



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

May 13, 2011

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

ATTN: Mr. Eric Alsmeyer
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Nationwide Permit 23, Section 401 Water Quality Certification, and Neuse Riparian Buffer Authorization** for the replacement of Bridge No. 151 over Powell Creek (Wake Crossroads Lake) on SR 2227 in Wake County, State Project No. 8.2409961, Federal Aid Project No. BRZ-2227(1), Division 5, T.I.P No. B-4661.

Debit \$240.00 from WBS No. 33823.1.1

The North Carolina Department of Transportation (NCDOT) proposes to replace bridge No. 151 over Wake Crossroads Lake on SR 2227 (Watkins Road) in Wake County.

Please see the enclosed copies of the Pre-Construction Notification (PCN), Stormwater Management Plan, permit drawings, and design plans for the above-referenced project. The Categorical Exclusion (CE) for this project was completed in May 2009. Additional copies are available upon request.

There will be 0.02 acres of riparian wetland impacts from permanent fill and mechanized clearing. Due to the minimal amount of wetland impacts, the fact that the function of the wetland will not be compromised, and the wetland is scrub/shrub and not a mature forest, NCDOT proposes no mitigation. There will also be 0.04 acres of surface water impact to Wake Crossroads Lake.

This project calls for a letting date of January 17, 2012 and a review date of November 29, 2011. However, the let date may advance as additional funds become available.

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

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

LOCATION:
Century Center Building B
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://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>. If you have any questions or need additional information, please call Greg Price at (919) 707-6148.

Sincerely,



for

Gregory J Thorpe, Ph.D.

Environmental Management Director, PDEA

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: 23 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 Junsdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input checked="" type="checkbox"/> Riparian Buffer Authonzation		
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 type="checkbox"/> Yes <input checked="" 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

2. Project Information

2a. Name of project:	Replacement of Bridge 151 on SR 2227 (Watkins Road)
2b. County:	Wake
2c. Nearest municipality / town:	Milburnie
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P or state project no:	B-4661

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) 707-6148
3g. Fax no..	(919) 212-5785
3h. Email address:	gwprnce@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: 35.8729 (DD.DDDDDD) Longitude: - 78.5003 (-DD.DDDDDD)
1c. Property size:	5 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Powell Creek (Wake Crossroads Lake)
2b. Water Quality Classification of nearest receiving water:	C, NSW
2c. River basin:	Neuse
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: Low density single family, cultivated land, and forest land	
3b. List the total estimated acreage of all existing wetlands on the property: 0.02	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 0	
3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing bridge No. 151 with a structure that is approximately 133 feet long. All three bents in the water for existing bridge will be removed while two bents for new bridge will be placed in the water. The new bridge will include two 11-foot lanes, 6 foot shoulders on the existing alignment with an off-site detour. No temporary causeway will be used to construct the new bridge. 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Environmental Services Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. Site visit on October 31, 2006 by Eric Alsmeyer of USACE.	
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	Permanent fill	Riparian	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.01
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Mechanized Clearing	Riparian	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.01
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					0.02 Permanent

2h. Comments:

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 <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		
Site 6 <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 checked="" type="checkbox"/> P <input type="checkbox"/> T	Wake Crossroads Lake	Fill	Lake	0.04
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				0.04

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 checked="" type="checkbox"/> Neuse <input 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 Impacts	Wake Crossroads Lake	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4,498	2,399
B2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
B3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
6h. Total buffer impacts				4,498	2,399
6i. Comments: 1,786 sq. ft. of wetland impacts in Zone 1, 362 sq. ft. of wetland impacts in Zone 2					

D. Impact Justification and Mitigation		
1. Avoidance and Minimization		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. An off site detour will be used. Design Standards in Sensitive Watersheds will be used. Two bents will be placed in water for new bridge compared to three bents for existing bridge.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. 1.5:1 slopes in jurisdictional and buffer areas, and Best Management Practices for Surface Waters. Bridge end drains are located outside of buffer and wetlands. No deck drains are used on the roadway side of the bridge. Preformed Scour Hole at pipe outlet.		
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 Due to the minimal amount of wetland impacts, the fact that the function of the wetland will not be compromised and the wetland is scrub/shrub and not a mature forest, NCDOT proposes no mitigation.	
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:	0 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):	0 square feet	
4e. Riparian wetland mitigation requested:	0 acres	
4f. Non-riparian wetland mitigation requested:	0 acres	
4g. Coastal (tidal) wetland mitigation requested:	0 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? Yes No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.

Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
6f. Total buffer mitigation required:				

6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

6h. Comments:

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments: if yes, see attached 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 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 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 checked="" type="checkbox"/> Yes	<input 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? NHP and USFWS websites. The Biological Conclusion remains "No Effect" for all listed federal T&E species based on additional surveys in May 2009 and May 2011 (for Michaux sumac; no habitat for other species).		
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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
<u>Dr. Gregory J. Thorpe, Ph D</u> Applicant/Agent's Printed Name	 Applicant/Agent's Signature <small>(Agent's signature is valid only if an authorization letter from the applicant is provided.)</small>	5-13-11 Date

STORMWATER MANAGEMENT PLAN

Project: 33823.1.1
TIP: B-4661
County: Wake

Hydraulics Project Engineers: Brian Elam, E.I. (Sungate Design Group);
Dan Duffield, P.E. (NCDOT Hydraulics Unit)

ROADWAY DESCRIPTION

The project involves the replacement of Bridge No. 151 on SR 2227 over Powell Creek. The overall length of the project with approach work is approximately 735 feet. The proposed bridge will consist of 1 @ 45', 1 @ 50' and 1 @ 35' cored slab (21"). The project drainage systems consist of the bridge with an end drain. There are two proposed side ditches.

ENVIRONMENTAL DESCRIPTION

The project is located in the Neuse River Basin. Buffer rules are in effect for this river basin. The project will have one (1) crossing of a jurisdictional stream that will impact Powell Creek. Powell Creek is classified as Class C and NSW. Powell Creek is not listed on NC DENR-DWQ's 303d list. Wetlands will be impacted by the proposed project.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

The primary goal of Best Management Practices (BMPs) is to prevent degradation of the states surface waters as a result of the location, construction and operation of the highway system. BMPs are activities, practices and procedures taken to prevent or reduce stormwater pollution. The BMP measures used on this project to reduce stormwater impacts are:

- Preformed Scour Hole at pipe outlet.

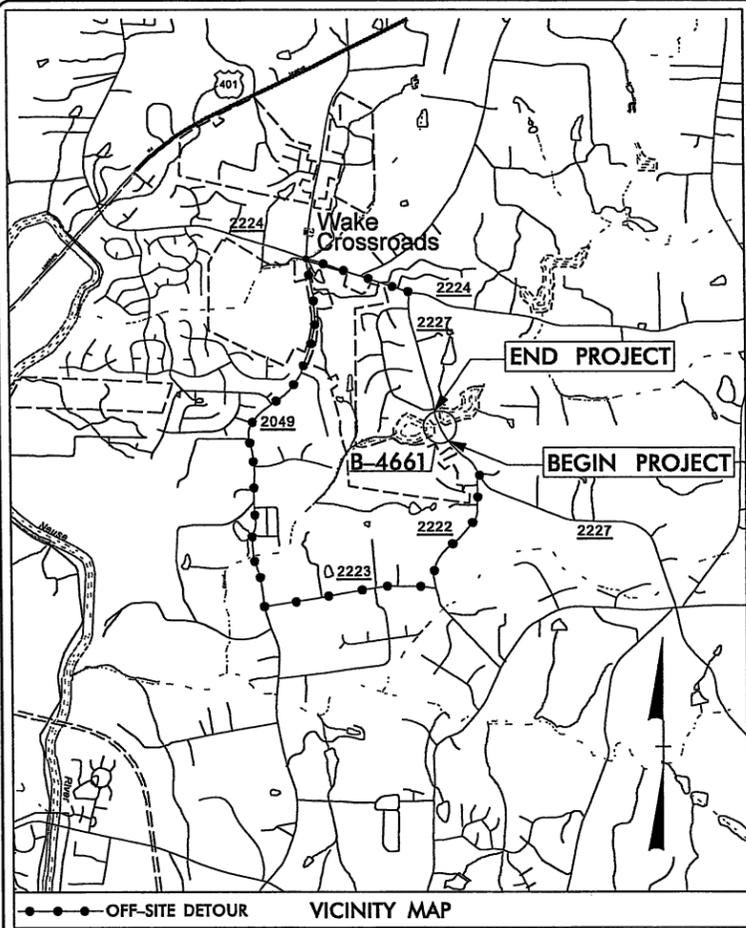
At all the sites, stormwater will be treated and non-erosive velocities will be achieved where practicable.

