERAL 'V' DITCH
(Not to Scale)



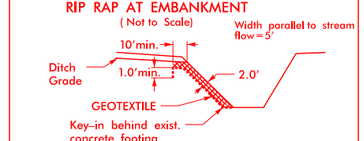
FROM -L- STA. 12+50 TO 13+06 RT
FROM -L- STA. 13+36 TO 16+00 RT
FROM -L- STA. 13+67 TO 16+08 LT
(SEE DITCH GRADE SHEET 5)

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=Class II Rip-Rap on Geotextile Fabric
-L- STA. 13+67 LT
-L- STA. 13+36 RT

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=Class II Rip-Rap on Geotextile Fabric
-L- STA. 13+06 RT

3212017
aturner
X:\NCDOT\B-4462\Hydraulics\PERMITS\Environmental Drawings\Permit Package\Roadway\ 20170321\B-4462 Hyd prm wet psh4.dgn

EXISTING BRIDGE DIMENSIONS 36'X20' (SINGLE-SPAN), 30 DEG. SKEW
PROPOSED BRIDGE DIMENSIONS 70'X27' (SINGLE-SPAN), 120 DEG. SKEW
TOTAL PROJECT LENGTH – 724'

PROPOSED DECK DRAINS:
-L- STA. 13+11 TO 13+20 LT
-L- STA. 13+62 TO 13+71 LT
-L- STA. 12+95 TO 13+04 RT
-L- STA. 13+46 TO 13+55 RT
8"X6" (8"X4" EFFECTIVE AREA) DECK DRAINS @ MAX 3' O.C. HORIZ. THROUGH RAILS.

STREAM AND WETLAND IMPACTS

Surface Water Impacts	
Permanent SW Impacts	Temporary SW Impacts

PERMIT DRAWINGS FOR B-4462 CHEROKEE COUNTY BRIDGE #190148

PROJECT REFERENCE NO.	SHEET NO.
B-4462	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83 NA 2011

INSET: SEE SHEETS 4&5

JOHNNIE BURRELL
KATHERINE BURRELL
1

CARSON E. HALL
JACQUELINE S. HALL
2

RANDOLPH J. CANTOR
SUSAN F. CANTOR
4

BEGIN PROJECT B-4462 -L- STA. 10+00.00

END PROJECT B-4462 -L- STA. 17+23.76

SUNNY POINT RD SR 1130

BELL HILL RD SR 1127

PERSIMMON CREEK

UT TO PERSIMMON CREEK

ENVIRONMENTALLY SENSITIVE AREA

FILL LOCALIZED DEPRESSION WITH CLASS II RIP RAP TO ELEV. 1546'

CLASS II RIP RAP (TYP.) (STRUCTURES ITEM)

DECK DRAINS

CLASS B RIP RAP DISSIPATOR PAD

SEE DETAIL A

SEE DETAIL C

SEE DETAIL D

GRADE TO DRAIN

REMOVE

TEMP. SHORING

EX. CONC. FOOTING TO BE RETAINED.

EX. WOODEN ABUTMENTS TO BE REMOVED AND SLOPES CUT BACK AT 2:1

18" HDPE

15" CMP

12" CMP

18" CMP

INV. =1557.40

INV. =1554.35

RETAIN

EXISTING R/W

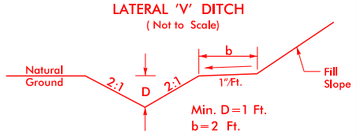
WOODS

NOTES:

1. PERSIMMON CREEK IS IN THE HIWASSEE RIVER BASIN.
2. NO BUFFER RULES IN EFFECT.
3. CLEARING SHALL BE PERFORMED PER NCDOT METHOD II.

