



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 31, 2012

Mr. Brian Wrenn
N. C. Dept. of Env. and Natural Resources
Division of Water Quality
1650 Mail Service Center
Raleigh, NC 27699-1650

Mr. Stephen Lane
N. C. Dept. of Env. and Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Dear Sirs:

Subject: Application for a Section 401 Water Quality Certification, Tar-Pam Riparian Buffer Authorization Request, CAMA General Permits, and Notice of Use of Section 404 Nationwide Permits 3 and 12 for the replacement of Bridge No. 42 over Durham Creek on SR 1003 (Tunstall Swamp Road) in Beaufort County; TIP Project B-4421; Federal Aid Project No. BRSTP-1003(31); State Project No.8.2151301. Debit \$800 from WBS 33694.1.1

Please find enclosed Pre-Construction Notification (PCN), CAMA Major Permit (MP) forms, permit drawings, buffer drawings, utility drawings, utility narrative, stormwater management plan, adjacent riparian landowner certified mail receipts, U.S. Coast Guard advanced approval letter, and roadway plans for the above referenced project proposed by the North Carolina Department of Transportation (NCDOT). A Programmatic Categorical Exclusion (PCE) was completed for this project on February 22, 2011 and distributed shortly thereafter. Additional copies are available upon request. The NCDOT proposes to replace existing Bridge 42 over Durham Creek on SR 1003 (Tunstall Swamp Road) in Beaufort County. The project involves replacement of the existing 104-foot bridge and approaches with a new 130-foot bridge and approaches. The new bridge will feature two 11-foot lanes with 6-foot offsets. The west approach will be approximately 180.6 feet long and the east approach will be approximately 188.8 feet long. Proposed permanent impacts to riparian wetlands are 0.01 acre for fill. Traffic will be detoured off-site during construction.

This project calls for a letting date of September 18, 2012 and a review date of August 7, 2012; however, the let date may advance as additional funding becomes available.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

Regulatory Approvals

Section 404 Permit: The NCDOT intends to proceed with the construction of this project under Nationwide Permits 3 and 12. All general conditions will be met and therefore NCDOT is not requesting written approval from the U.S. Army Corps of Engineers.

Section 401 Permit: We anticipate 401 General Certification numbers 3687 and 3819 will apply to this project. NCDOT is requesting written concurrence from the North Carolina Department of Environmental and Natural Resources, Division of Water Quality. We are providing five copies of this application to the NCDWQ for their approval.

Tar-Pamlico Riparian Buffer: NCDOT requests that the NC Division of Water Quality review this application and issue a written approval for a Tar-Pamlico Riparian Buffer Authorization.

CAMA: NCDOT requests that the proposed work be authorized under Coastal Area Management Act General Permits for bridges and utility relocation. Adjacent riparian landowner return receipts will be forwarded once they become available. Authorization to debit the \$800 Permit Application Fee from WBS Element 33694.1.1 is hereby given.

A copy of this permit application and its distribution list will be posted on the NCDOT website at <http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>.

If you have any questions or need additional information, please contact Chris Underwood at (919) 707-6158.

Sincerely,



for

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

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:	<input checked="" type="checkbox"/> Section 404 Permit <input type="checkbox"/> Section 10 Permit	
1b. Specify Nationwide Permit (NWP) number: 3 12 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input checked="" type="checkbox"/> 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: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	For the record only for Corps Permit: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

2. Project Information

2a. Name of project:	Replacement of Bridge 42 over Durham Creek on SR 1003
2b. County:	Beaufort
2c. Nearest municipality / town:	Aurora
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-4421

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6158
3g. Fax no.:	(919) 212-5785
3h. Email address:	csunderwood@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	<input type="checkbox"/> Agent <input type="checkbox"/> Other, specify:
4b. Name:	<i>not applicable</i>
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:	<i>not applicable</i>
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):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.2951 (DD.DDDDDD) Longitude: - 76.8730 (-DD.DDDDDD)
1c. Property size:	~2 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Durham Creek
2b. Water Quality Classification of nearest receiving water:	C NSW
2c. River basin:	Tar Pamlico
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: Forested	
3b. List the total estimated acreage of all existing wetlands on the property: >1	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 200	
3d. Explain the purpose of the proposed project: To replace a bridge on FHWA's Highway Bridge Program.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 104-foot bridge with a 130-foot, 3-span bridge on the existing alignment with an off-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:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input checked="" type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): Veronica Barnes	Agency/Consultant Company: NCDOT Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. June 20, 2011	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Fill	bottomland hardwood	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.01
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
2g. Total wetland impacts					0.01 permanent 0.0 temp

2h. Comments: There will be 0.02 ac of hand clearing due to bridge construction. Proposed temporary impacts of <0.01 ac of Temporary Fill in the Hand Clearing areas, for the installation of erosion control measures, including Temporary Silt Fence and/or Special Sediment Control Fence. Additionally, there will be <0.01 acre of fill for utility poles and 0.15 ac of hand clearing for utility relocations.

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 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
3h. Total stream and tributary impacts						

3i. 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.

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 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
4f. Total open water impacts				

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?	<input type="checkbox"/> Yes	<input type="checkbox"/> 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?		<input type="checkbox"/> Neuse <input checked="" type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Other: <input type="checkbox"/> Catawba <input type="checkbox"/> Randleman			
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 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bridge	Durham Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	568	34
B2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Road Crossing	Durham Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	699	797
B3 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Utility Relocation	Durham Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2,529	1,595
6h. Total buffer impacts				3,796	2,426
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 26 feet longer than the existing bridge with the corresponding removal of fill and the opening up of area under the bridge; the proposed bridge will be at approximately the same grade as the existing structure; an off site detour will be used; 3:1 fill slopes will be used where practicable; the use of a pre-formed scour hole.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. No deck drains on bridge; no direct discharge into wetlands or buffer; top-down construction; adherence to an in-water construction moratorium from February 15 to June 15 due to anadromous fish.		
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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Due to the minimal amount of impacts, no mitigation is proposed.	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> 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.	<input type="checkbox"/> Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> 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:		
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?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input checked="" type="checkbox"/> 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):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input checked="" type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
5b. Have all of the 401 Unit submittal requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh <input type="checkbox"/> Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? The USFWS County Website.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> 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	 <hr/> Applicant/Agent's Signature <small>(Agent's signature is valid only if an authorization letter from the applicant is provided.)</small>	1-30-12 Date



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 27, 2012

C.T. Allen
372 Spring Branch Road
Aurora, NC 27608

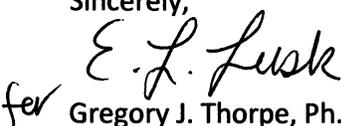
Dear Landowner:

The North Carolina Department of Transportation is planning to replace bridge number 46 on SR 1003 over Durham Creek. The proposed project will replace the aging existing structure over Durham Creek. The project will replace the existing 104-foot bridge with a 130-foot bridge. The additional length will allow for the replacement of a substandard structure as well as improve the existing floodplain. This project crosses an Area of Environmental Concern, as defined by the North Carolina Division of Coastal Management (DCM), and must be approved by the DCM under provisions of the Coastal Area Management Act (CAMA). One of the prerequisites to this approval is that adjacent riparian landowners be given an opportunity to comment on the proposal. A permit application, vicinity map and site drawings are enclosed for your review.

The attached form is submitted to ensure that you have an opportunity to comment on the proposal. The work planned is depicted in the attached drawing. If you have no objections to the proposal, please return the form with your response within 10 days to this office. If you do have objections to the project, please forward your comments to:

Mr. Stephen Lane
N.C. Division of Coastal Management
400 Commerce Ave.
Morehead City, NC 28557

Thank you for your cooperation.

Sincerely,

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

Enclosures

cc: Stephen Lane, NCDCM
File – TIP B-4421

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100

FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

Location:

1020 Birch Ridge Drive
Raleigh, NC 27610

ADJACENT RIPARIAN LANDOWNER STATEMENT

(Beaufort County: Replace Bridge No. 46 over Durham Creek)

NCDOT TIP B-4421

General Statutes and Division of Coastal Management General Permit approval procedures require that riparian landowners with property adjoining a proposed development in an Area of Environmental Concern (AEC) be given ten (10) days in which to comment on the proposed development. This form allows the adjacent riparian landowner to express either: (1) that he objects to the project; or, (2) that he does not object and desires to waive his/her right to the 10-day period so that the processing of the application can progress more rapidly. Of course, the adjacent riparian landowner need not sign this form at all if he/she so chooses.

I, _____, am an adjacent riparian property owner and am aware of the North Carolina Department of Transportation's plans for replacing Bridge No. 46 over Durham Creek in Beaufort County, North Carolina. I am further aware that this work will occur in one or more Areas of Environmental Concern and therefore will require authorization from the Division of Coastal Management in accordance with the Coastal Area Management Act (CAMA).

_____ I have no objection to the project as presently proposed and hereby waive that right of objection as provided in General Statute 113-229

_____ I have objections to the project as presently proposed and my comments are attached

Signature of Adjacent Riparian Landowner

Date

Phone Number with Area Code



STATE OF NORTH CAROLINA
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BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 27, 2012

Darrel B. Cayton, Sr.
Carl D. Cayton, Sr.
2331 Tunstall Swamp Road
Aurora, NC 27608

Dear Landowner:

The North Carolina Department of Transportation is planning to replace bridge number 46 on SR 1003 over Durham Creek. The proposed project will replace the aging existing structure over Durham Creek. The project will replace the existing 104-foot bridge with a 130-foot bridge. The additional length will allow for the replacement of a substandard structure as well as improve the existing floodplain. This project crosses an Area of Environmental Concern, as defined by the North Carolina Division of Coastal Management (DCM), and must be approved by the DCM under provisions of the Coastal Area Management Act (CAMA). One of the prerequisites to this approval is that adjacent riparian landowners be given an opportunity to comment on the proposal. A permit application, vicinity map and site drawings are enclosed for your review.

The attached form is submitted to ensure that you have an opportunity to comment on the proposal. The work planned is depicted in the attached drawing. If you have **no** objections to the proposal, please return the form with your response within 10 days to this office. If you **do** have objections to the project, please forward your comments to:

Mr. Stephen Lane
N.C. Division of Coastal Management
400 Commerce Ave.
Morehead City, NC 28557

Thank you for your cooperation.

Sincerely,

Gregory J. Thorpe, Ph.D., Manager
Project Development & Environmental Analysis

Enclosures

cc: Stephen Lane, NCDOT
File – TIP B-4421

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100

FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

Location:

1020 Birch Ridge Drive
Raleigh, NC 27610

ADJACENT RIPARIAN LANDOWNER STATEMENT

(Beaufort County: Replace Bridge No. 46 over Durham Creek)
NCDOT TIP B-4421

General Statutes and Division of Coastal Management General Permit approval procedures require that riparian landowners with property adjoining a proposed development in an Area of Environmental Concern (AEC) be given ten (10) days in which to comment on the proposed development. This form allows the adjacent riparian landowner to express either: (1) that he objects to the project; or, (2) that he does not object and desires to waive his/her right to the 10-day period so that the processing of the application can progress more rapidly. Of course, the adjacent riparian landowner need not sign this form at all if he/she so chooses.

I, _____, am an adjacent riparian property owner and am aware of the North Carolina Department of Transportation's plans for replacing Bridge No. 46 over Durham Creek in Beaufort County, North Carolina. I am further aware that this work will occur in one or more Areas of Environmental Concern and therefore will require authorization from the Division of Coastal Management in accordance with the Coastal Area Management Act (CAMA).

_____ I have no objection to the project as presently proposed and hereby waive that right of objection as provided in General Statute 113-229

_____ I have objections to the project as presently proposed and my comments are attached

Signature of Adjacent Riparian Landowner

Date

Phone Number with Area Code



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 27, 2012

Mary Bennett Brigman
106 Henry Street
Hamlet, NC 28345

Dear Landowner:

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Mr. Stephen Lane
N.C. Division of Coastal Management
400 Commerce Ave.
Morehead City, NC 28557

Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink that reads "Gregory J. Thorpe".