MINIMIZATION OF IMPACTS

Several design elements provided for minimization of wetland impacts. Bridge end drains are located outside of buffers and wetland areas. Also, fill slopes were limited to 1.5:1 (H:V) in wetland areas to reduce impact.

05/08/15
 CONTRACT: B-4661
 SYSTEM: DGN
 USER: NAME

TIP PROJECT: B-4661



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

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: BRIDGE NO. 151 OVER POWELL CREEK
 ON SR 2227 (WATKINS RD.) BETWEEN SR 2224
 (MITCHELL MILL RD.) AND SR 2217 (OLD MILBURNIE RD.)
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4661	1	
STATE PROJ NO.	P.A. PROJ NO.	DESCRIPTION	
33823.1.1	BRZ-2227(1)	PE	
33823.2.1	BRZ-2227(1)	R/W & UTILITIES	

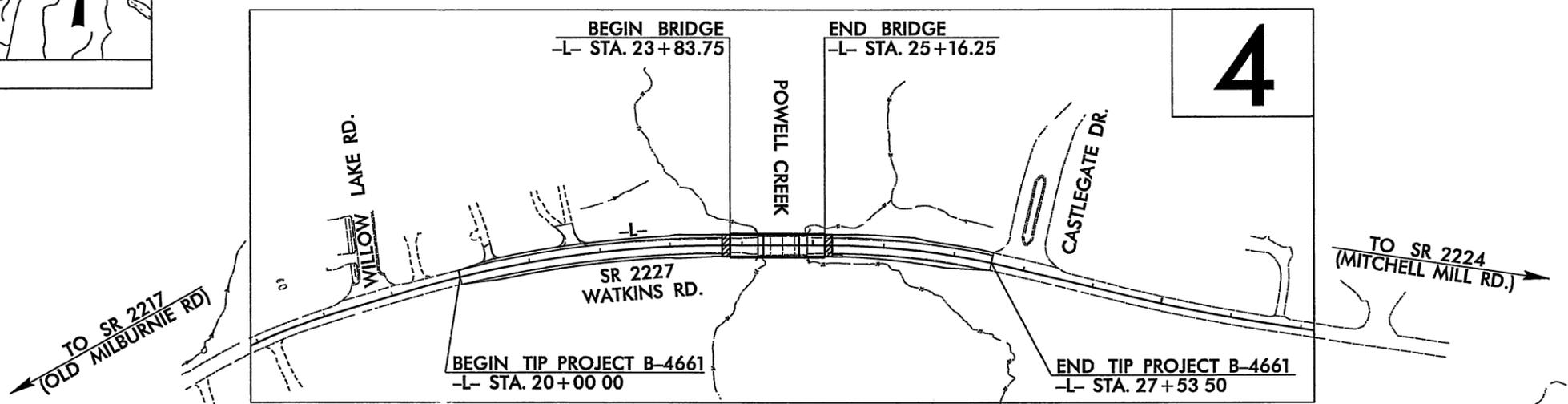
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 1 of 6

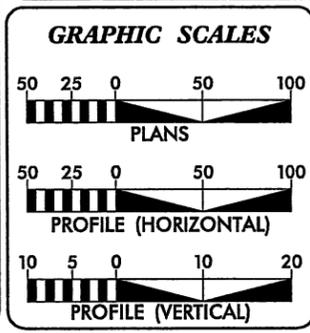
90% PLANS



**WETLAND/STREAM
IMPACTS**



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



DESIGN DATA

ADT 2010 = 4360
ADT 2030 = 9590
DHV = 10%
D = 60%
T = 5% TTST = 1%
DUAL = 4%
V = 50 MPH
CLASS = URBAN MINOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4661	= 0.118 mi
LENGTH STRUCTURE TIP PROJECT B-4661	= 0.025 mi.
TOTAL LENGTH TIP PROJECT B-4661	= 0.143 mi

422 Fayetteville Street, Suite 410
 Raleigh, NC 27601
 T 919.386.1720
 F 919.386.1722
 www.stewart-eng.com

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 JANUARY 21, 2011
LETTING DATE:
 JANUARY 17, 2012

Prepared in the Office of:
STEWART ENGINEERING
 For
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION

DAVID RUGGLES, PE
 PROJECT ENGINEER
JONATHAN HEFNER, PE
 PROJECT DESIGN ENGINEER
DOUG TAYLOR, PE
 NCDOT CONTACT

HYDRAULICS ENGINEER

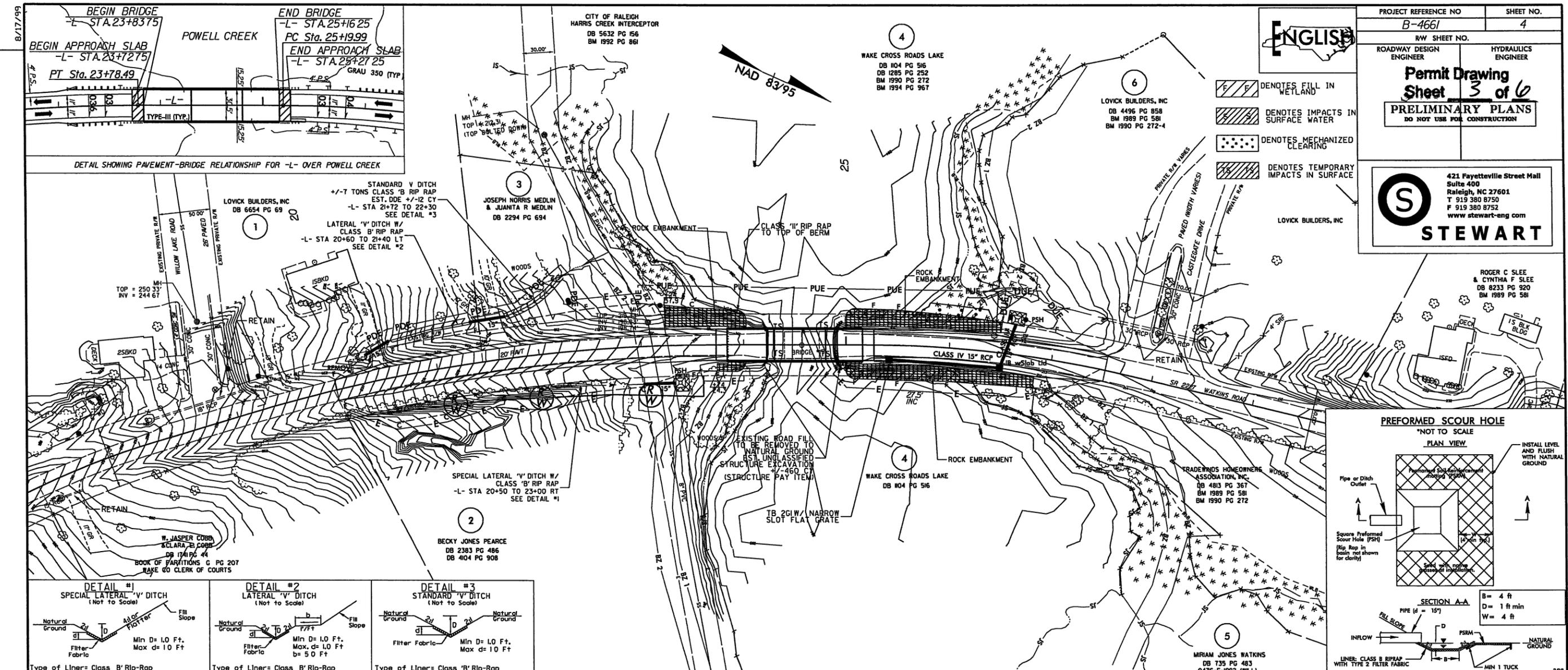
SIGNATURE: _____ PE

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ PE

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

ART McMILLAN, PE
 STATE HIGHWAY DESIGN ENGINEER



8/17/09
 SYSTEMS
 DESIGN
 ENGINEERING

PROJECT REFERENCE NO
B-4661

SHEET NO.
4

R/W SHEET NO.
3 of 6

ROADWAY DESIGN ENGINEER
LOVICK BUILDERS, INC

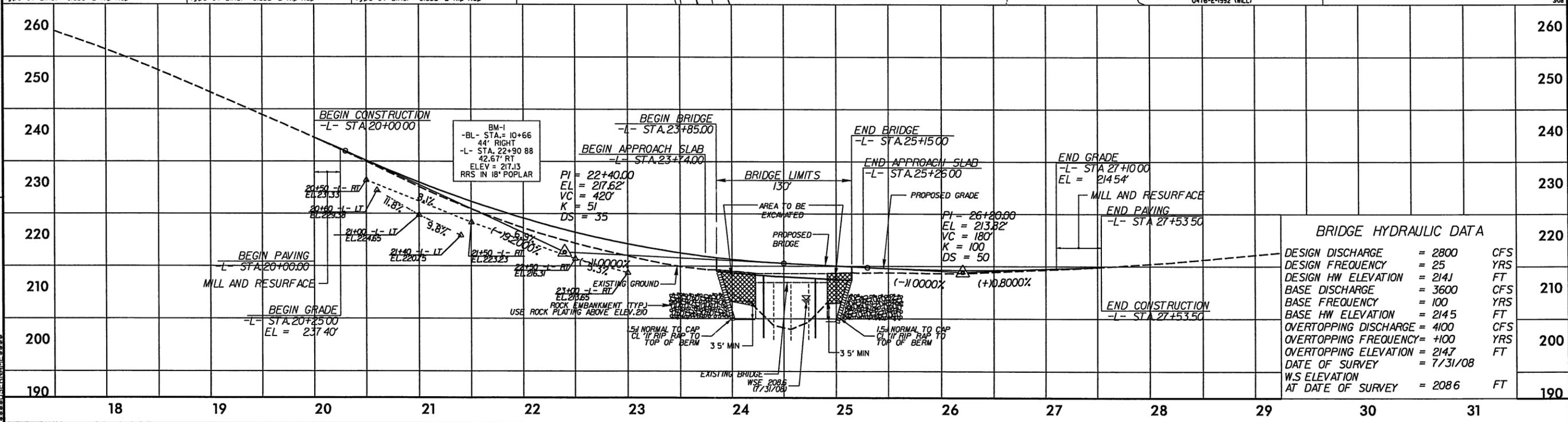
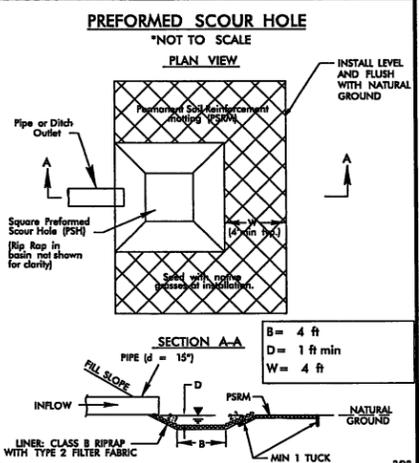
HYDRAULICS ENGINEER
LOVICK BUILDERS, INC

Permit Drawing Sheet

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

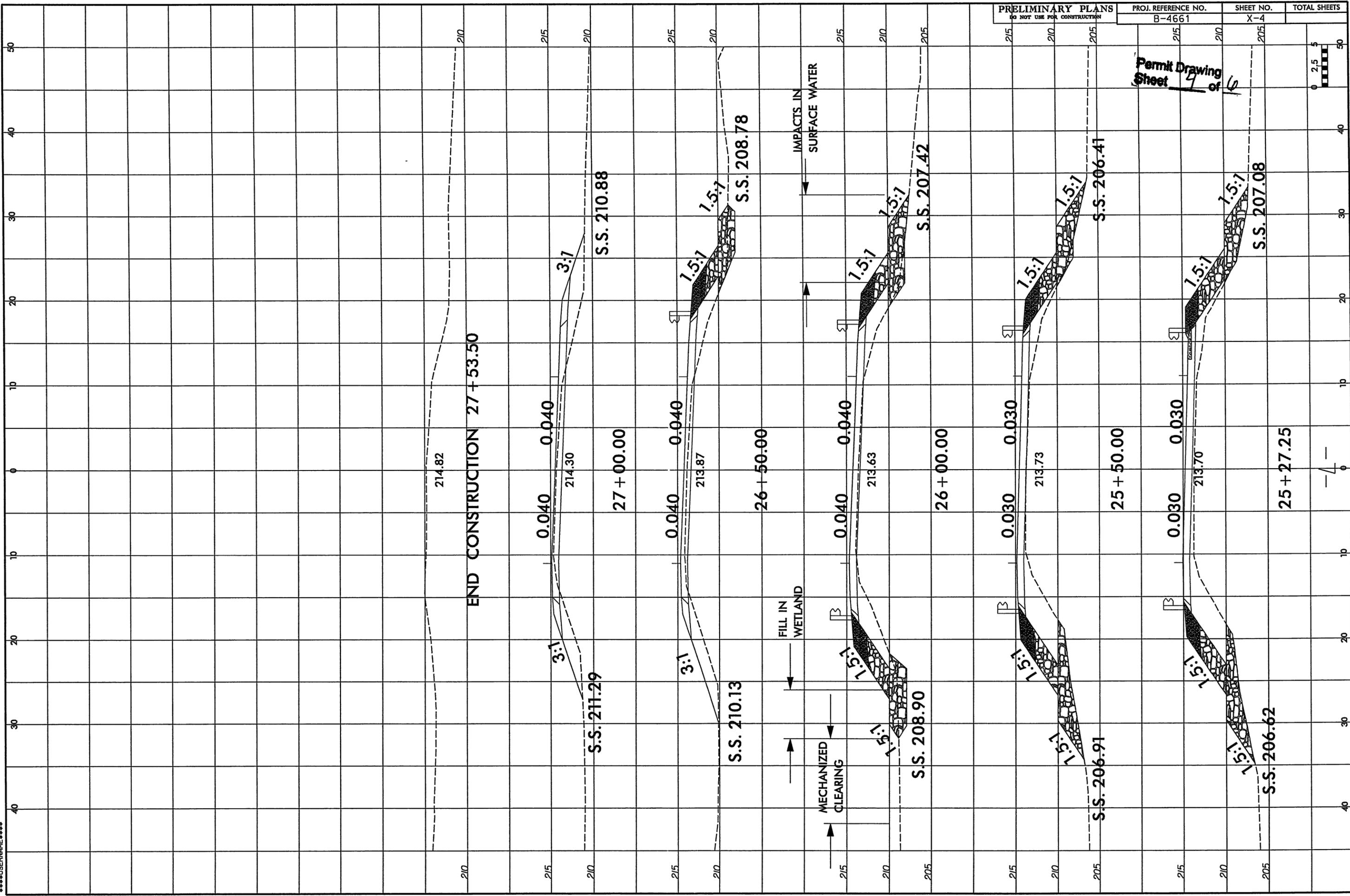
STEWART

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Suite 400
Raleigh, NC 27601
T 919 380 8750
F 919 380 8752
www.stewart-eng.com



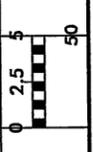
*****SYSTEMS DESIGN*****
*****SUNSHINE*****

10/26/98



PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	PROJ. REFERENCE NO. B-4661	SHEET NO. X-4	TOTAL SHEETS
--	-------------------------------	------------------	--------------