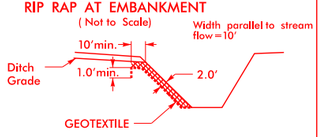
GRAPHIC SCALE
25 0 25 50

DETAIL A
LATERAL 'V' DITCH
(Not to Scale)



FROM -L- STA. 12+50 TO 13+06 RT
FROM -L- STA. 13+36 TO 16+00 RT
FROM -L- STA. 13+67 TO 16+08 LT
(SEE DITCH GRADE SHEET 5)

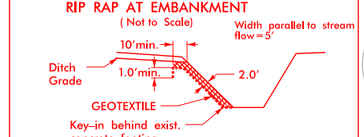
DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=Class II Rip-Rap on Geotextile Fabric

-L- STA. 13+67 LT
-L- STA. 13+36 RT

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=Class II Rip-Rap on Geotextile Fabric

-L- STA. 13+06 RT

PERMIT DRAWING SHEET 3 OF 7

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PROJECT REFERENCE NO.	SHEET NO.
B-4462	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887

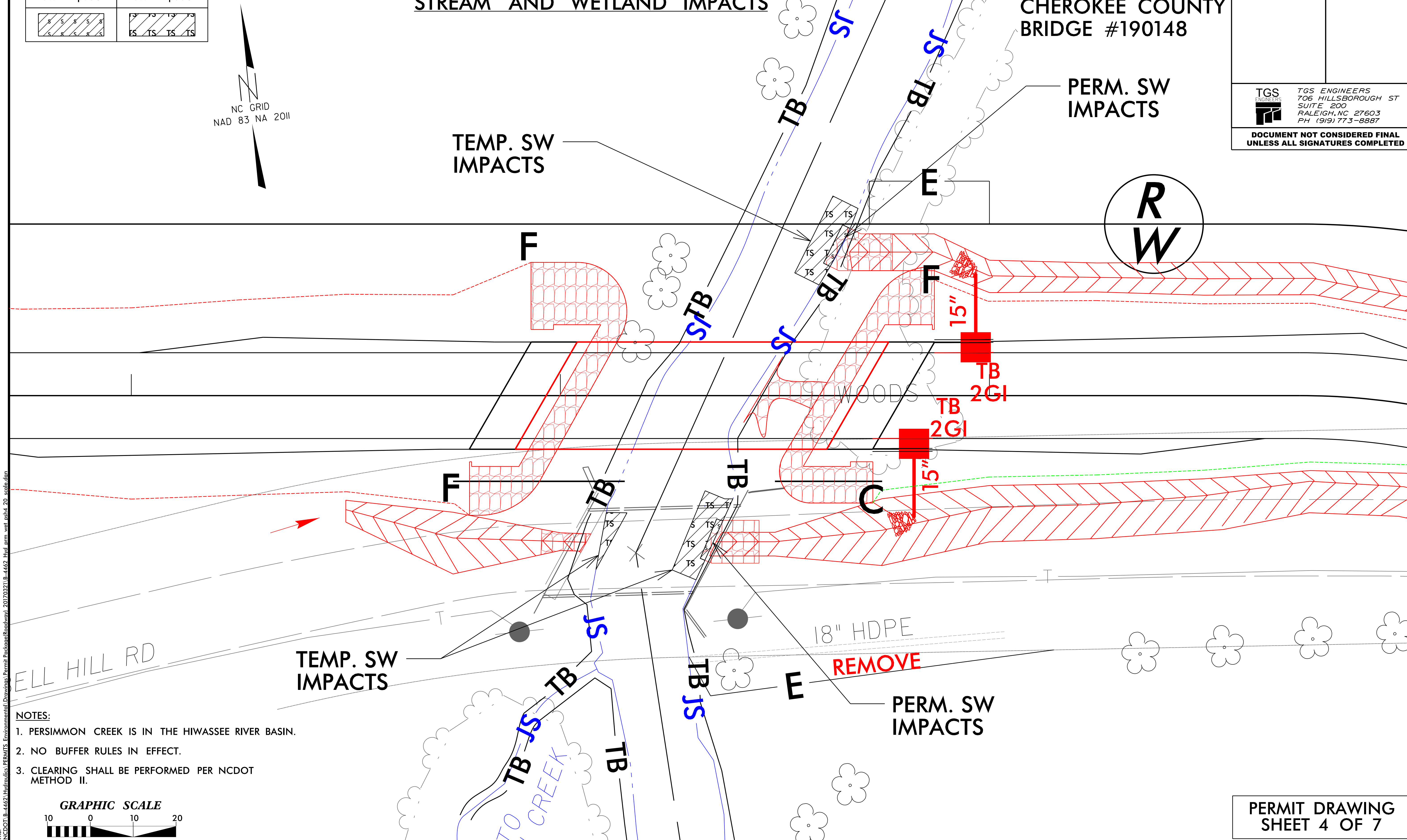
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWINGS FOR B-4462 CHEROKEE COUNTY BRIDGE #190148

