STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI
SECRETARY

August 9, 2012

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

ATTN: Mr. Tom Steffens
NCDOT Coordinator

Dear Sirs:

Subject: **Application for Section 404 Nationwide Permit 23, 401 Water Quality Certification, and Neuse River Riparian Buffer Certification** for the Replacement of Bridge No. 147 on SR 1525 (Cornwallis Rd.) over Swift Creek in Johnston County, North Carolina. TIP No. B-4561. Federal Aid Project No. BRZ-1525(5); State Project No. 8.2313801; Debit $240.00 from WBS Element 33722.1.1.

Please find enclosed the Pre-Construction Notification (PCN) form, stormwater management plan, permit drawings, utility drawings, and design plans for the above referenced project. A Categorical Exclusion (CE) was completed for this project on February 28, 2012 and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 147 over Swift Creek on SR 1525 (Cornwallis Rd.) in Johnston County. The project involves replacement of the existing 151-foot structure with a 185-foot long bridge in approximately the same location. There will be <0.01 acre of permanent impacts to riparian wetlands for excavation resulting from utility relocations and 9,505 square feet of riparian buffer impacts on this project.

The proposed let date for this project is April 16, 2013 with a review date of February 26, 2013. However, the let date may advance as additional funds become available.

Regulatory Approvals

Section 404 Permit: All aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR

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

TELEPHONE: 919-707-6100
FAX: 919-212-5785
WEBSITE: WWW.NCDOT.ORG

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

771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23.

Section 401 Permit: We anticipate 401 General Certification number 3891 will apply to this project. All general conditions of the Water Quality Certifications will be met. NCDOT is providing five copies of this application to the NCDWQ for their review and approval. Authorization to debit the $240 Permit Application Fee from WBS Element 33722.1.1 is hereby given.

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

A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Amy James at aejames@ncdot.gov or (919) 707-6129.

Sincerely,

E. L. Lusk

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

cc: NCDOT Permit Application Standard Distribution List

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

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 23	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No

1d. Type(s) of approval sought from the DWQ (check all that apply):

☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit

☐ 401 Water Quality Certification – Express ☒ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.		☐ Yes ☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.		☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?		☐ Yes ☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge No. 147 over Swift Creek on SR 1525 (Cornwallis Rd.)
2b. County:	Johnston
2c. Nearest municipality / town:	Clayton
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4561

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6129
3g. Fax no.:	(919) 212-5785
3h. Email address:	aejames@ncdot.gov

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

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 35.599998 (DD.DDDDDD)	Longitude: - 78.535582 (-DD.DDDDDD)
1c. Property size:	2.1 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Swift Creek	
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: Land use at the project site and in the vicinity consists primarily of forestland (primarily along stream corridors), medium to low density residential development, and agriculture (mostly pasture land).		
3b. List the total estimated acreage of all existing wetlands on the property: 0.9 acre		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 355		
3d. Explain the purpose of the proposed project: To replace a structurally deficient bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 151-foot bridge with a 185-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:	☒ Yes ☐ No ☐ Unknown	
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary ☐ Final	
4c. If yes, who delineated the jurisdictional areas? Name (if known): NCDOT (Amy James)	Agency/Consultant Company: Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. A preliminary JD request was sent to the USACE on January 4, 2010, but no paperwork was received, nor was there a site visit.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown	
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes ☒ No	
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

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

☒ Wetlands ☐ Streams - tributaries ☒ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

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

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 4 ☒ P ☐ T	Excavation	Bottomland Hardwood Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site 5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 7 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	<0.01 Permanent 0.0 Temporary

2h. Comments: There will also be 0.12 acre of hand clearing in wetlands on this project for the relocation of an overhead power line.

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	X Perm X Temp

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 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

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

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

5g. Comments:

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

6. Buffer Impacts (for DWQ)

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

6a. Project is in which protected basin?	☒ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☐ Other:

6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
Site 1 ☒ P ☐ T	Bridge	Swift Creek	☐ Yes ☒ No	5,030	2,750
Site 1 ☒ P ☐ T	Road crossing	Swift Creek	☐ Yes ☒ No	0	101
A1 ☒ P ☐ T	O/H Power Line	Swift Creek	☐ Yes ☒ No	1,012	0
A2 ☒ P ☐ T	O/H Power Line	Swift Creek	☐ Yes ☒ No	0	612
		6h. **Total buffer impacts**		6,042	3,463

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 34 feet longer than the existing bridge and at approximately the same grade and alignment; elimination of deck drains; the existing interior bent was moved from the center of the channel to the edge of bank; removal of existing road fill under the bridge to improve conveyance and reduce velocity; and the use of grassed shoulders which will promote sheet flow and improve water infiltration.