Permit Drawing
Sheet 9 of 10



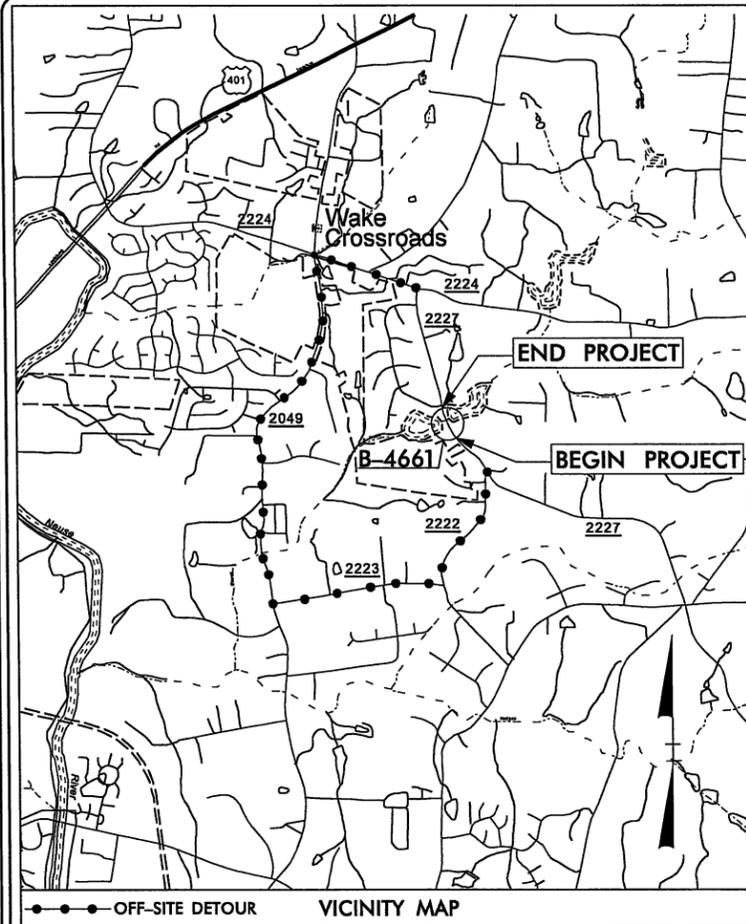
PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
2	BECKY JONES PEARCE	4336 WATKINS RD. RALEIGH, NC 27616
3	JOSEPH NORRIS MEDLIN AND JUANITA R. MEDLIN	9028 RANSELL RD. RALEIGH, NC 27603
4	WAKE CROSS ROADS LAKE	N/A
5	MIRIAM JONES WATKINS	N/A
6	LOVICK BUILDERS, INC.	4948 WINDY HILL DR. #A RALEIGH, NC 27609

WETLAND/STREAM
IMPACTS

NCDOT
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 33823.1.1 (B-4661)
BRIDGE NO. 151 OVER POWELL CREEK
ON SR 2227 (WATKINS RD.) BETWEEN
SR 2224 (MITCHELL MILL RD.)

03/08/11
 CONTRACT: B-4661
 TIP PROJECT: B-4661
 SYSTEMS
 DESIGN
 DRAWING
 NUMBER



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

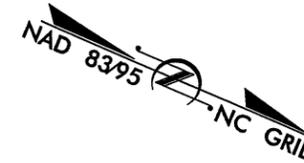
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: BRIDGE NO. 151 OVER POWELL CREEK
 ON SR 2227 (WATKINS RD.) BETWEEN SR 2224
 (MITCHELL MILL RD.) AND SR 2217 (OLD MILBURNIE RD.)

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

90% PLANS

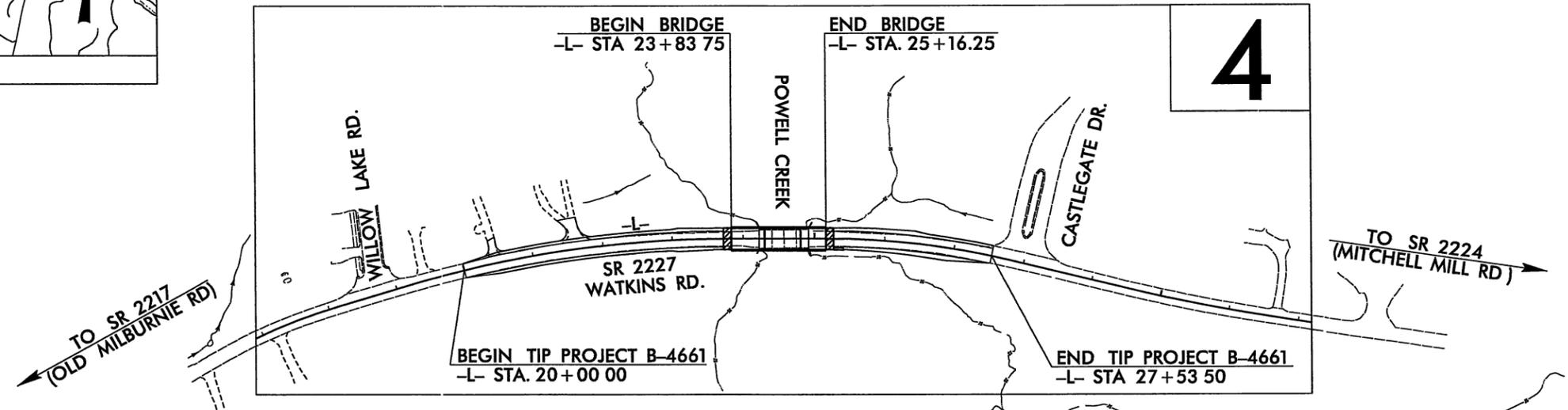


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4661	1	
STATE PROJ NO.	F.A. PROJ NO.	DESCRIPTION	
33823.1.1	BRZ-2227(1)	PE	
33823.2.1	BRZ-2227(1)	RW & UTILITIES	

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

Buffer Drawing
 Sheet 1 of 5

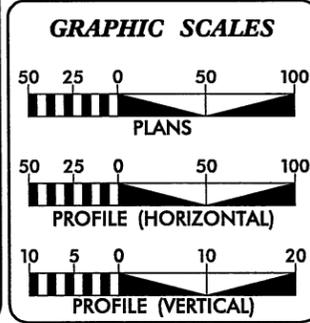
BUFFER IMPACTS



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

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

CONTRACT:



DESIGN DATA

ADT 2010 = 4360
ADT 2030 = 9590
DHV = 10%
D = 60%
T = 5% TTST = 1%
DUAL = 4%
V = 50 MPH
CLASS = URBAN MINOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4661 = 0.118 mi
LENGTH STRUCTURE TIP PROJECT B-4661 = 0.025 mi.
TOTAL LENGTH TIP PROJECT B-4661 = 0.143 mi


 424 Progressville Street, Suite 400
 Raleigh, NC 27604
 T 919 380 8792
 F 919 380 8793
 www.stewarteng.com
STEWART
 2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 JANUARY 21, 2011

LETTING DATE:
 JANUARY 17, 2012

Prepared in the Office of:
STEWART ENGINEERING
 For
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION

DAVID RUGGLES, PE
 PROJECT ENGINEER

JONATHAN HEFNER, PE
 PROJECT DESIGN ENGINEER

DOUG TAYLOR, PE
 NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ PE

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ PE

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

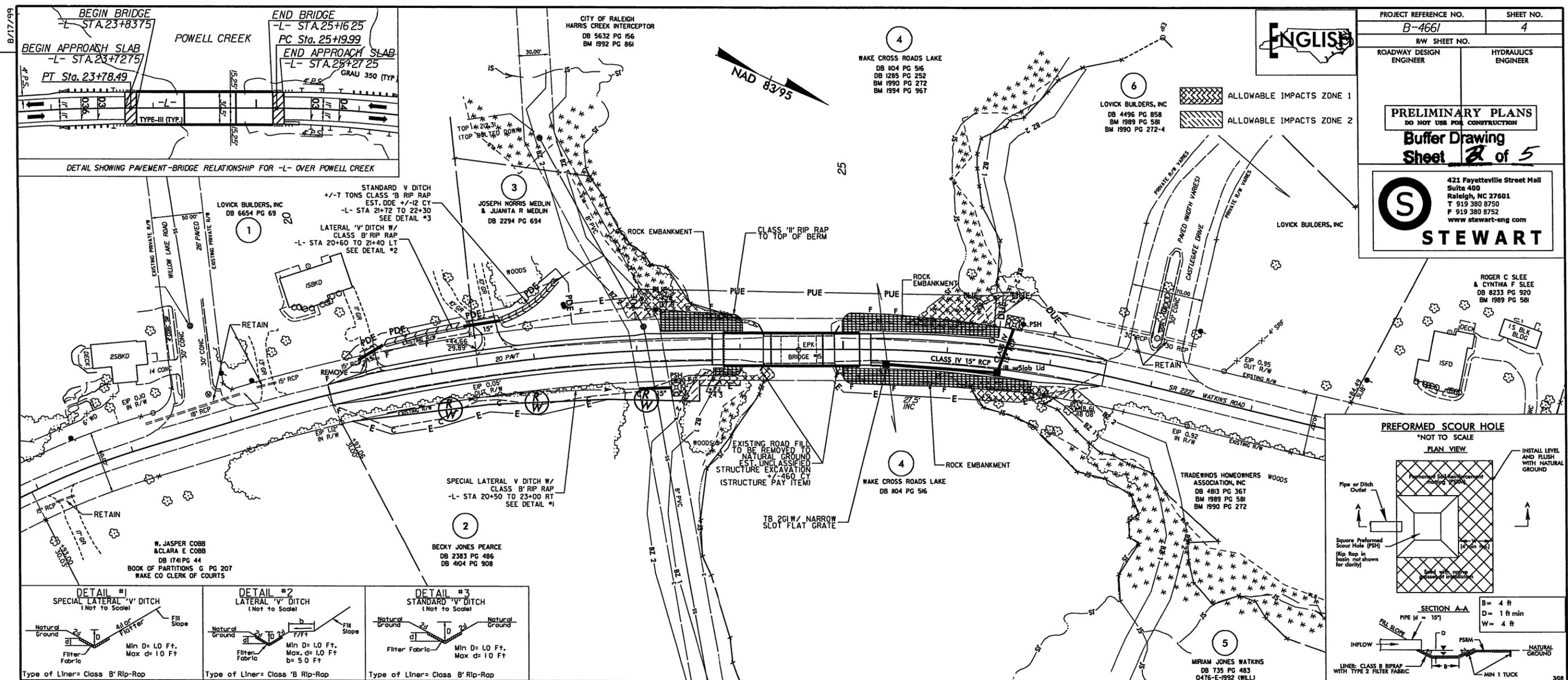


ART McMILLAN, PE
 STATE HIGHWAY DESIGN ENGINEER

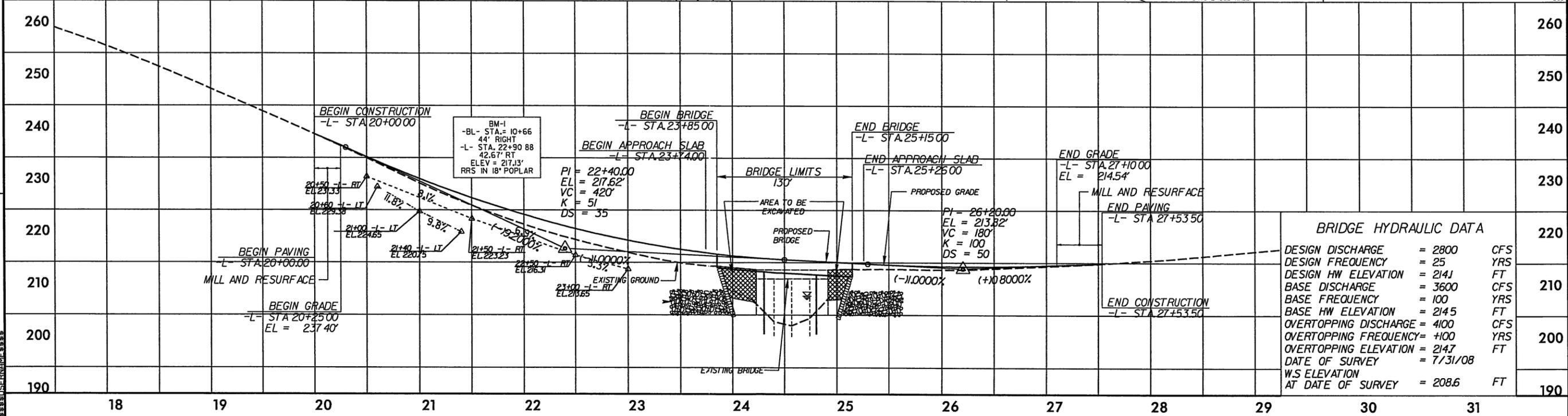
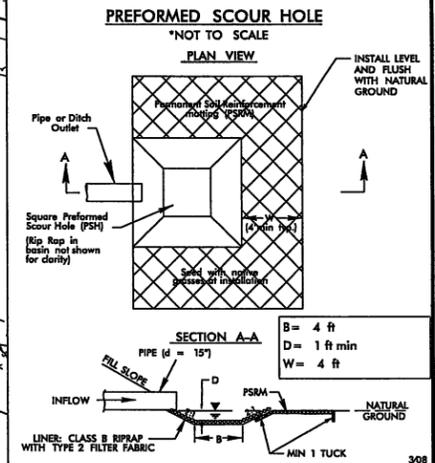
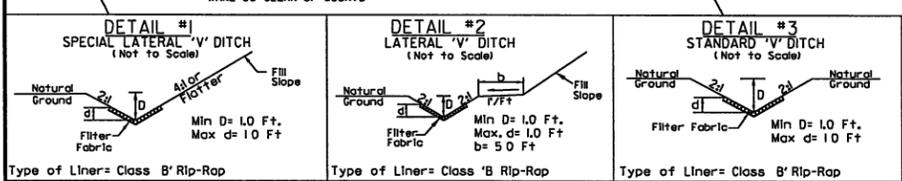
PROJECT REFERENCE NO. B-4661	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Buffer Drawing Sheet 2 of 5	
 STEWART	
421 Fayetteville Street Mall Suite 400 Raleigh, NC 27601 T 919 380 8750 F 919 380 8752 www.stewart-eng.com	