EXISTING BRIDGE DIMENSIONS 36'X20' (SINGLE-SPAN), 30 DEG. SKEW
PROPOSED BRIDGE DIMENSIONS 70'X27' (SINGLE-SPAN), 120 DEG. SKEW
TOTAL PROJECT LENGTH – 724'

STREAM AND WETLAND IMPACTS

Surface Water Impacts	
Permanent SW Impacts	Temporary SW Impacts



NOTES:

1. PERSIMMON CREEK IS IN THE HIWASSEE RIVER BASIN.
2. NO BUFFER RULES IN EFFECT.
3. CLEARING SHALL BE PERFORMED PER NCDOT METHOD II.

GRAPHIC SCALE
10 0 10 20

PERMIT DRAWING
SHEET 4 OF 7

3/21/2017
aturner
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Surface Water Impacts	
Permanent SW Impacts	Temporary SW Impacts

EXISTING BRIDGE DIMENSIONS 36'X20' (SINGLE-SPAN), 30 DEG. SKEW
PROPOSED BRIDGE DIMENSIONS 70'X27' (SINGLE-SPAN), 120 DEG. SKEW
TOTAL PROJECT LENGTH – 724'

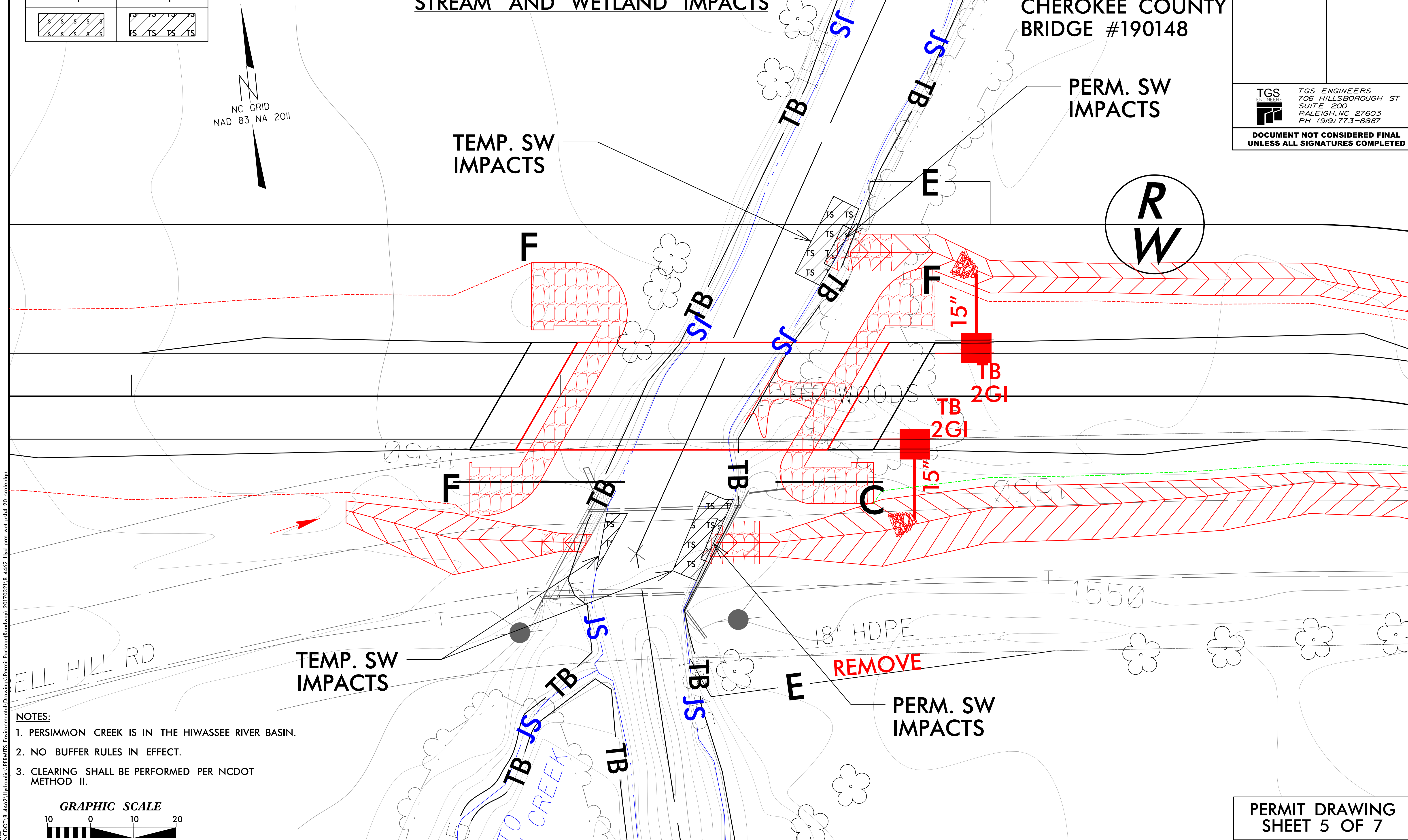
STREAM AND WETLAND IMPACTS

PERMIT DRAWINGS FOR B-4462 CHEROKEE COUNTY BRIDGE #190148

PROJECT REFERENCE NO.	SHEET NO.
B-4462	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTES:

1. PERSIMMON CREEK IS IN THE HIWASSEE RIVER BASIN.
2. NO BUFFER RULES IN EFFECT.
3. CLEARING SHALL BE PERFORMED PER NCDOT METHOD II.

GRAPHIC SCALE
10 0 10 20

PERMIT DRAWING
SHEET 5 OF 7

3/21/2017
aturner
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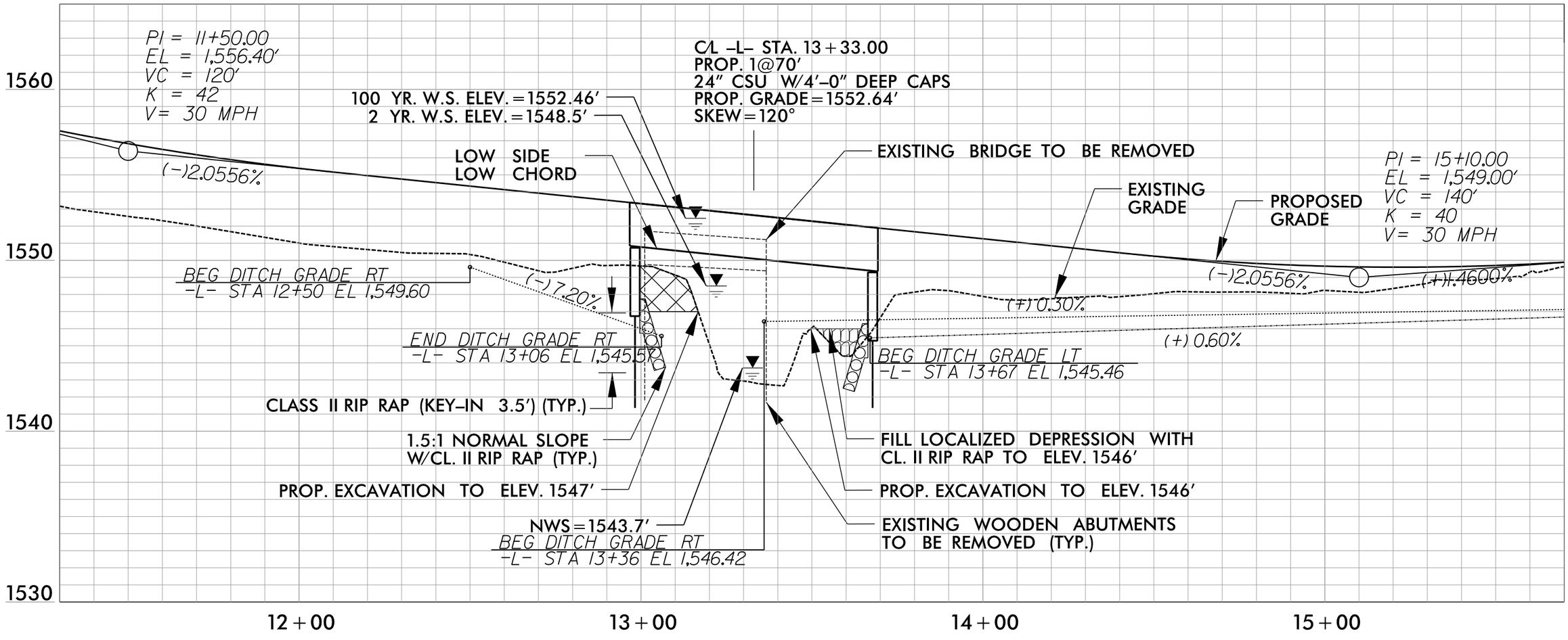