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

NCDOT Best Management Practices for Bridge Demolition, Removal and Construction will be followed, as well as Design Standards in Sensitive Watersheds; drainage from the berm gutter system will drain to a pre-formed scour hole before discharging into Swift Creek; implementation of an anadromous fish moratorium from Feb. 15-June 15; use of an off-site detour.

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

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

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

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

3c. Comments:

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

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

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

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

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

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

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

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes	☐ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☒ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS county list, field surveys in 2009 (Tar River spinymussel, dwarf wedgemussel, and Michaux's sumac) and 2012 (Michaux's sumac). A biological assessement (BA) is being completed for dwarf wedgemussel on this project and consultation with the USFWS is on-going.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Luck for Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	Aug 8, 2012 Date

TIP PROJECT: B-4561

CONTRACT:

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4561	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33772.1.1	BRZ-1525(5)	P.E.
33772.2.1	BRZ-1525(5)	R.W.

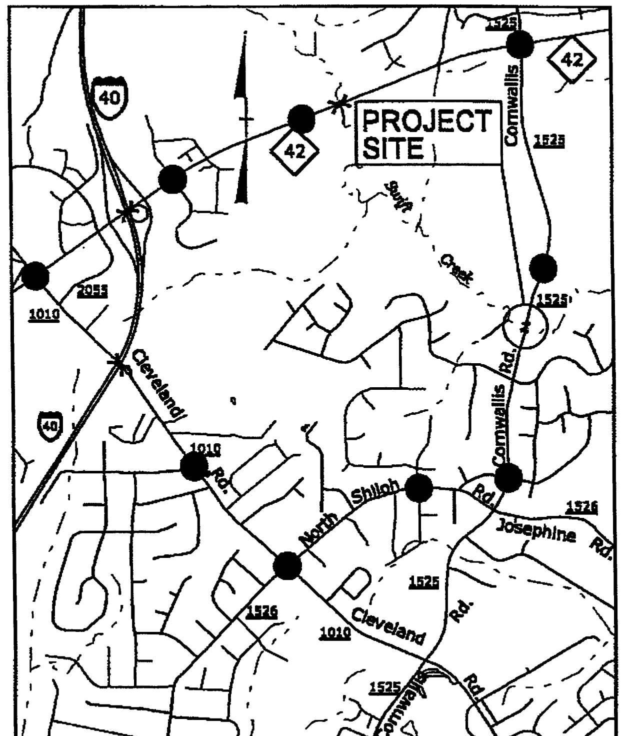
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