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

Enclosures

cc: Stephen Lane, NCDCM
File – TIP B-4421

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100

FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

Location:

1020 Birch Ridge Drive
Raleigh, NC 27610

ADJACENT RIPARIAN LANDOWNER STATEMENT

(Beaufort County: Replace Bridge No. 46 over Durham Creek)
NCDOT TIP B-4421

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_____ I have objections to the project as presently proposed and my comments are attached

Signature of Adjacent Riparian Landowner

Date

Phone Number with Area Code

APPLICATION for Major Development Permit

(last revised 12/27/06)



North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information			
Business Name NCDOT		Project Name (if applicable) B-4421 (33694.1.1)	
Applicant 1: First Name Gregory	MI J.	Last Name Thorpe	
Applicant 2: First Name	MI	Last Name	
<i>If additional applicants, please attach an additional page(s) with names listed.</i>			
Mailing Address 1598 Mail Service Center		PO Box	City Raleigh
			State NC
ZIP 27699 1598	Country	Phone No. 919 - 707 - 6100 ext.	FAX No. 919 - 212 - 5785
Street Address (if different from above)		City	State
			ZIP -
Email			

2. Agent/Contractor Information			
Business Name			
Agent/ Contractor 1: First Name	MI	Last Name	
Agent/ Contractor 2: First Name	MI	Last Name	
Mailing Address		PO Box	City
			State
ZIP		Phone No. 1 - - ext.	Phone No. 2 - - ext.
FAX No.	Contractor #		
Street Address (if different from above)		City	State
			ZIP -
Email			

<Form continues on back>

3. Project Location			
County (can be multiple) Beaufort	Street Address	State Rd. # SR 1003	
Subdivision Name	City	State	Zip -
Phone No. - - ext.		Lot No.(s) (if many, attach additional page with list)	
a. In which NC river basin is the project located? Tar-Pamlico		b. Name of body of water nearest to proposed project Durham Creek	
c. Is the water body identified in (b) above, natural or manmade? <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Manmade <input type="checkbox"/> Unknown		d. Name the closest major water body to the proposed project site. Pamlico River	
e. Is proposed work within city limits or planning jurisdiction? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		f. If applicable, list the planning jurisdiction or city limit the proposed work falls within.	

4. Site Description	
a. Total length of shoreline on the tract (ft.) 263'	b. Size of entire tract (sq.ft.) 50,220 sq ft (inside R/W limits)
c. Size of individual lot(s) <i>(If many lot sizes, please attach additional page with a list)</i>	d. Approximate elevation of tract above NHW (normal high water) or NWL (normal water level) 4.0' - 11.0' <input type="checkbox"/> NHW or <input checked="" type="checkbox"/> NWL
e. Vegetation on tract Red maple, sweetgum, tulip poplar, swamp black gum, bald cypress, water oak, white oak, loblolly pine, sweet bay, wax myrtle, elderberry, greenbrier, muscadine grape, royal fern, cinnamon fern, bulrush, and Chinese privet.	
f. Man-made features and uses now on tract Existing SR 1003 road facility	
g. Identify and describe the existing land uses <u>adjacent</u> to the proposed project site. Bottomland hardwood forest, cypress-gum swamp, mixed pine-hardwood forest, two year old clearcut, maintained roadside.	
h. How does local government zone the tract? Agriculture-Forestry-Rural Housing and Conservation	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
j. Is the proposed activity part of an urban waterfront redevelopment proposal? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA If yes, by whom? NCDOT	
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	

<Form continues on next page>

m. (i) Are there wetlands on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(ii) Are there coastal wetlands on the site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? <i>(Attach documentation, if available)</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

n. Describe existing wastewater treatment facilities. N/A
o. Describe existing drinking water supply source.
p. Describe existing storm water management or treatment systems. None

5. Activities and Impacts	
a. Will the project be for commercial, public, or private use?	<input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Public/Government <input type="checkbox"/> Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. Replace existing bridge due to low sufficiency rating. Lengthen bridge and improve road facility and safety with widening and addition of guardrail	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. Propose top/down construction with no temporary causeway(s). Typical construction equipment includes crane, bulldozer, dump trucks, motor grader, etc.	
d. List all development activities you propose. Replace/Lengthen bridge; Remove portion of existing road fill/causeway to improve bridge hydraulic conveyance and offset surface water being filled in. Addition of fill due to widening facility and raising of the existing road grade. The grade has to be raised to provide access for future bridge maintenance/inpseciton activities.	
e. Are the proposed activities maintenance of an existing project, new work, or both?	Both
f. What is the approximate total disturbed land area resulting from the proposed project?	0.48 <input type="checkbox"/> Sq.Ft or <input checked="" type="checkbox"/> Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
h. Describe location and type of existing and proposed discharges to waters of the state. Proposed graded inlets on north and south side of travel lanes will discharge to the south side to a proposed preformed scour hole.	
i. Will wastewater or stormwater be discharged into a wetland?	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
If yes, will this discharged water be of the same salinity as the receiving water?	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
j. Is there any mitigation proposed?	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
If yes, attach a mitigation proposal.	

<Form continues on back>

6. Additional Information	
<i>In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.</i>	
a. A project narrative.	
b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.	
c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.	

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.
e. The appropriate application fee. Check or money order made payable to DENR.
f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Name see attached list Phone No. Address Name Phone No. Address Name Phone No. Address
g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.
h. Signed consultant or agent authorization form, if applicable.
i. Wetland delineation, if necessary.
j. A signed AEC hazard notice for projects in oceanfront and inlet areas. <i>(Must be signed by property owner)</i>
k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date 1-30-12

Print Name Gregory J. Tharpe, PhD

Signature E. J. Fush

Please indicate application attachments pertaining to your proposed project.

- DCM MP-2 Excavation and Fill Information
- DCM MP-5 Bridges and Culverts
- DCM MP-3 Upland Development
- DCM MP-4 Structures Information



16591
6 APR 09

Mr. John Williams, P.E.
North Carolina Department of Transportation
1551 Mail Service Center
Raleigh, NC 27699-1551

Dear Mr. Williams:

I apologize for our late response to your letter of December 19, 2008, requesting Advance Permit Approval for the following North Carolina Department of Transportation Bridge Replacement Projects:

- 1) B-4922, Bridge No. 23 over Knobbs Creek;
- 2) B-4787, Bridge No. 95 over Johnson's Mill Run;
- 3) B-4772, Bridge No. 326 over Mill Branch Creek;
- 4) B-4736, Bridge No. 233 over Slades Swamp;
- 5) B-4728, Bridge No. 251 over Brush Creek;
- 6) B-4710, Bridge No. 3 over Browns Creek;
- 7) B-4711, Bridge No. 5 over Horsepin Branch;
- 8) B-4591, Bridge No. 4 over Island Creek;
- 9) B-4421, Bridge No. 42 over Durham Creek;
- 10) B-4418, Bridge No. 54 over St. Clair Creek; and
- 11) B-2948, Bridge No. 78 over Little Rockfish Creek

The Coast Guard Authorization Act of 1982 exempts bridge projects from a Coast Guard bridge permit when the bridge project crosses non-tidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. The information provided with the aforementioned letter indicates that these bridge projects are exempt; therefore, a Coast Guard Bridge permit will not be required for these proposed bridge replacement projects.

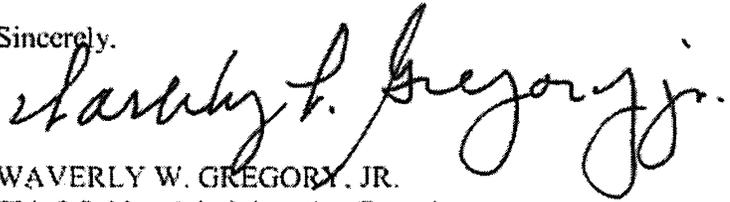
These determinations are for the location and replacement of the Abovementioned Bridge projects and **are valid for five years from the date of this letter**. If the construction does not commence within this time period, you must contact this office for reaffirmation of this

16591
6 APR 09

authorization. Further bridge projects along the same waterways will have to be independently evaluated before they may be considered for this determination.

The fact that a Coast Guard permit is not required does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or local agency who may have jurisdiction over any aspect of the project. Please contact Mr. Bill H. Brazier at the above address or telephone number for any further assistance.

Sincerely,

A handwritten signature in cursive script that reads "Waverly W. Gregory, Jr." The signature is written in dark ink and is positioned above the typed name and title.

WAVERLY W. GREGORY, JR.
Chief, Bridge Administration Branch
By direction of the Commander
Fifth Coast Guard District

Copy: Coast Guard Sector North Carolina, Waterways Management



North Carolina Department of Transportation
 Highway Stormwater Program
 STORMWATER MANAGEMENT PLAN
 FOR LINEAR ROADWAY PROJECTS



(Version 1.2, Released August 2011)

Project/TIP No.: B-4421 (33694.1.1) County(ies): Beaufort Page 1 of 1

General Project Information

Project No.:	B-4421 (33694.1.1)	Project Type:	Bridge Replacement	Date:	
NCDOT Contact:	Galen Cail	Contractor / Designer:	Michael Kelly, TE-1	Address:	1020 Birch Ridge Dr. Raleigh, N.C. 27610
				Phone:	919.707.6731
				Email:	mkelly@ncdot.gov
City/Town:	Aurora, N.C.	County(ies):	Beaufort		
River Basin(s):	Tar-Pamlico	CAMA County?	Yes		
Primary Receiving Water:	Durham Creek	NCDWQ Stream Index No.:	C.NSW		
NCDWQ Surface Water Classification for Primary Receiving Water		Primary:	Class C		
Other Stream Classification:		Supplemental:	Nutrient Sensitive Waters (NSW)		
303(d) Impairments:	None				
Buffer Rules in Effect	Tar-Pamlico				

Project Length (lin. Miles or feet):	0.095 miles	Total Project Area (ac.):	1.15ac
Surrounding Land Use:	Swamp, Wooded	Proposed Project	Existing Site

Project Built-Upon Area (ac.)	0.32 ac.
Typical Cross Section Description:	11' Travel Lanes, 6' Grass Shoulders, 3:1 Side Slopes

Average Daily Traffic (veh/hr/day):	Design/Future: 1530 (2032)	Existing: 1050 (2012)
-------------------------------------	----------------------------	-----------------------

General Project Narrative:
 The project consists of replacing Bridge #42 on SR 1003 over Durham Creek with approximately 200' of approach work on each side of bridge. The approach work will consist of widening the travel lanes and providing grassed shoulders and guardrail. The existing 6 span timber bridge (103' total length) will be replaced with a 3 span (1 @ 40'; 1 @ 50'; 1 @ 40' -- total 130') cored slab bridge. Reduces the number of bents in Durham Creek from 5 to 2.

Best Mgmt Practices:
 -Promotion of sheet flow and infiltration with grassed shoulders except where shoulder berm gutter to 2G's West of bridge.
 -No direct discharge into wetlands/buffer. Outlet drainage system West of bridge to Preformed Scour Hole.
 ---Preformed Scour Hole at Sta. 14+54-L RT. 15" Pipe. Q10= 0.7cfs.
 -Eliminated Deck Drains on bridge.
 -Removal of existing road fill under the bridge. Will improve bridge conveyance and reduce bridge opening velocities.

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

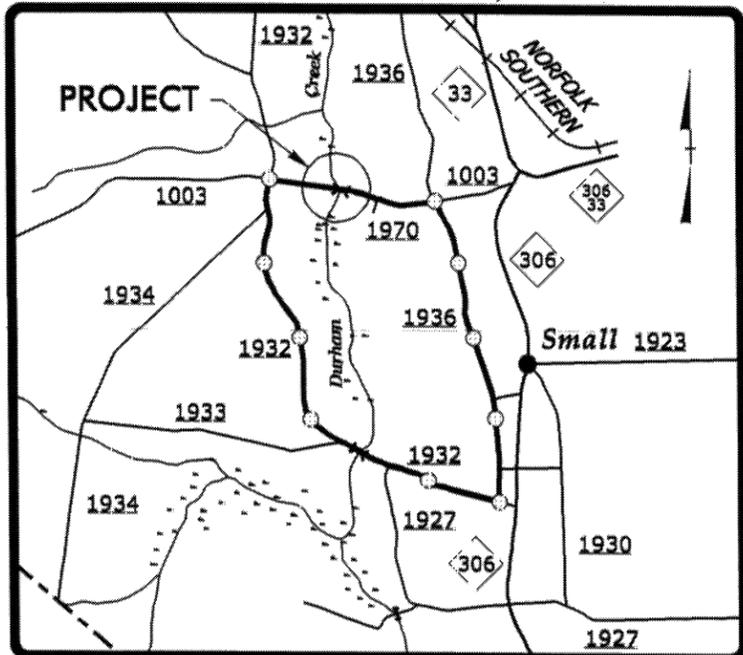
LOCATION: BRIDGE NO. 42 OVER DURHAM CREEK ON SR 1003

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

WETLAND AND SURFACE WATERS IMPACTS PERMIT

STATE	STATE PROJECT RESPONSE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4421	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33694.1.1	BRSTP-1003(31)	P.E.	