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 750	CFS
DESIGN FREQUENCY	= 2*	YRS
DESIGN HW ELEVATION	= 1548.5	FT
BASE DISCHARGE	= 3540	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1552.46	FT
OVERTOPPING DISCHARGE	= 1400	CFS
OVERTOPPING FREQUENCY	= 5	YRS
OVERTOPPING ELEVATION	= 1550.0**	FT

W.S.ELEVATION TAKEN AT RIVER STATION 31260

* NOTE: DESIGN MAINTAINS EXISTING LEVEL OF SERVICE

**OVERTOPPING ELEVATION REPRESENTS LOWEST HIGH POINT ON DECK/ROADWAY, WHICH OCCURS AT SAG @ -L- STA.15+21.86 (LEFT EDGE OF PAVEMENT)

PROFILE

PERMIT DRAWING SHEET 6 OF 7

PERMIT DRAWINGS
FOR B–4462
CHEROKEE COUNTY
BRIDGE #190148

NCDOT
DIVISION OF HIGHWAYS
CHEROKEE COUNTY
PROJECT: 38376.1.2 (B-4462)
REPLACEMENT OF BRIDGE NO. 190148
ON SR 1127 (BELL HILL RD)
OVER PERSIMMON CREEK

3/20/2017
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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	13+08 to 13+16 RT,	Streambank Stabilization							< 0.01		47	
	13+26 to 13+40 RT,											
	13+55 to 13+69 LT											
1	13+13 RT	Temporary Shoring									3	
1	13+33 to 13+38 RT,	Streambank Stabilization						< 0.01		20		
	13+61 to 13+68 LT											
TOTALS*:								< 0.01	< 0.01	20	50	0

*Rounded totals are sum of actual impacts

NOTES:
All impacts are for Persimmon Creek.
UT to Persimmon Creek (SA) has no impacts.

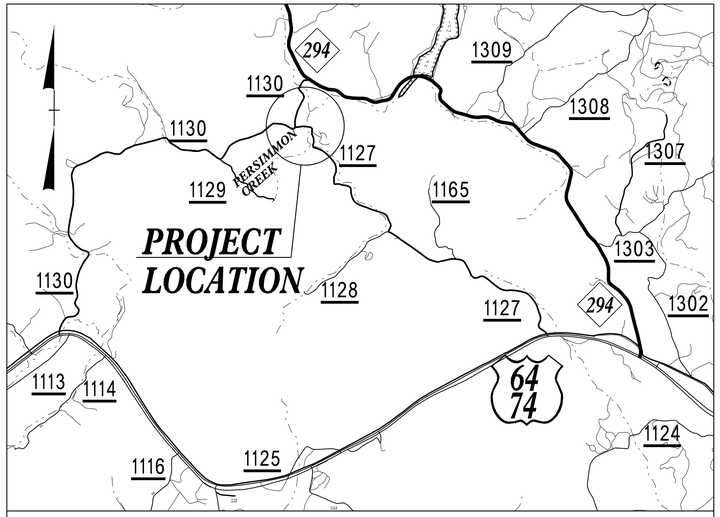
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
3/20/2017
CHEROKEE
PROJECT: 38376.1.2 (B-4462)