LOCATION: BRIDGE NO. 147 OVER SWIFT CREEK ON SR 1525

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

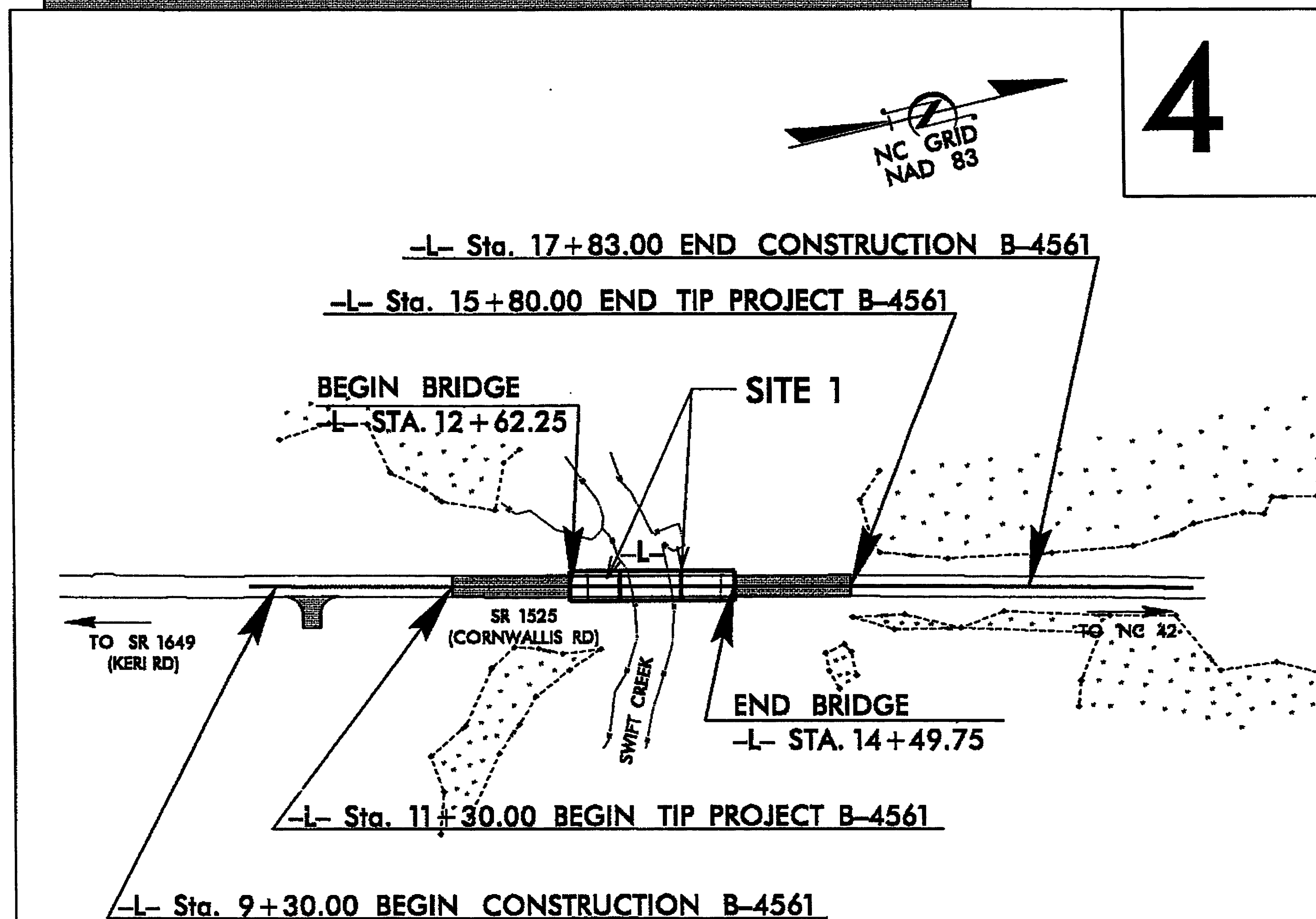
BUFFER IMPACTS PERMIT



VICINITY MAP

●—●—● OFFSITE DETOUR

ROW PLANS



Buffer Drawing Sheet 1 of 7

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 9,400
ADT 2033 = 19,600
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH
* TTST =1 DUAL =2
FUNC CLASS = LOCAL RURAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4561 = 0.049 MI

LENGTH OF STRUCTURES TIP PROJECT B-4561 = 0.036 MI

TOTAL LENGTH OF TIP PROJECT B-4561 = 0.085 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 26, 2012 — BRENDA MOORE, PE, PROJECT ENGINEER

LETTING DATE: APRIL 16, 2013 — TATIA L. WHITE, PE, PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