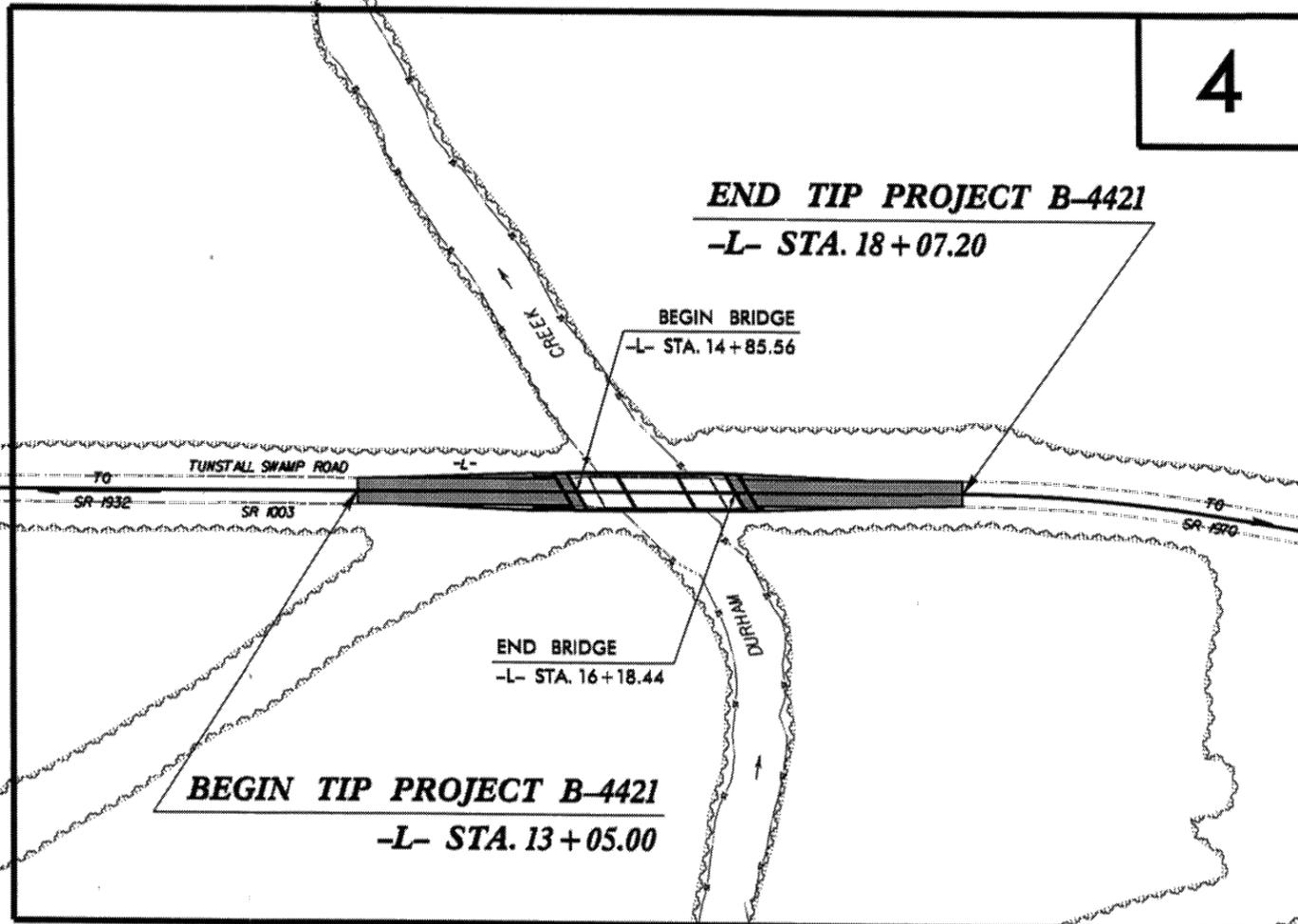
CONTRACT: TIP PROJECT: B-4421



VICINITY MAP

DETOUR ROUTE ○—○—○—○

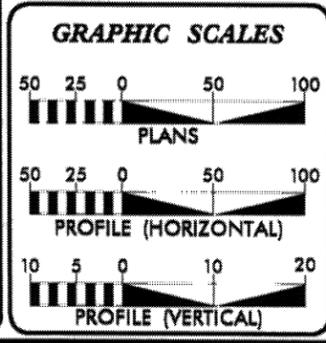
Permit Drawing
Sheet 1 of 7



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2012 = 1,050
ADT 2032 = 1,530
DHV = 12%
D = 80%
T = 13%*
V = 60 MPH
*TTST = 7% DUAL = 6%
FUNC CLASS =
RURAL MAJOR COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4421 = 0.070 MILES
LENGTH STRUCTURE TIP PROJECT B-4421 = 0.025 MILES
TOTAL LENGTH TIP PROJECT B-4421 = 0.095 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 16, 2011

LETTING DATE: SEPTEMBER 18, 2012

GARY LOVERING, PE
PROJECT ENGINEER

RICK DECOLA, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

12/16/11

5/14/99

12/16/11

PROJECT REFERENCE NO. B-4421	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 4 of 7

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1400 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 13.9 FT
BASE DISCHARGE	= 200 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 15.0 FT
OVERTOPPING DISCHARGE	= 5200 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 16.3 FT

BEGIN GRADE
 STA 12+05.00
 EL = 16.71

END GRADE
 STA 18+07.20
 EL = 31.28

PI = 13+90.00
 EL = 16.98
 LVC = 140'
 K = 963

PI = 15+55.00
 EL = 19.77
 LVC = 170'
 K = 967

PI = 17+20.00
 EL = 20.27
 LVC = 140'
 K = 195

GRADES: 1+0.3178%, 1+0.4788%, 1+0.3630%, 1+0.3630%, 1+0.239%

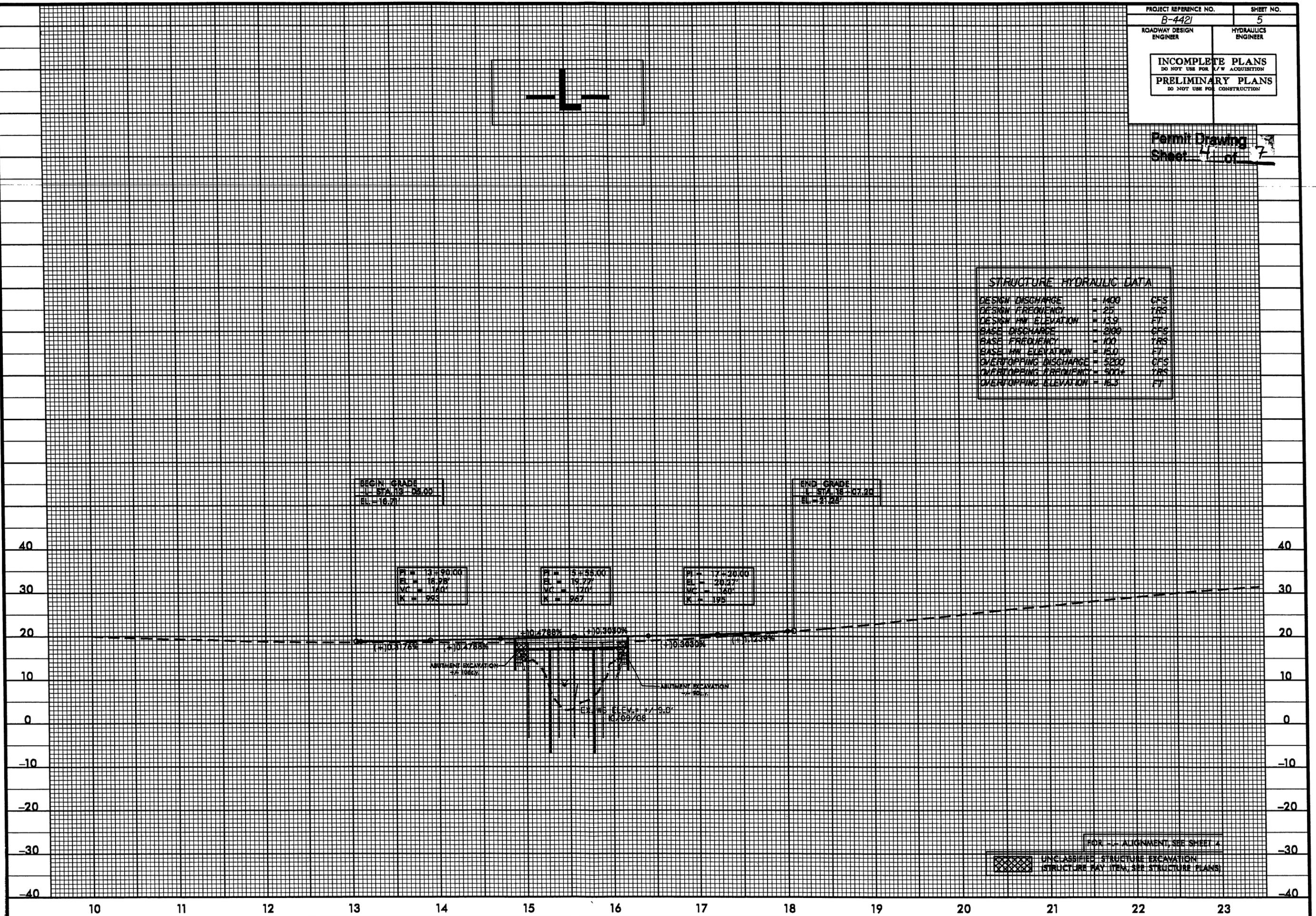
ALIGNMENT EXCAVATION
 7% 156.5'

ALIGNMENT EXCAVATION
 7% 96.7'

EX. WS. ELEV. = 17.93'
 6/29/98

FOR -L- ALIGNMENT, SEE SHEET A

UNCLASSIFIED STRUCTURE EXCAVATION
 (STRUCTURE PAY ITEM, SEE STRUCTURE PLANS)