09/08/99

TIP PROJECT: B–4462

CONTRACT:

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

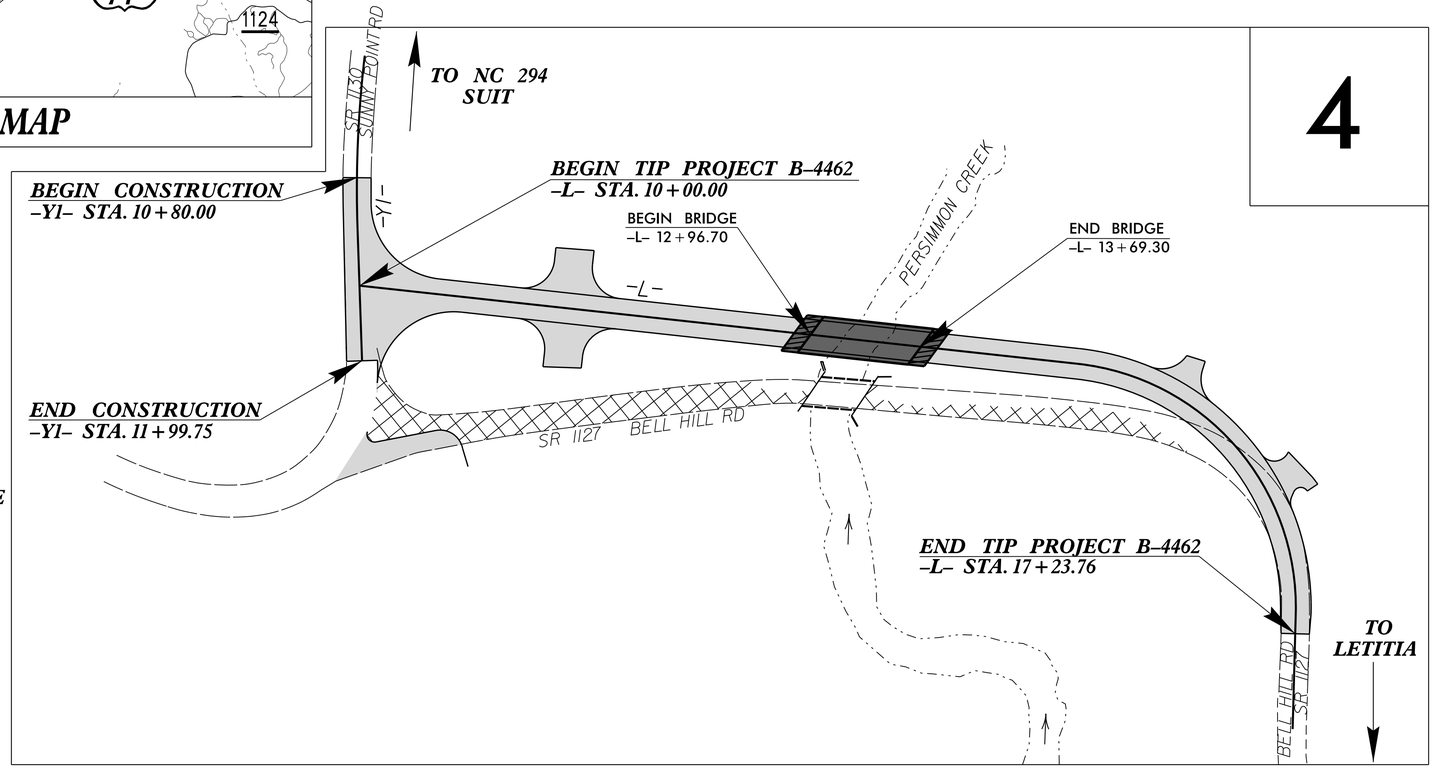
CHEROKEE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4462	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38376.1.2	BRZ–1127(12)	P.E
38376.2.1		R/W

LOCATION: BRIDGE NO. 148 OVER PERSIMMON CREEK ON SR 1127 (BELL HILL RD)

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



4

NAD 83/95

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS NOT A CONTROL OF ACCESS PROJECT.