ENGLISH

NAD 83/95



DETAIL SHOWING PAVEMENT-BRIDGE RELATIONSHIP FOR -L- OVER POWELL CREEK



REVISIONS

SYSTEMS
SERIALS

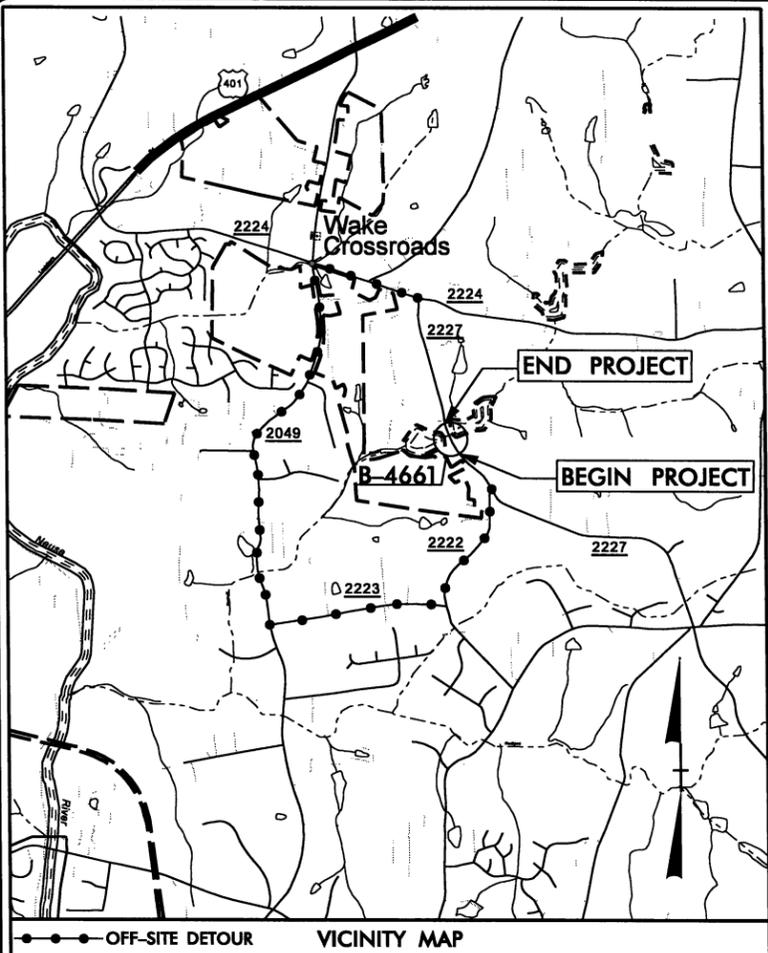
PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
2	BECKY JONES PEARCE	4336 WATKINS RD. RALEIGH, NC 27616
3	JOSEPH NORRIS MEDLIN AND JUANITA R. MEDLIN	9028 RANSELL RD. RALEIGH, NC 27603
4	WAKE CROSS ROADS LAKE	N/A
5	MIRIAM JONES WATKINS	N/A
6	LOVICK BUILDERS, INC.	4948 WINDY HILL DR. #A RALEIGH, NC 27609

**WETLAND / STREAM
IMPACTS**

NCDOT
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 33823.1.1 (B-4661)
BRIDGE NO. 151 OVER POWELL CREEK
ON SR 2227 (WATKINS RD.) BETWEEN
SR 2224 (MITCHELL MILL RD.)
SHEET **3** OF **5** 4/8/10

TIP PROJECT: B-4661



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

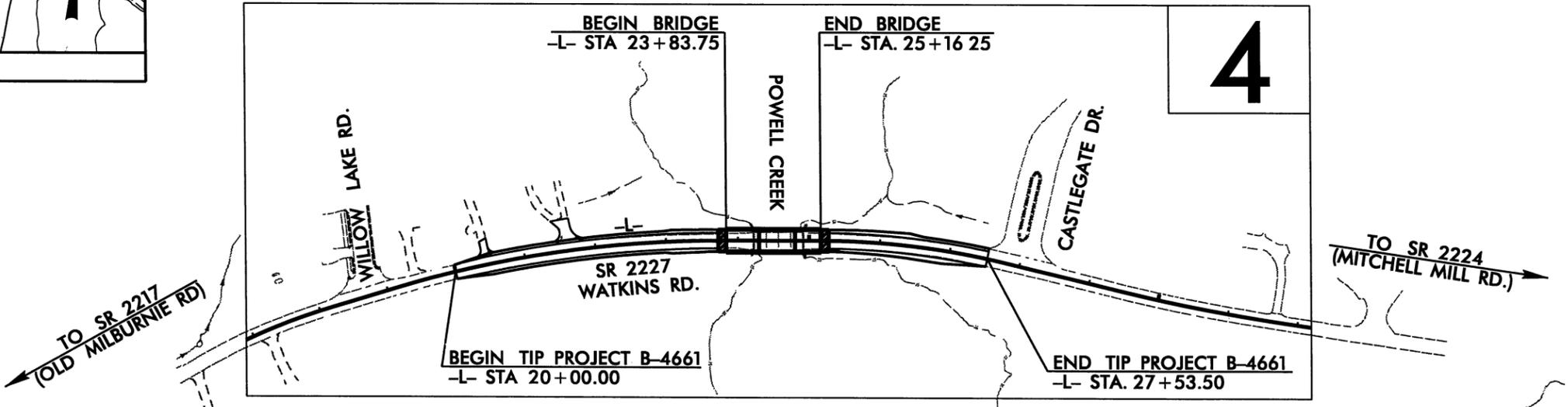
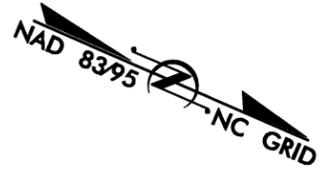
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: BRIDGE NO. 151 OVER POWELL CREEK
ON SR 2227 (WATKINS RD.) BETWEEN SR 2224
(MITCHELL MILL RD.) AND SR 2217 (OLD MILBURNIE RD.)

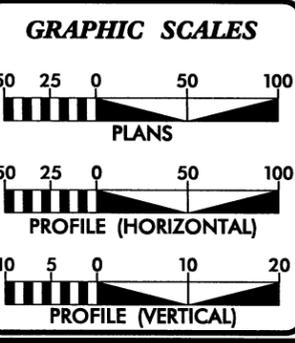
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

90% PLANS



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

CONTRACT:



DESIGN DATA

ADT 2010 = 4360
ADT 2030 = 9590
DHV = 10%
D = 60%
T = 5% TTST = 1%
DUAL = 4%
V = 50 MPH
CLASS = URBAN MINOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4661	= 0.118 mi
LENGTH STRUCTURE TIP PROJECT B-4661	= 0.025 mi
TOTAL LENGTH TIP PROJECT B-4661	= 0.143 mi

STEWART
2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 21, 2011

LETTING DATE:
JANUARY 17, 2012

Prepared in the Office of:
STEWART ENGINEERING
For
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

DAVID RUGGLES, PE
PROJECT ENGINEER

JONATHAN HEFNER, PE
PROJECT DESIGN ENGINEER

DOUG TAYLOR, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ PE

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ PE

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

ART McMILLAN, PE
STATE HIGHWAY DESIGN ENGINEER

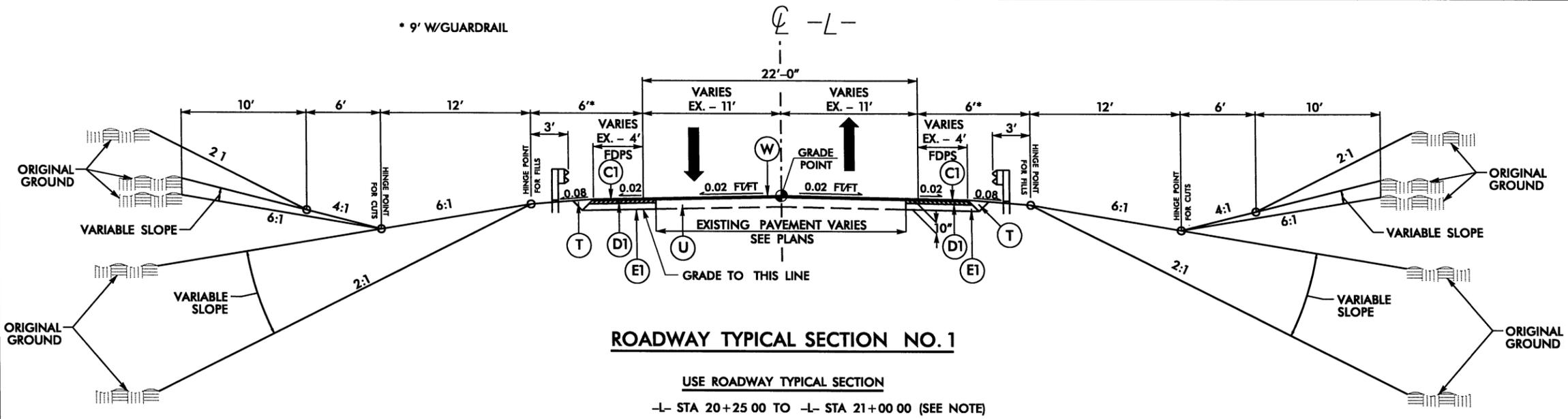
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4661	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33823.1.1	BRZ-2227(1)	PE	
33823.2.1	BRZ-2227(1)	R/W & UTILITIES	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