12/16/11

8/23/09

Permit Drawing
Sheet 5 of 7

BEGIN BRIDGE -L- STA. 14+85.56

14+85.56

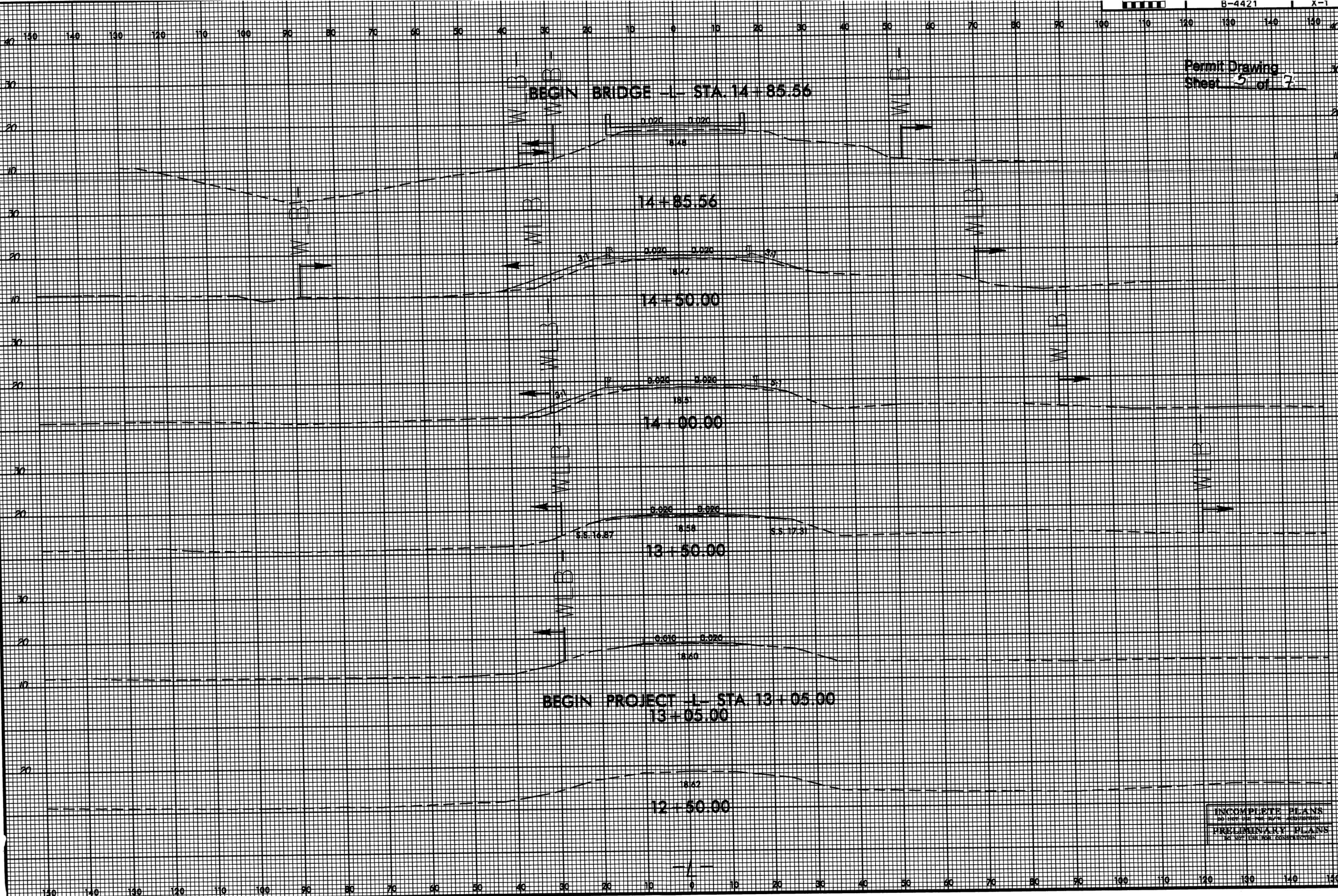
14+50.00

14+00.00

13+50.00

BEGIN PROJECT -L- STA. 13+05.00
13+05.00

12+50.00



INCOMPLETE PLANS
DO NOT USE FOR ADJUSTMENT
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
	Robert Cayton	2331 Tunstall Swamp Rd. Aurora, N.C. 27806
	C.T. Allen	372 Spring Branch Rd. Aurora, N.C. 27806
	Mary Bennett Brigman	106 Henry Street Hamlet, N.C. 28345
	Michael Wahl	951 Tunstall Swamp Rd. Aurora, N.C. 27806

NCDOT
DIVISION OF HIGHWAYS
BEAUFORT COUNTY
PROJECT: 33694.1.1 (R-4421)
REPLACEMENT OF BRG. #46
ON SR 1003 (TUNSTALL SWAMP RD)
OVER DURHAM CREEK

SHEET OF 08/11
Permit Drawing
Sheet 7 of 7

July 20, 2011

B-4421 Beaufort County

According to the utilities information we have available there will not be an environmental impact for Century Links' facilities. They will be removing all aerial facilities on the north side of bridge and directional boring the creek on the north side to avoid conflict with proposed bridge construction. Contacted person is Joe A. Drewyor at (252) 637-7130 work and (252) 723-0010 mobile .

Tideland EMC "power" has (1) pole and a 3-phase aerial lines crossing the existing bridge on the north side of Tunstall Swamp Road. Tideland EMC will move their aerial facilities to the south side of the bridge which will constitute an environmental impact with the wetlands. They have acquired their own easement for the relocation of their facilities. Contacted person is Kenneth Neal at (252) 943-8507.

Beaufort County owns the water line which is in conflict with construction of the bridge. The water line will be relocated to the south of the bridge 5' inside the R/w line using trenchless method. There will not be an environmental impact. Contacted person is Curtis Jett at 252-975-0720.

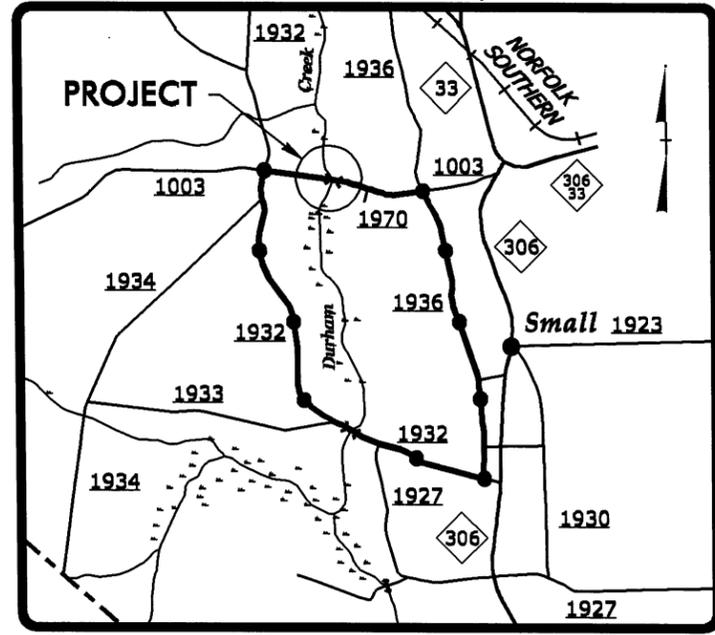
09/08/99

26-AUG-2011 16:41 R:\NORTHFILES\RDY_Ut\Proj\B4421\RDY_tshNEUL.dgn \$\$\$USERNAME\$\$\$

TIP PROJECT: B-4421

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP
DETOUR ROUTE ●—●—●—●—●

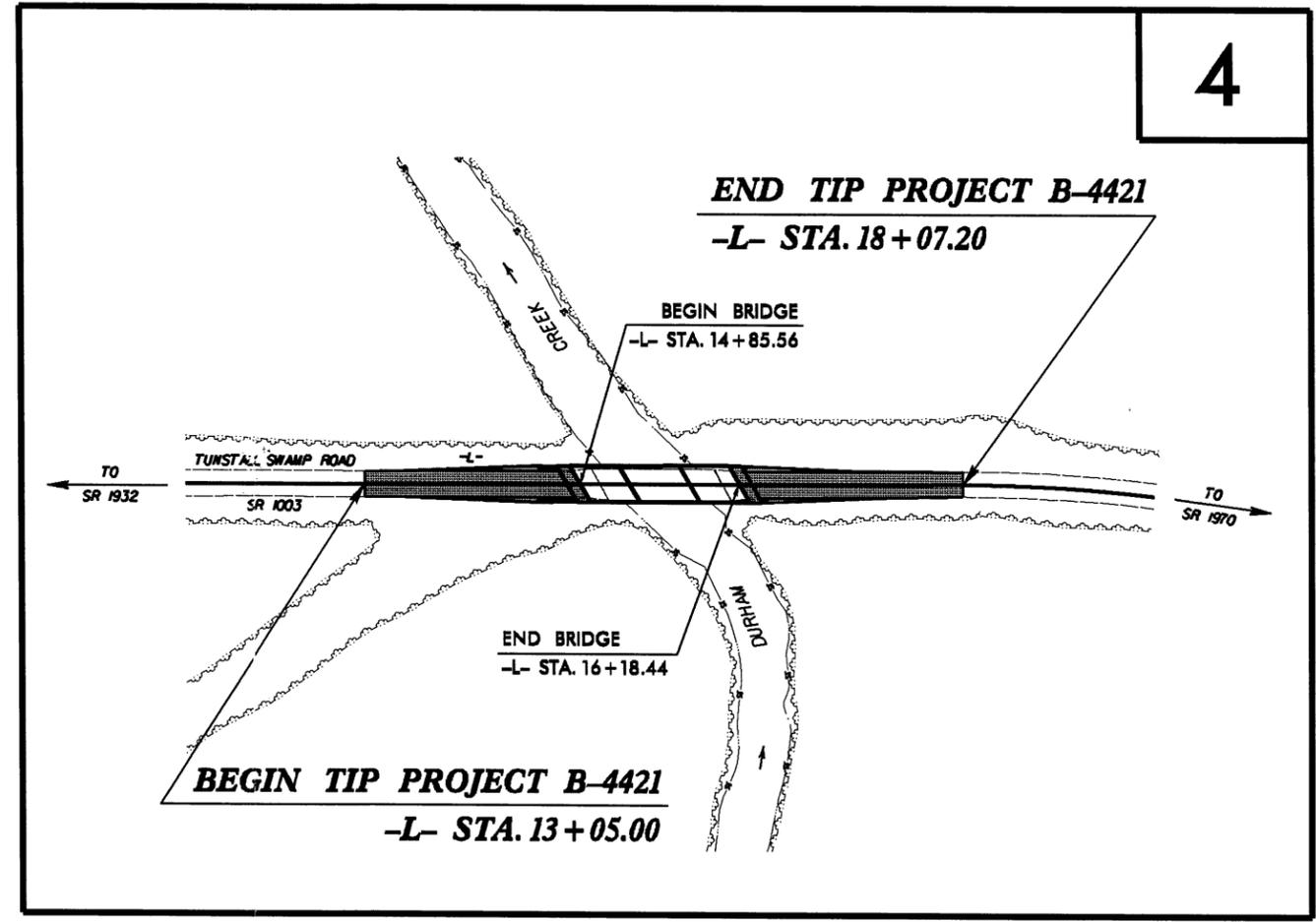
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEU PERMIT DRAWING PLANS
BEAUFORT COUNTY

LOCATION: BRIDGE NO. 42 OVER DURHAM CREEK ON SR 1003
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

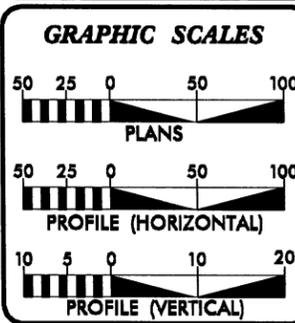
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4421	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33694.1.1	BRSTP-1003(31)	PE	
33694.2.1	BRSTP-1003(31)	RW & UTILITY	

Utility Permit Drawing
Sheet 1 of 4



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2012 =	1,050
ADT 2032 =	1,530
DHV =	12%
D =	80%
T =	13%*
V =	60 MPH
*TTST =	7% DUAL = 6%
FUNC CLASS =	RURAL MAJOR COLLECTOR
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4421 =	0.070 MILES
LENGTH STRUCTURE TIP PROJECT B-4421 =	0.025 MILES
TOTAL LENGTH TIP PROJECT B-4421 =	0.095 MILES

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

2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: SEPTEMBER 16, 2011	GARY LOVERING, PE PROJECT ENGINEER
LETTING DATE: SEPTEMBER 18, 2012	RICK DECOLA, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

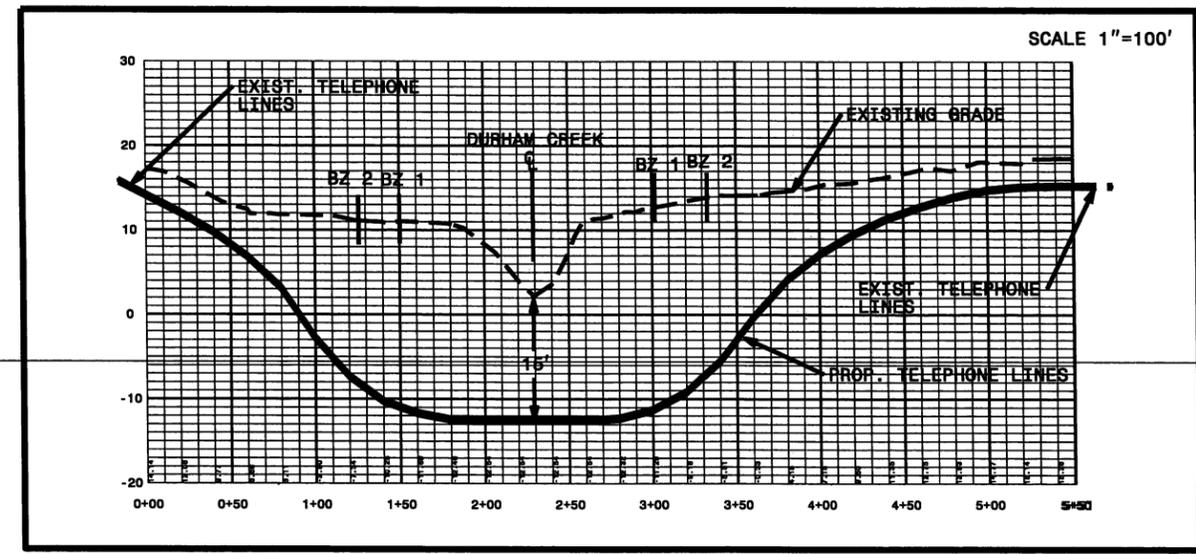
SIGNATURE: _____ P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