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 2017 = 220
ADT 2037 = 310
K = 11 %
D = 55 %
T = 3 % *
V = 25 MPH
* TTST =1% DUAL=2%
FUNC CLASS =
LOCAL RURAL
SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4462 = 0.123 MILE
LENGTH STRUCTURE TIP PROJECT B–4462 = 0.014 MILE
TOTAL LENGTH TIP PROJECT B–4462 = 0.137 MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 16, 2016

LETTING DATE:
DECEMBER 19, 2017

KEVIN E. MOORE, PE
PROJECT ENGINEER

NATHAN N. ADIMA, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

05-APR-2017 15:49
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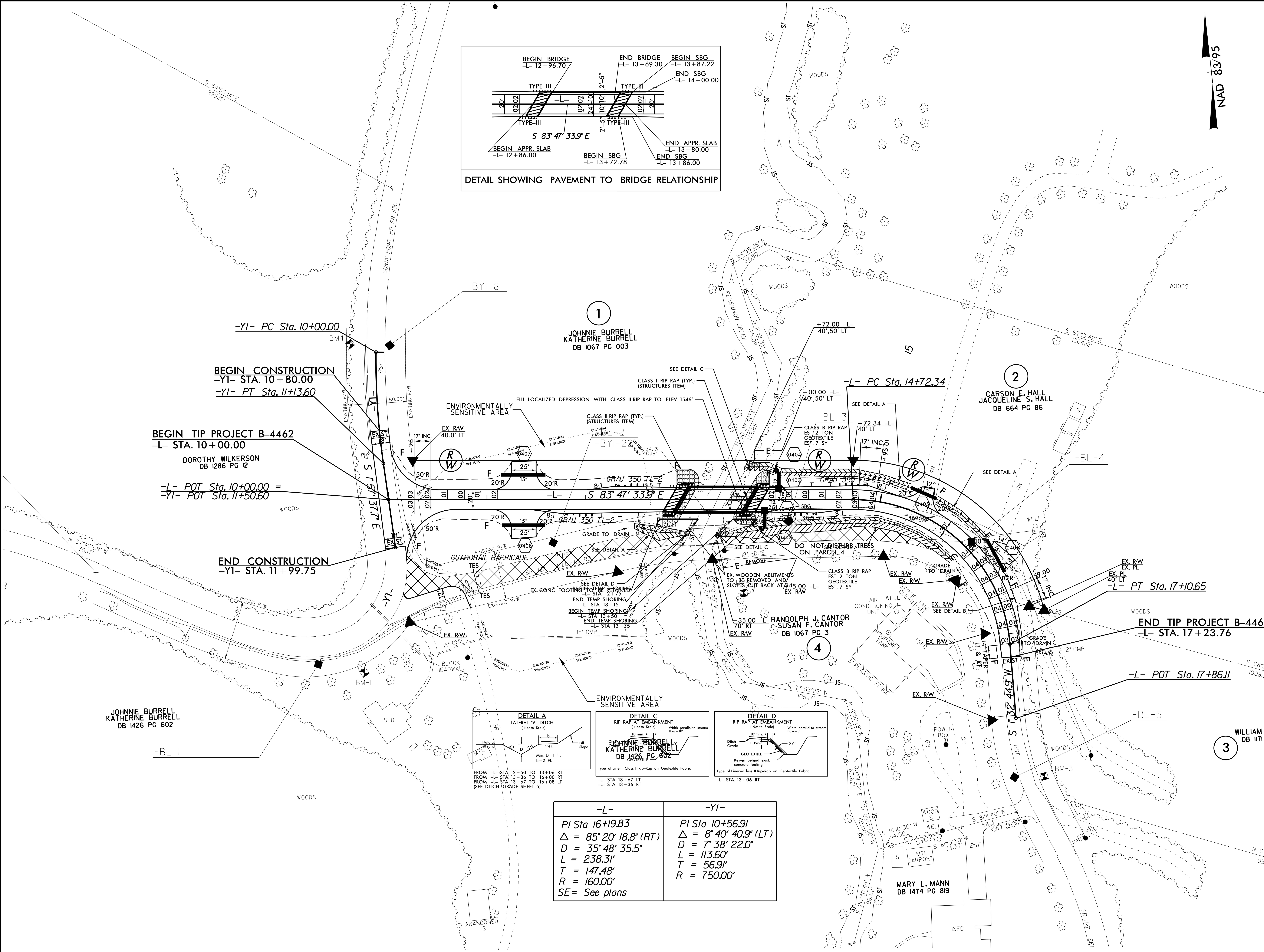
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4462	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-L-	-YI-
PI Sta 16+19.83	PI Sta 10+56.91
Δ = 85° 20' 18.8" (RT)	Δ = 8° 40' 40.9" (LT)
D = 35° 48' 35.5"	D = 7° 38' 22.0"
L = 238.31'	L = 113.60'
T = 147.48'	T = 56.91'
R = 160.00'	R = 750.00'
SE = See plans	