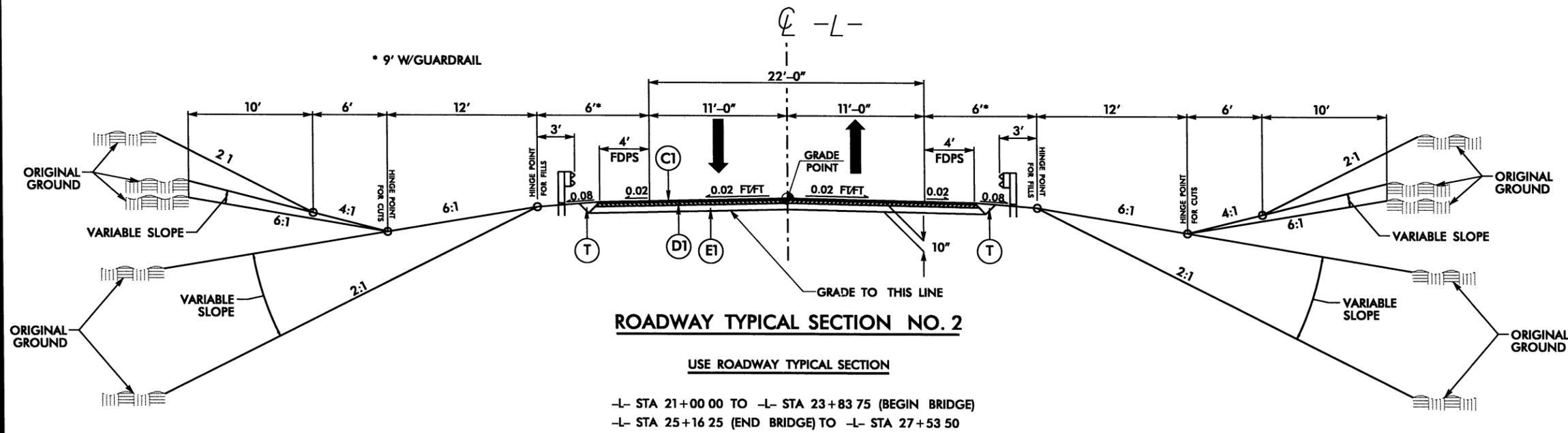
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\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$SERNAME\$\$\$\$\$

6/2/99

PROJECT REFERENCE NO. B-4661	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
 421 Fayetteville Street Mall Suite 400 Raleigh, NC 27601 T 919 380 8750 F 919 380 8752 www.stewart-eng.com STEWART	

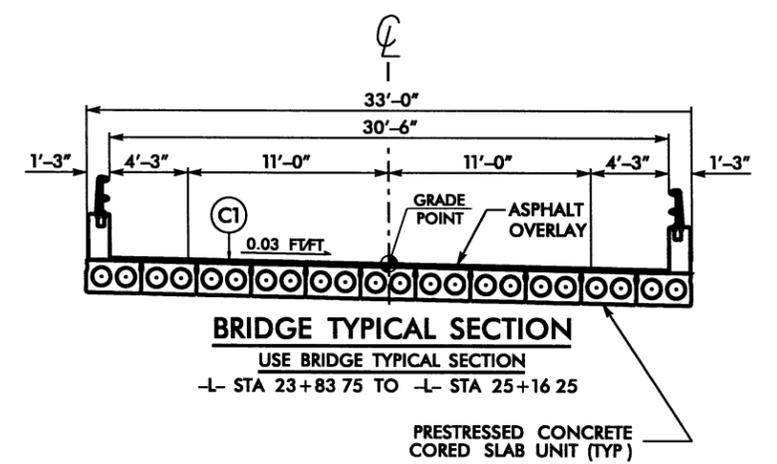
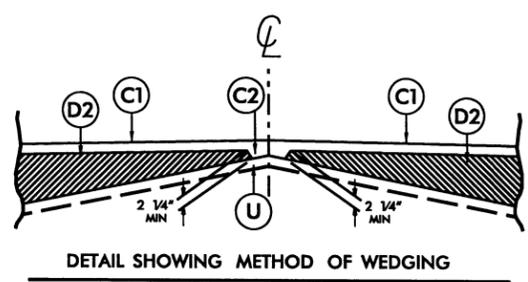


NOTE: TRANSITION FROM EXIST TO TS # 1
-L- STA 20+00 00 TO 20+25 00



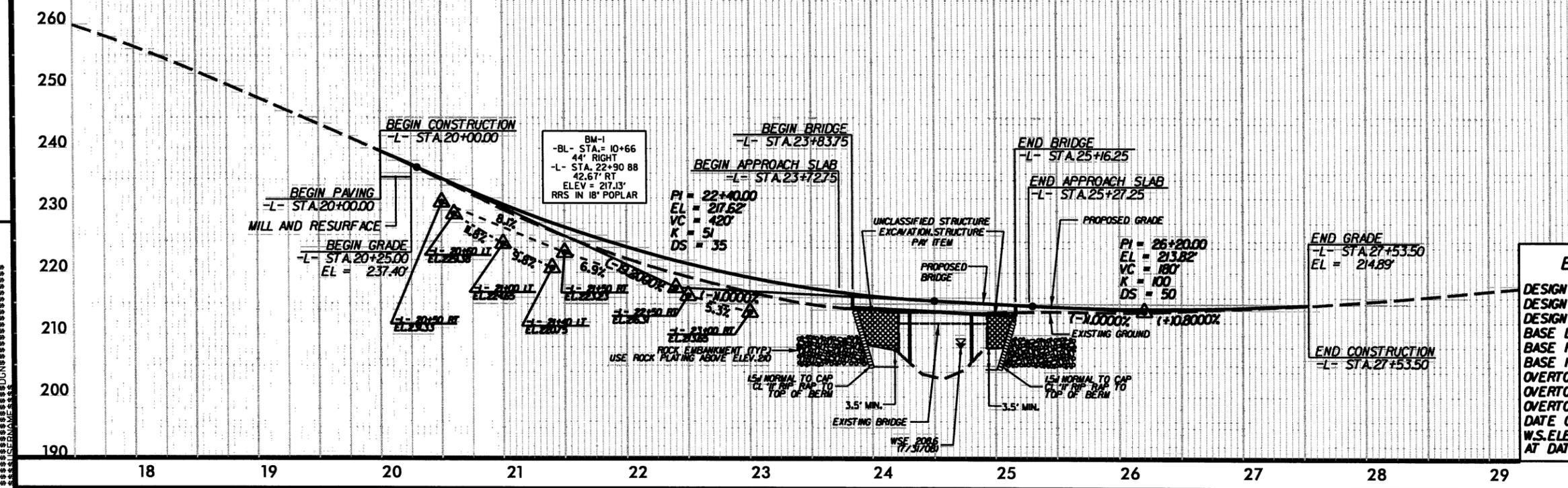
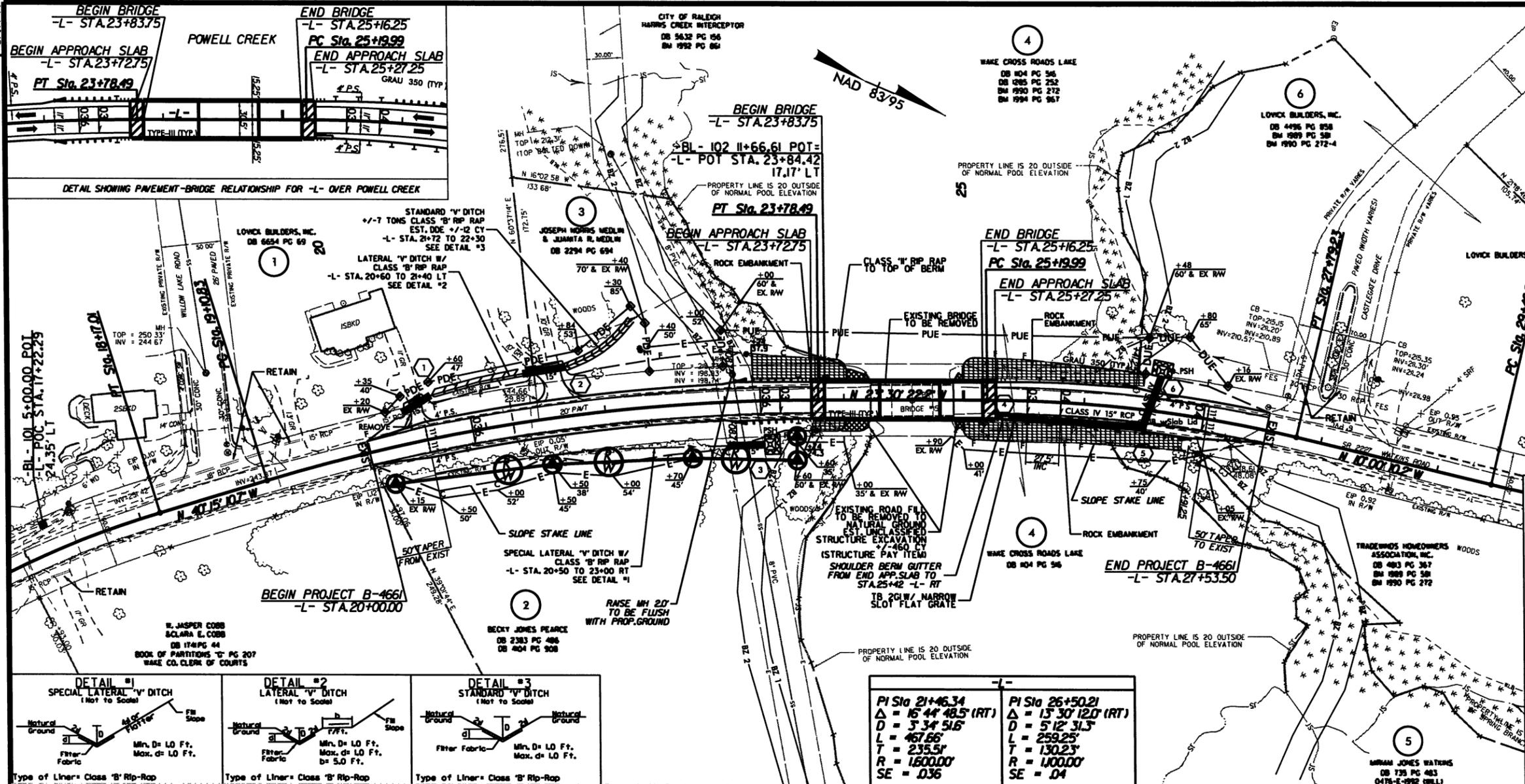
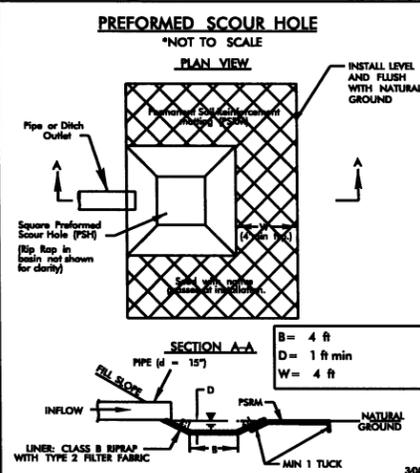
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE			
FINAL PAVEMENT DESIGN			
C1	PROP APPROX 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9 5B, AT AN AVERAGE RATE OF 168 LBS PER SQ YD IN EACH OF TWO LAYERS	E1	PROP APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25 0B, AT AN AVERAGE RATE OF 456 LBS PER SQ YD
C2	PROP VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS PER SQ YD PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH	T	EARTH MATERIAL
D1	PROP APPROX 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19 0B, AT AN AVERAGE RATE OF 342 LBS PER SQ YD	U	EXISTING PAVEMENT
D2	PROP VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS PER SQ YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)