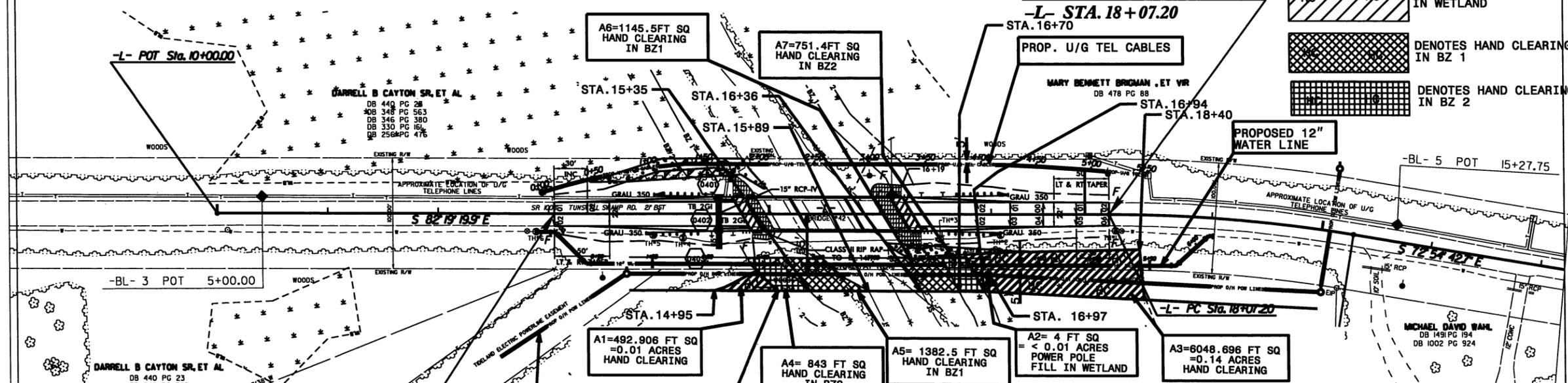
STATE HIGHWAY DESIGN ENGINEER P.E.

8/17/99
 REVISIONS
 15-DEC-2010 09:04 J:\s\p\o\N\neu\4421_r.dwg_NEU2.plt
 4421.dwg

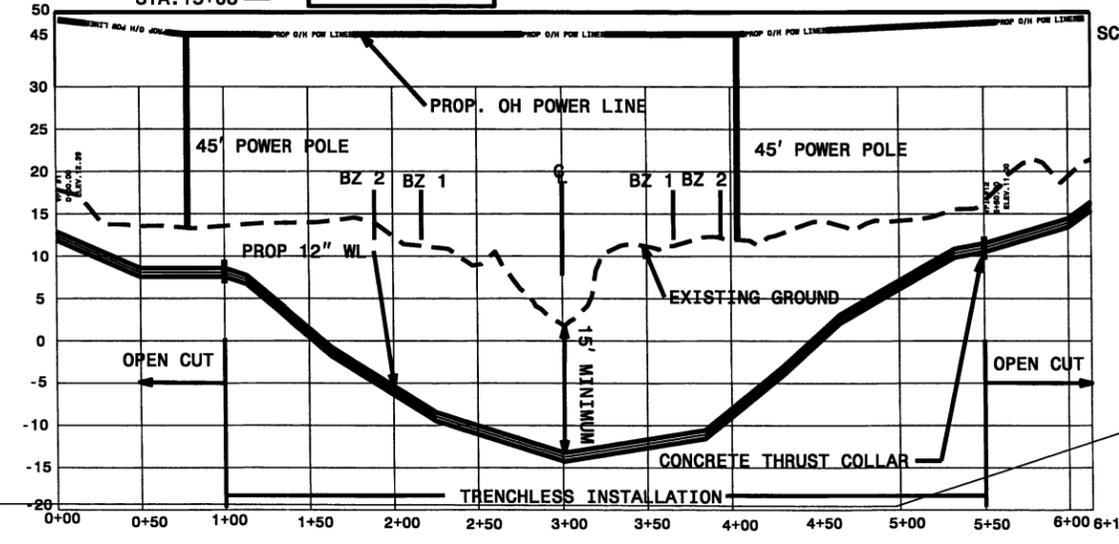
PROJECT REFERENCE NO.	SHEET NO.
B-4421	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
REVISED 12-16-11	



-L- CURVE DATA
 PI Sta 19+18.31
 $\Delta = 92^\circ 37' 2''$ (RT)
 $D = 414' 38.9''$
 $L = 2217.3'$
 $T = 1111'$
 $R = 1,350.00'$



- Utility Permit Drawing Sheet 2 of 4
- DENOTES FILL IN WETLAND
 - DENOTES HAND CLEARING IN WETLAND
 - DENOTES HAND CLEARING IN BZ 1
 - DENOTES HAND CLEARING IN BZ 2



SCALE 1"=100'

BEGIN TIP PROJECT
 -L- STA. 15+00

END TIP PROJECT B-4421
 -L- STA. 18+07.20

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS								
			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)					
A1	-L-14+95 TO 15+08	AERIAL POWER POLE						0.01									
A2	L- STA.16+97	POWER POLE	<0.01														
A3	L- STA.16+94 TO 18+40	AERIAL POWER POLE						0.14									
TOTALS:			<0.01			0.00		0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 Beaufort County
 TIP PROJECT (B-4421)
 Rev. 12/16/2011

ATN Revised 3/31/05

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT						BUFFER REPLACEMENT				
			TYPE		ALLOWABLE		MITIGABLE		ZONE 1 (ft ²)	ZONE 2 (ft ²)			
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)			ZONE 1 (ft ²)	ZONE 2 (ft ²)	
A4	Power Line	15+08 to 15+35-L-				843	843						
A5	Power Line	15+35 to 15+89 -L-				1383	1383						
A6	Power Line	16+36 to 16+70 -L-				1146	1146						
A7	Power Line	16+70 to 16+94 -L-				751	751						
TOTALS:						2529	1594	4123					

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY
PROJECT: B-4421
Rev.12/16/2011

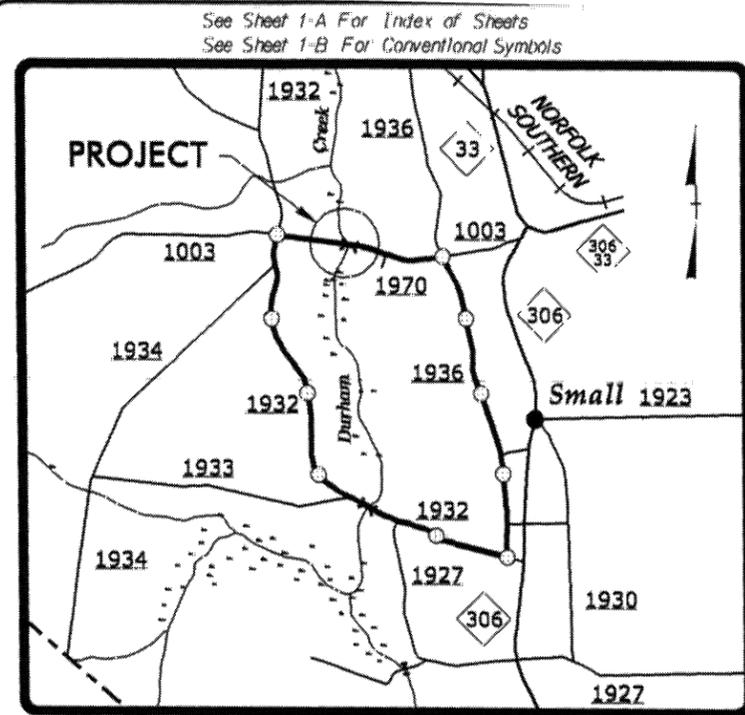
Utility Permit Drawing
Sheet 4 of 4

N.C.	B-4421	1
STATE PROJ NO	P.A. PROJ NO	DESCRIPTION
33694.1.1	BRSTP-1003(31)	P.E.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
BEAUFORT COUNTY

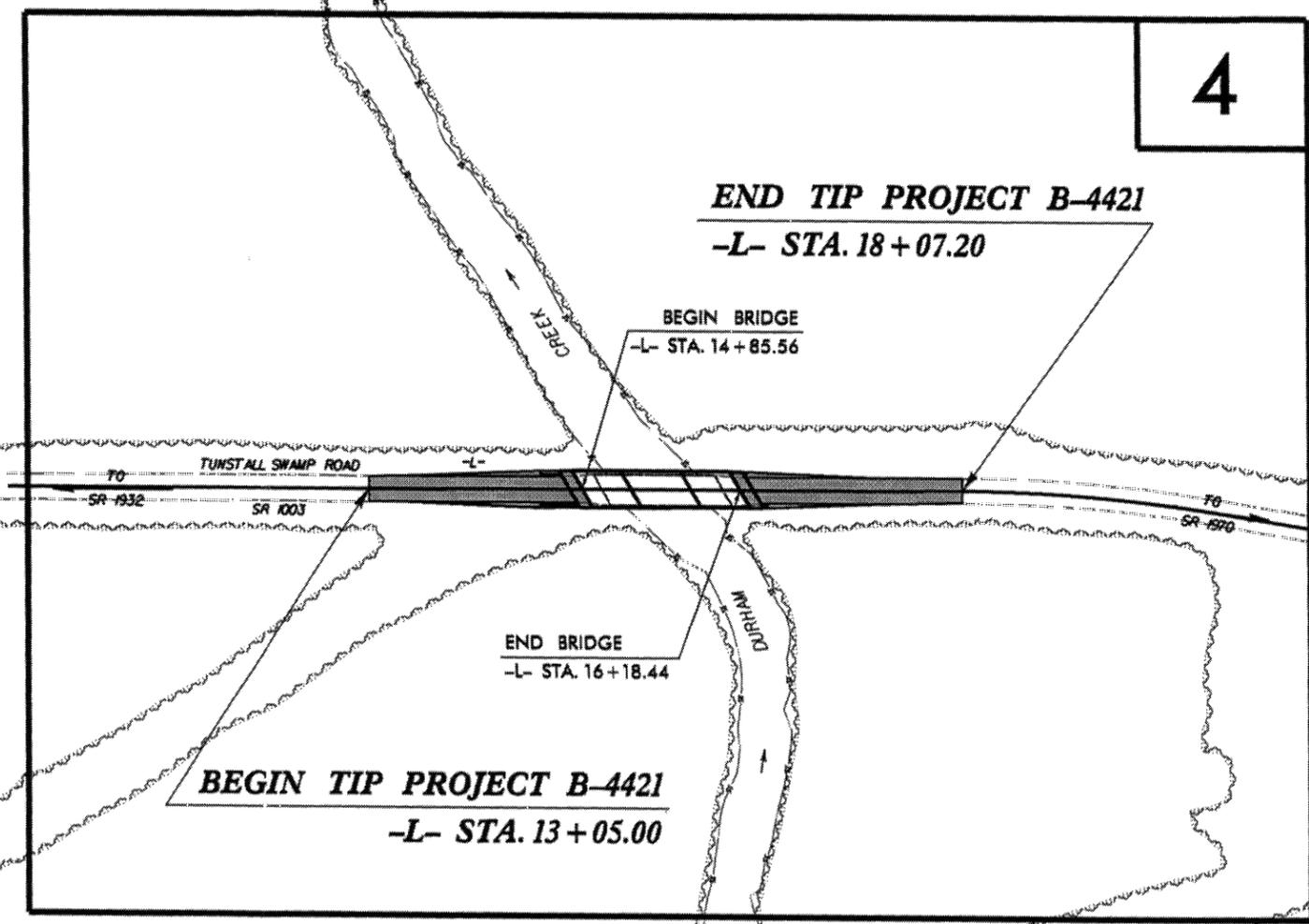
LOCATION: BRIDGE NO. 42 OVER DURHAM CREEK ON SR 1003
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