NOTE:

FOR PROFILES, SEE SHEET 5.

PAVEMENT REMOVAL

APPROACH SLAB

REVISIONS

R/W REVISION: ADDED DRIVEWAYS TO PARCEL 1 AT -L- STA.11+37.50 LT & RT. BCK 02/21/17

8/17/99

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-4462	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

–L–

BM #2 EL = 1,549.47'
8" SPIKE IN BASE OF 16" WALNUT TREE
–BL– STA. 9+57 (69' RT.)
–L– STA. 13+61 (95' RT.)

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 750	CFS
DESIGN FREQUENCY	= 2*	YRS
DESIGN HW ELEVATION	= 1548.5	FT
BASE DISCHARGE	= 3540	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1552.46	FT
OVERTOPPING DISCHARGE	= 1400	CFS
OVERTOPPING FREQUENCY	= 5	YRS
OVERTOPPING ELEVATION	= 1550.0**	FT

W.S. ELEVATION TAKEN AT RIVER STATION 31260
* NOTE: DESIGN MAINTAINS EXISTING LEVEL OF SERVICE
** OVERTOPPING ELEVATION REPRESENTS LOWEST HIGH POINT ON DECK/ROADWAY, WHICH OCCURS AT SAG @ –L– STA. 15+21.86 (LEFT EDGE OF PAVEMENT)

BEGIN TIP PROJECT
–L– STA 10+00.00

BEGIN GRADE
–L– STA 10+09.16
EL. 1,563.33'

END TIP PROJECT
–L– STA 17+23.76

END GRADE
–L– STA 17+10.00
EL. 1,551.92

PROP. EXC. (STR. ITEM)

PROP. EXC. (STR. ITEM)
CLASS II RIP RAP QTY. 10 TONS

PI = 11+50.00
EL = 1,556.40'
VC = 120'
K = 42
V = 30 MPH

PI = 15+10.00
EL = 1,549.00'
VC = 140'
K = 40
V = 30 MPH

BEGIN BRIDGE
–L– STA 12+96.76

END BRIDGE
–L– STA 13+69.30

(–)4.9205%
(–)12.0556%
(+)4.20%
(–)12.0556%
(+) 0.30%
(+) 0.60%
(+)11.4600%
(+) 3.60%
(+) 3.00%
(+)1.28%

BEG DITCH GRADE RT
–L– STA 12+50 EL 1,549.60

END DITCH GRADE RT
–L– STA 13+06 EL 1,545.57

BEG DITCH GRADE RT
–L– STA 13+36 EL 1,546.42

BEG DITCH GRADE LT
–L– STA 13+67 EL 1,545.46

PI DITCH GRADE LT
–L– STA 15+75 EL 1546.71

END DITCH GRADE RT
–L– STA 16+00 EL 1,547.21

END DITCH GRADE LT
–L– STA 16+08 EL 1,547.90

PI DITCH GRADE LT
–L– STA 16+75 EL 1550.44

BEG DITCH GRADE LT
–L– STA 16+42 EL 1,549.45

END DITCH GRADE LT
–L– STA 17+00 EL 1,550.76

RIGHT DITCH ----------

LEFT DITCH –·–·–·–

FOR –L– PLAN VIEW
SEE SHEET 4

–Y1–

BEGIN RESURFACING
–Y1– STA 10+80.00

END RESURFACING
–Y1– STA 11+99.75

FOR –Y1– PLAN VIEW
SEE SHEET 4

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