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LEFT DITCH - - - - -

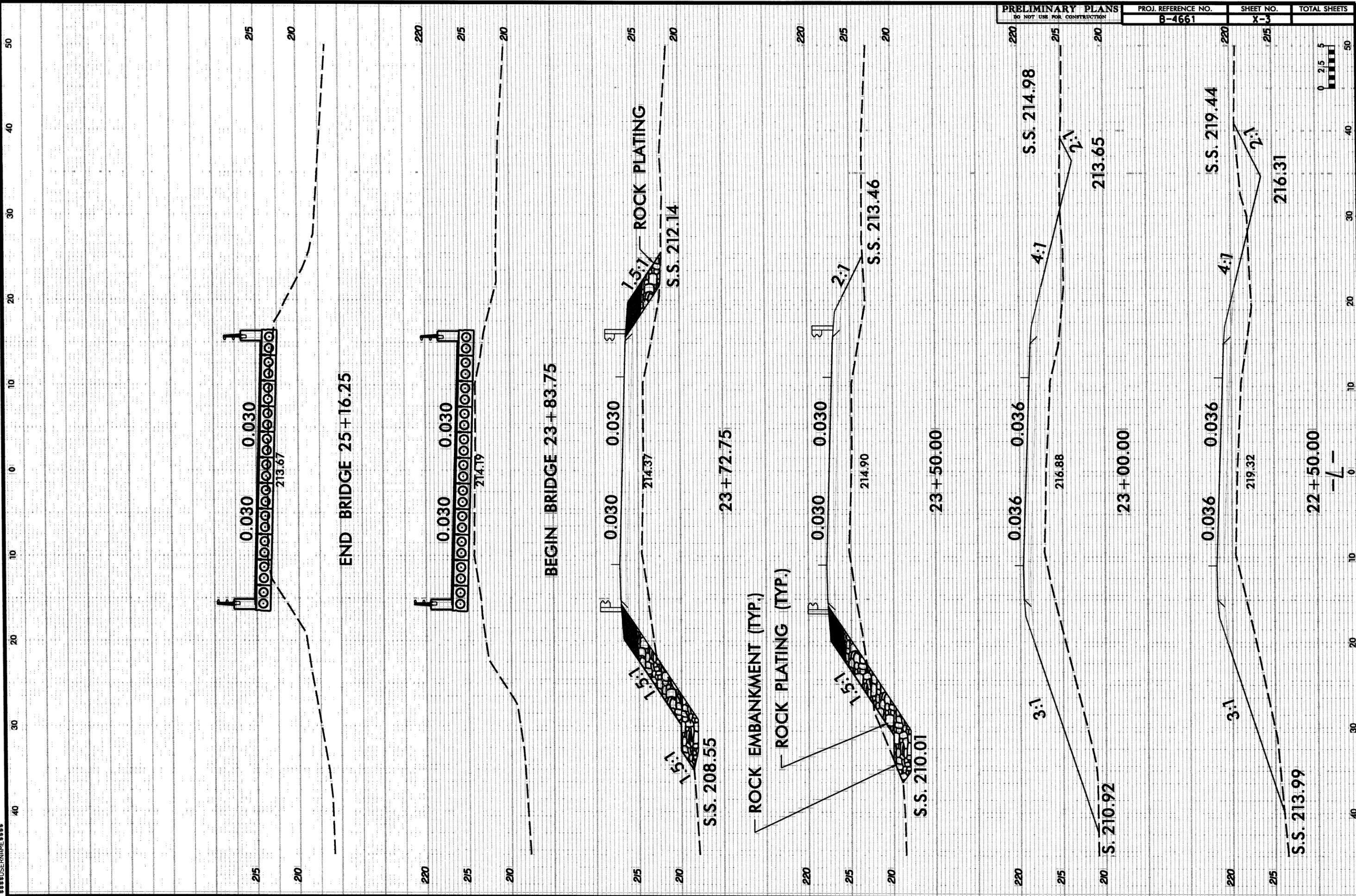
RIGHT DITCH - - - - -

8/17/09

REVISIONS

DATE: _____

--- ADDED PUE TO PARCELS 3, 4, AND 6. CHANGED PDE TO DUE ON PARCEL 6.



PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	PROJ. REFERENCE NO. B-4661	SHEET NO. X-3	TOTAL SHEETS
--	-------------------------------	------------------	--------------

SYSTEMTIME: 10/26/98
USER: *****
USER: *****

10/26/98