Buffer Drawing
Sheet 1 of 6



VICINITY MAP
DETOUR ROUTE ○—○—○—○

BUFFER IMPACTS PERMIT



4

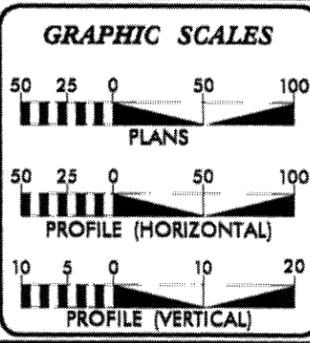
NAD 8395

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: B-4421

CONTRACT:



DESIGN DATA

ADT 2012 =	1,050
ADT 2032 =	1,530
DHV =	12%
D =	80%
T =	13%*
V =	60 MPH
*TTST =	7% DUAL = 6%
FUNC CLASS =	RURAL MAJOR COLLECTOR
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4421 =	0.070 MILES
LENGTH STRUCTURE TIP PROJECT B-4421 =	0.025 MILES
TOTAL LENGTH TIP PROJECT B-4421 =	0.095 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	SEPTEMBER 16, 2011
LETTING DATE:	SEPTEMBER 18, 2012

GARY LOVERING, PE
PROJECT ENGINEER

RICK DECOLA, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

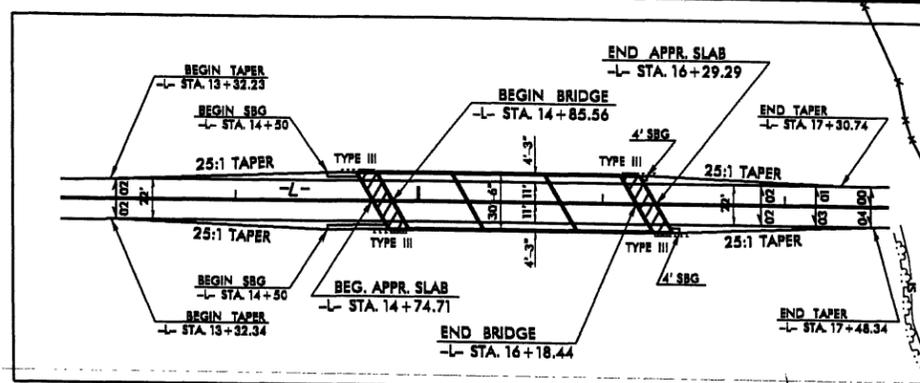
STATE HIGHWAY DESIGN ENGINEER

12/16/11

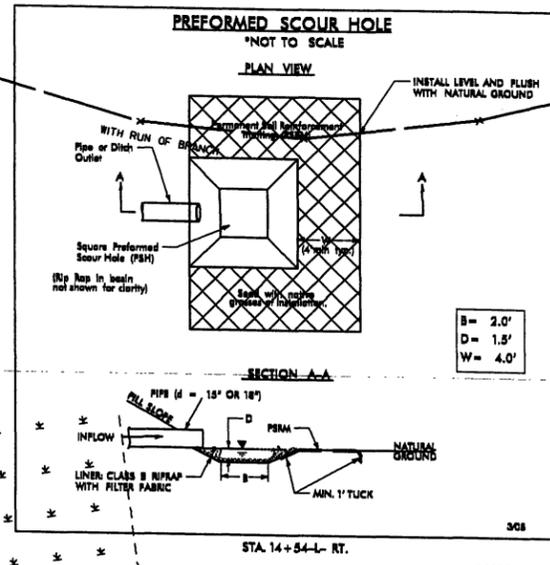
8/17/99

REVISIONS

12/16/11



RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT

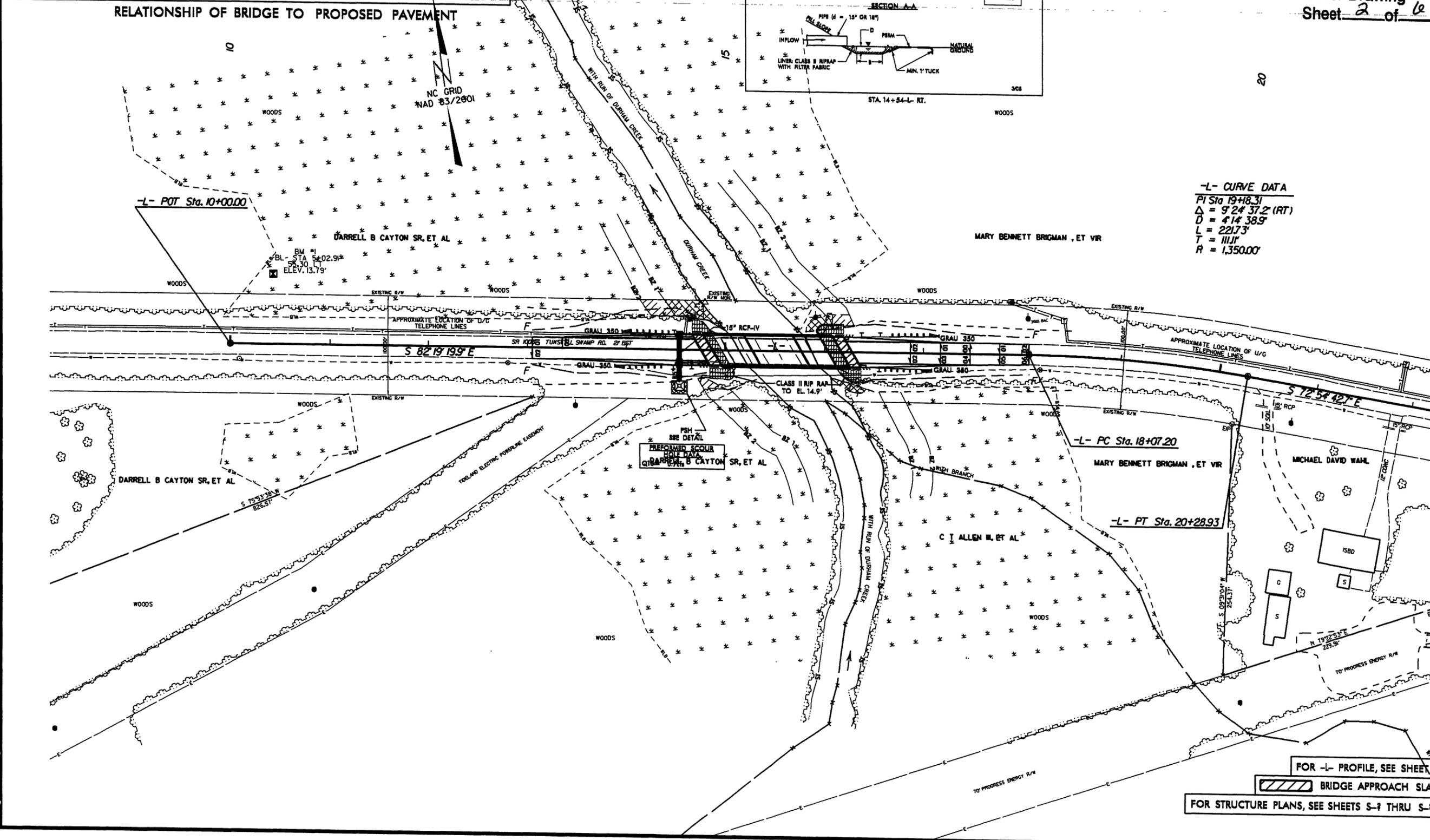


-L- CURVE DATA
 PI Sta 19+18.31
 $\Delta = 9^{\circ} 24' 37.2''$ (RT)
 $D = 414' 38.9''$
 $L = 2217.3'$
 $T = 1111.1'$
 $R = 1,350.00'$

NAD 83

PROJECT REFERENCE NO. B-4421	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Buffer Drawing Sheet 2 of 6



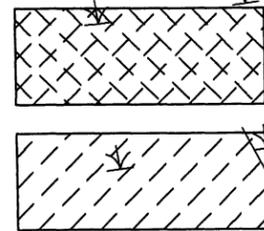
-L- CURVE DATA
 PI Sta 19+18.31
 $\Delta = 9^{\circ} 24' 37.2''$ (RT)
 $D = 414' 38.9''$
 $L = 2217.3'$
 $T = 1111.1'$
 $R = 1,350.00'$

FOR -L- PROFILE, SEE SHEET 5
 BRIDGE APPROACH SLAB
 FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-11

8/17/99

12/16/11

REVISIONS

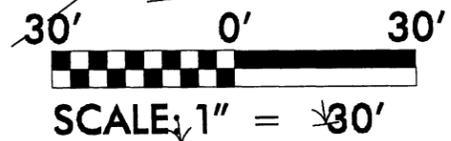
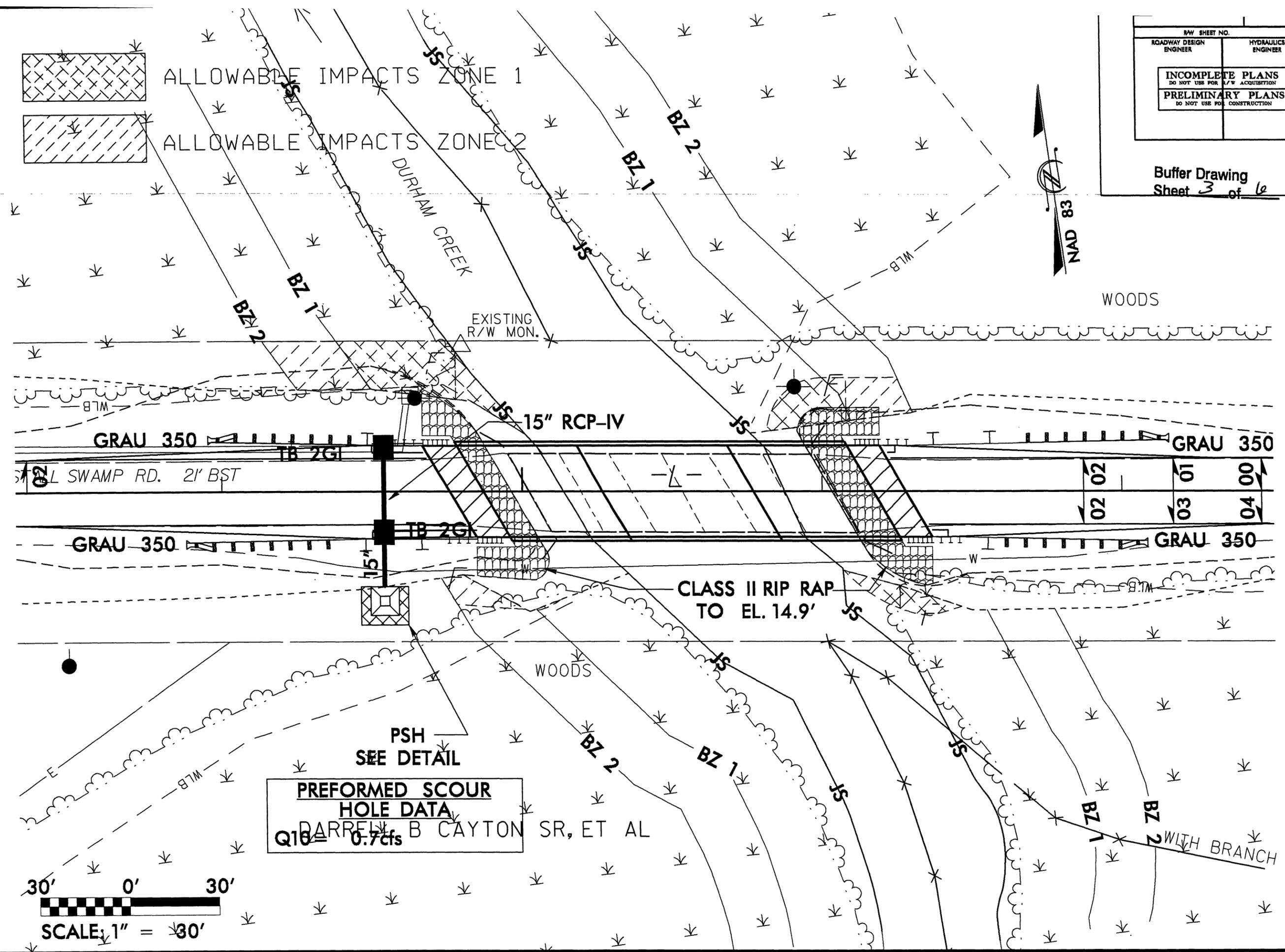


ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

RDY SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

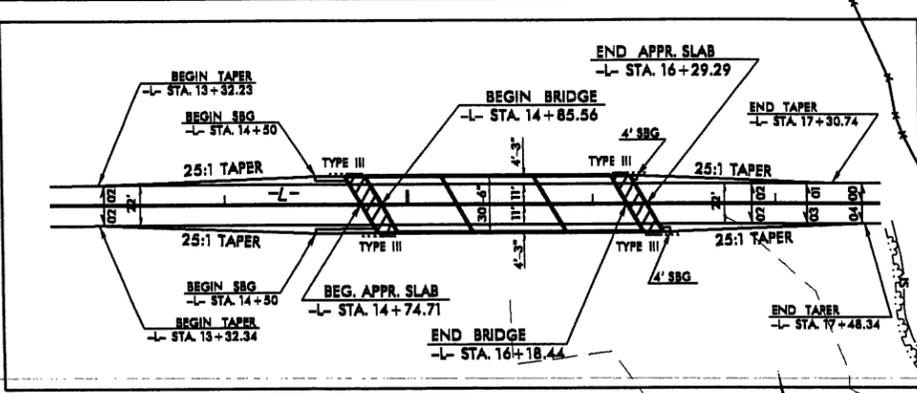
Buffer Drawing Sheet 3 of 6



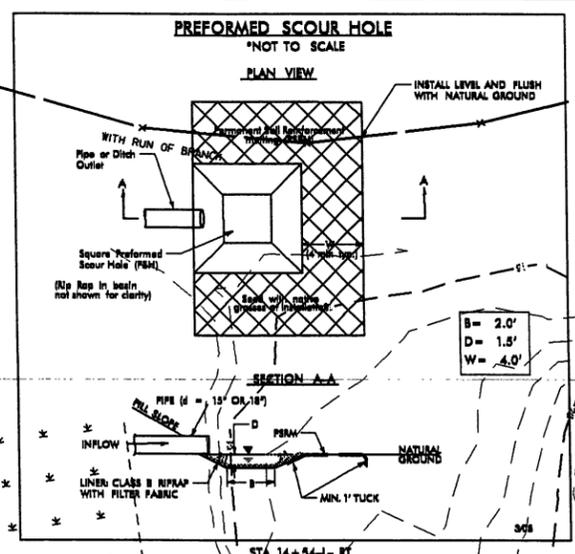
8/17/99

12/16/11

REVISIONS



RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT



-L- CURVE DATA
 PI Sta 19+18.31
 $\Delta = 92^\circ 37' 2" (RT)$
 $D = 414' 38.9"$
 $L = 221.73'$
 $T = 111.11'$
 $R = 1,350.00'$

-L- CURVE DATA
 PI Sta 19+18.31
 $\Delta = 92^\circ 37' 2" (RT)$
 $D = 414' 38.9"$
 $L = 221.73'$
 $T = 111.11'$
 $R = 1,350.00'$

PROJECT REFERENCE NO. B-4421	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Buffer Drawing Sheet 4 of 6



FOR -L- PROFILE, SEE SHEET 5
 FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-11

09/28/99

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

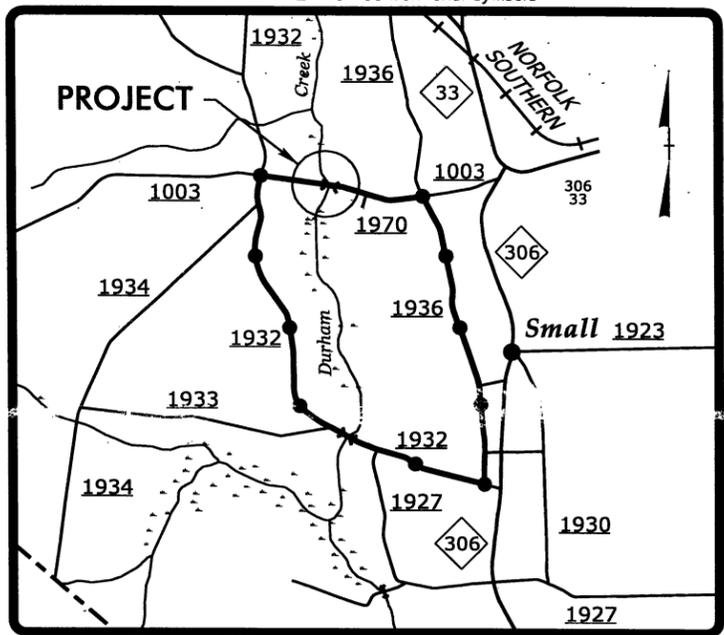
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4421	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33694.1.1	BRSTP-1003(31)	PE	
33694.2.1	BRSTP-1003(31)	RW & UTILITY	

BEAUFORT COUNTY

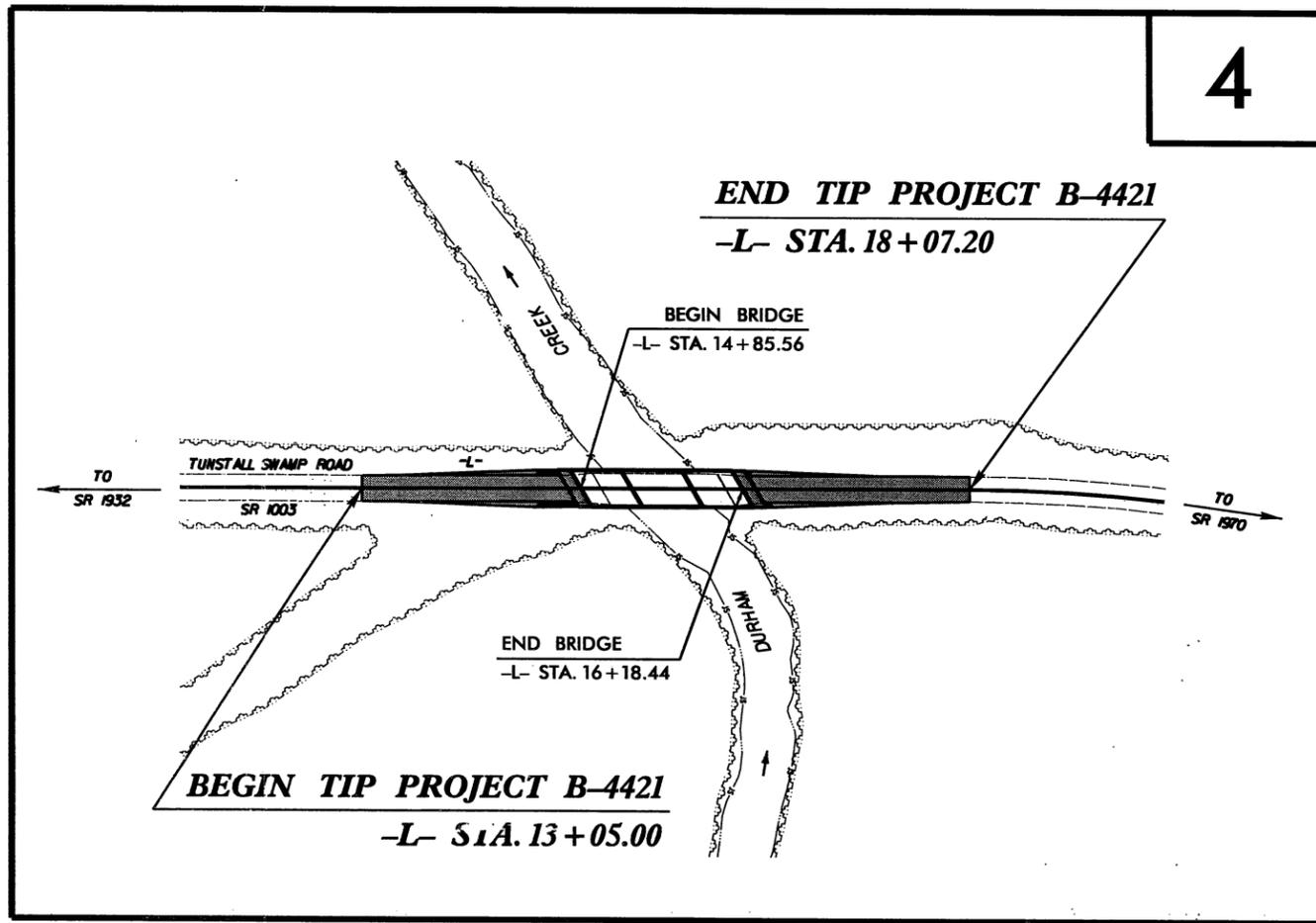
LOCATION: BRIDGE NO. 42 OVER DURHAM CREEK ON SR 1003

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

TIP PROJECT: B-4421



VICINITY MAP
DETOUR ROUTE ●—●—●—●—●



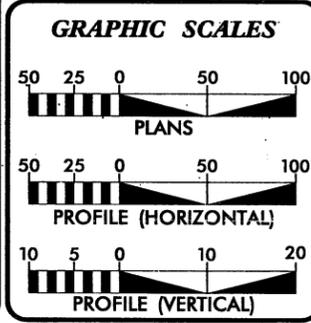
4

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:



DESIGN DATA

ADT 2012 =	1,050
ADT 2032 =	1,530
DHV =	12%
D =	80%
T =	13%*
V =	60 MPH
*TTS1 =	7% DUAL - 6%
FUNC CLASS =	RURAL MAJOR COLLECTOR SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4421 =	0.070 MILES
LENGTH STRUCTURE TIP PROJECT B-4421 =	0.025 MILES
TOTAL LENGTH TIP PROJECT B-4421 =	0.095 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 16, 2011

LETTING DATE:
SEPTEMBER 18, 2012

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

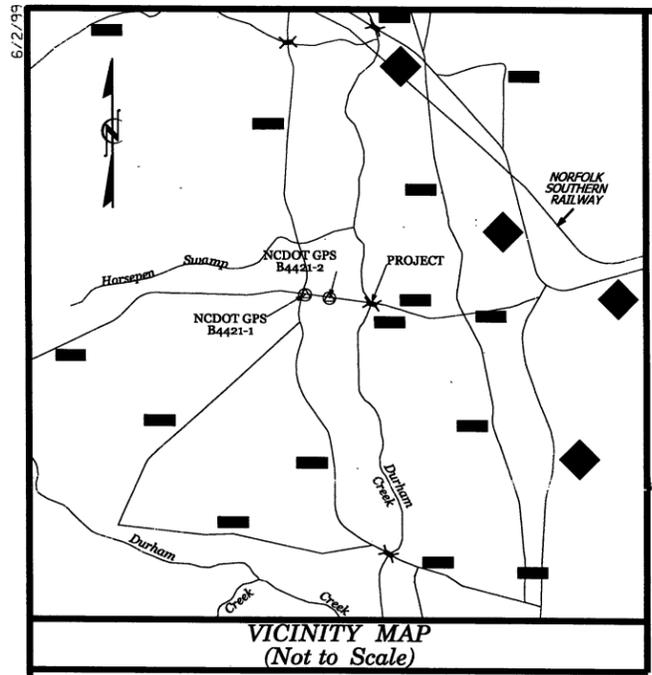
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

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R:\Roadway\Proj\B4421_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

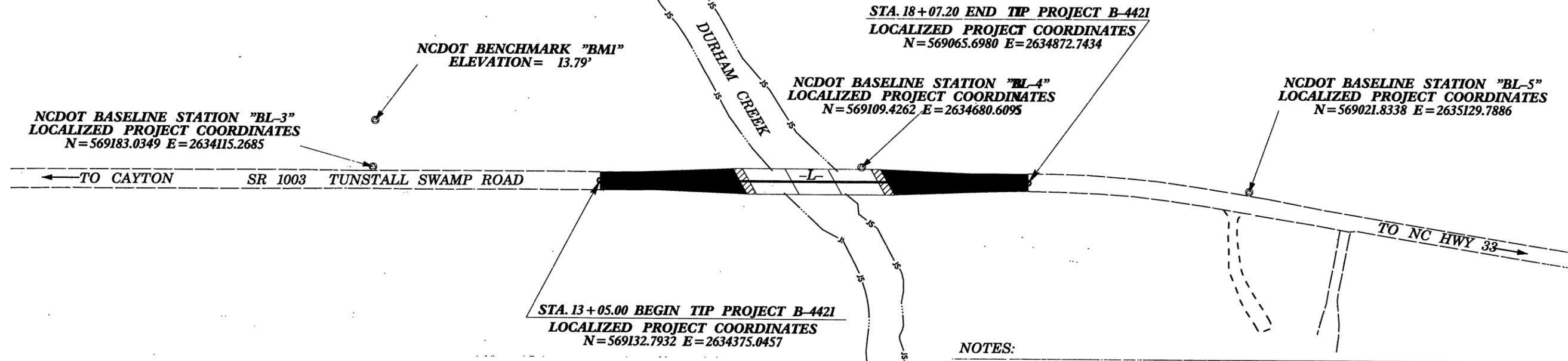
SURVEY CONTROL SHEET B-4421

PROJECT REFERENCE NO.	SHEET NO.
B-4421	1-C
Location and Surveys	



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	569183.0349	2634115.2685	18.63	10+40.84	15.08 LT
4	BL-4	569109.4262	2634680.6095	17.68	16+10.95	17.67 LT
5	BL-5	569021.8338	2635129.7886	25.89	20+66.78	15.44 LT

.....
 BM1 ELEVATION = 13.79
 N 569237 E 2634125
 L STATION 10+43.00 70 LEFT
 RR SPIKE IN 15' HARDWOOD



DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "OLD GPS B4421-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 569277.874(fft) EASTING: 2633179.517(fft) ELEVATION: 30.495(fft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987724
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "OLD GPS B4421-1" TO -L- STATION 13+05.00 IS S 83°04'51.0" E 1204.300 (fft)
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4421_LS_CONTROL.TXT
 SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

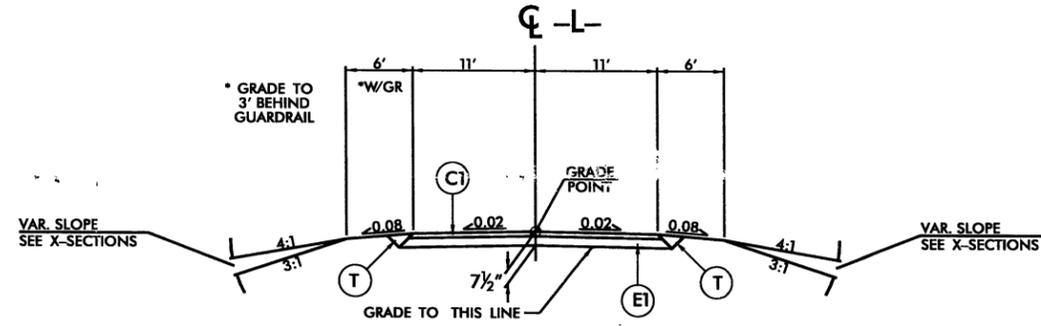
25-AUG-2011 13:53 184421-1-1-1.dgn

6/2/99

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.50 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570.00 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

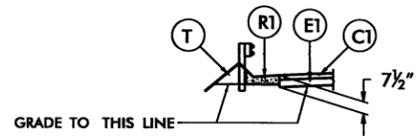
PROJECT REFERENCE NO. B-4421	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



TYPICAL SECTION NO. 1

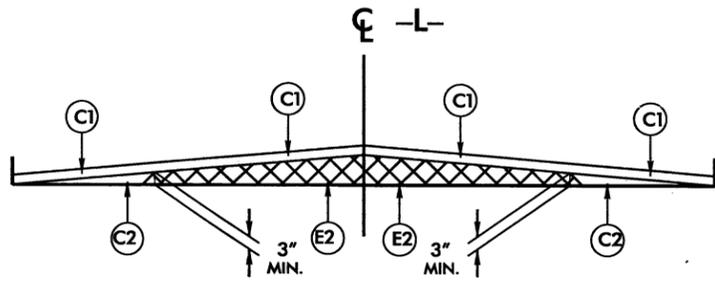
USE TYPICAL SECTION NO. 1

-L- STA. 13+05.00 TO -L- STA. 14+85.56 (BEG. BRIDGE)
-L- STA. 16+18.44 (END BRIDGE) TO -L- STA. 18+07.20

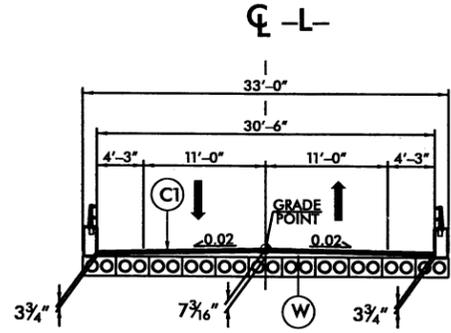


DETAIL SHOWING SHOULDER BERM GUTTER ON TOP OF SUBGRADE

-L- STA. 14+50.00 TO -L- STA. 14+65.91 (LT)
-L- STA. 14+50.00 TO -L- STA. 14+83.51 (RT)
-L- STA. 16+20.49 TO -L- STA. 16+24.49 (LT)
-L- STA. 16+38.09 TO -L- STA. 16+42.09 (RT)



DETAIL SHOWING METHOD OF WEDGING ON STRUCTURE



TYPICAL SECTION ON STRUCTURE

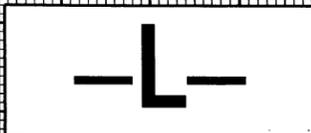
USE TYPICAL SECTION ON STRUCTURE

-L- STA. 14+85.56 TO -L- STA. 16+18.44

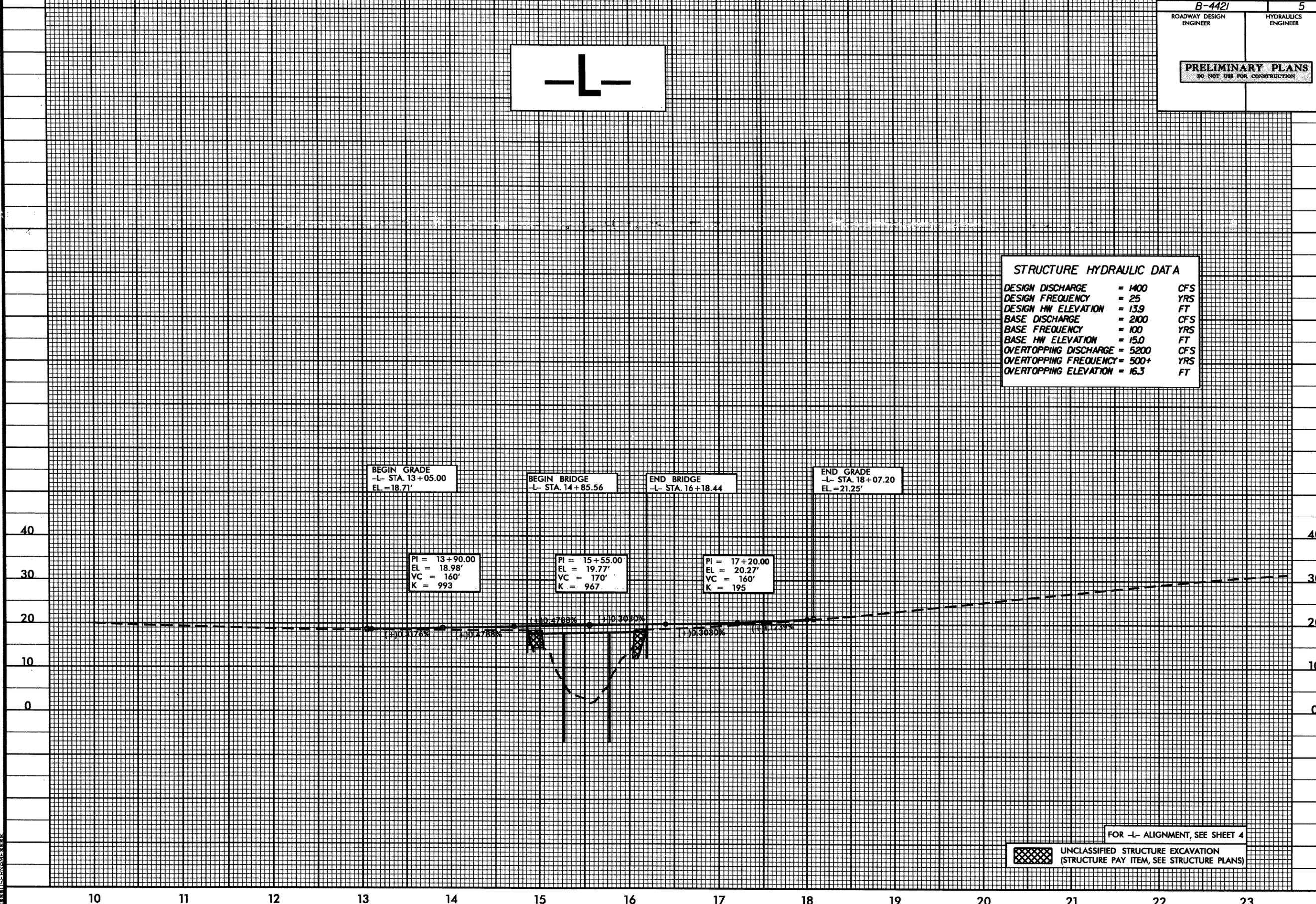
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5/14/99

PROJECT REFERENCE NO. B-4421	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1400 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 139 FT
BASE DISCHARGE	= 200 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 150 FT
OVERTOPPING DISCHARGE	= 5200 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 163 FT



BEGIN GRADE
-L- STA. 13+05.00
EL = 18.71'

BEGIN BRIDGE
-L- STA. 14+85.56

END BRIDGE
-L- STA. 16+18.44

END GRADE
-L- STA. 18+07.20
EL = 21.25'

PI = 13+90.00
EL = 18.98'
VC = 160'
K = 993

PI = 15+55.00
EL = 19.77'
VC = 170'
K = 967

PI = 17+20.00
EL = 20.27'
VC = 160'
K = 195

FOR -L- ALIGNMENT, SEE SHEET 4

UNCLASSIFIED STRUCTURE EXCAVATION
(STRUCTURE PAY ITEM, SEE STRUCTURE PLANS)

25-AUG-2011 13:53
 R:\R066501\B53\B4421_Rdy.pfl.dgn

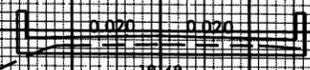
8/23/99



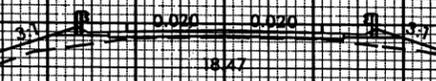
PROJ. REFERENCE NO.	SHEET NO.
B-4421	X-1

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

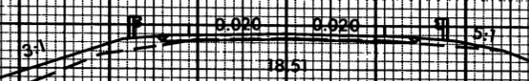
BEGIN BRIDGE -L- STA. 14+85.56



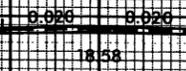
14+85.56



14+50.00

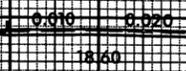


14+00.00

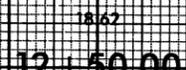


13+50.00

BEGIN PROJECT -L- STA. 13+05.00
13+05.00



12+50.00



12+50.00

25 AUG 2011 13:53
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