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

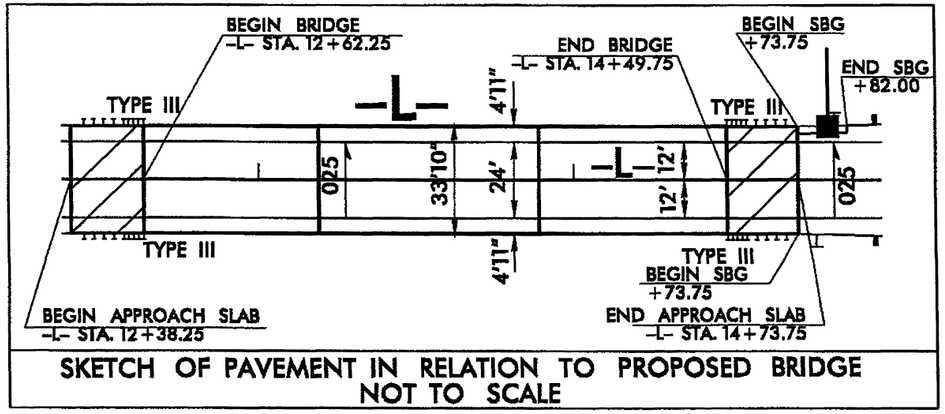
09/08/99

8/17/99

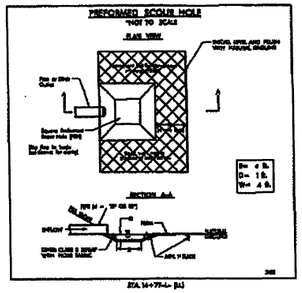
REVISIONS

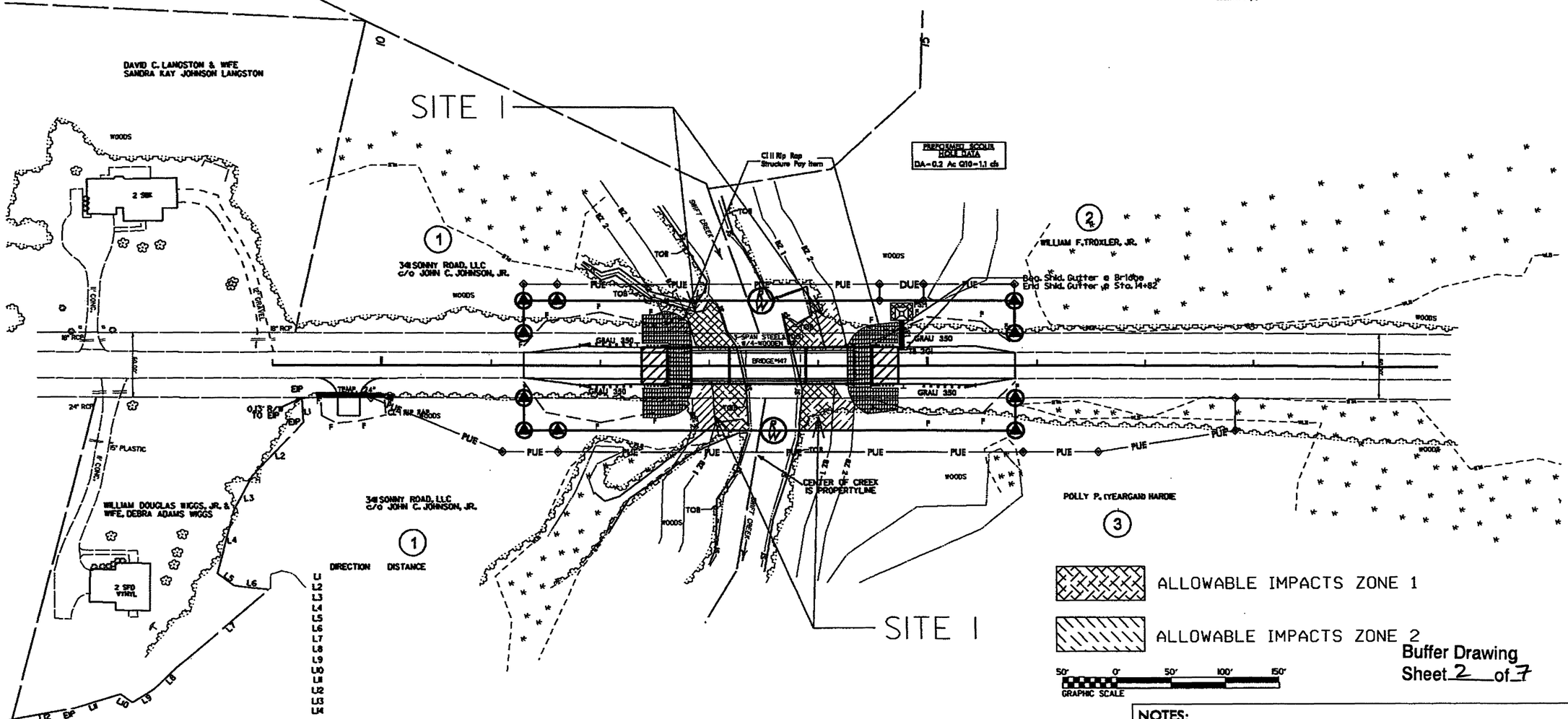
PROJECT REFERENCE NO.	SHEET NO.
B-4561	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SKETCH OF PAVEMENT IN RELATION TO PROPOSED BRIDGE
NOT TO SCALE





▨ ALLOWABLE IMPACTS ZONE 1

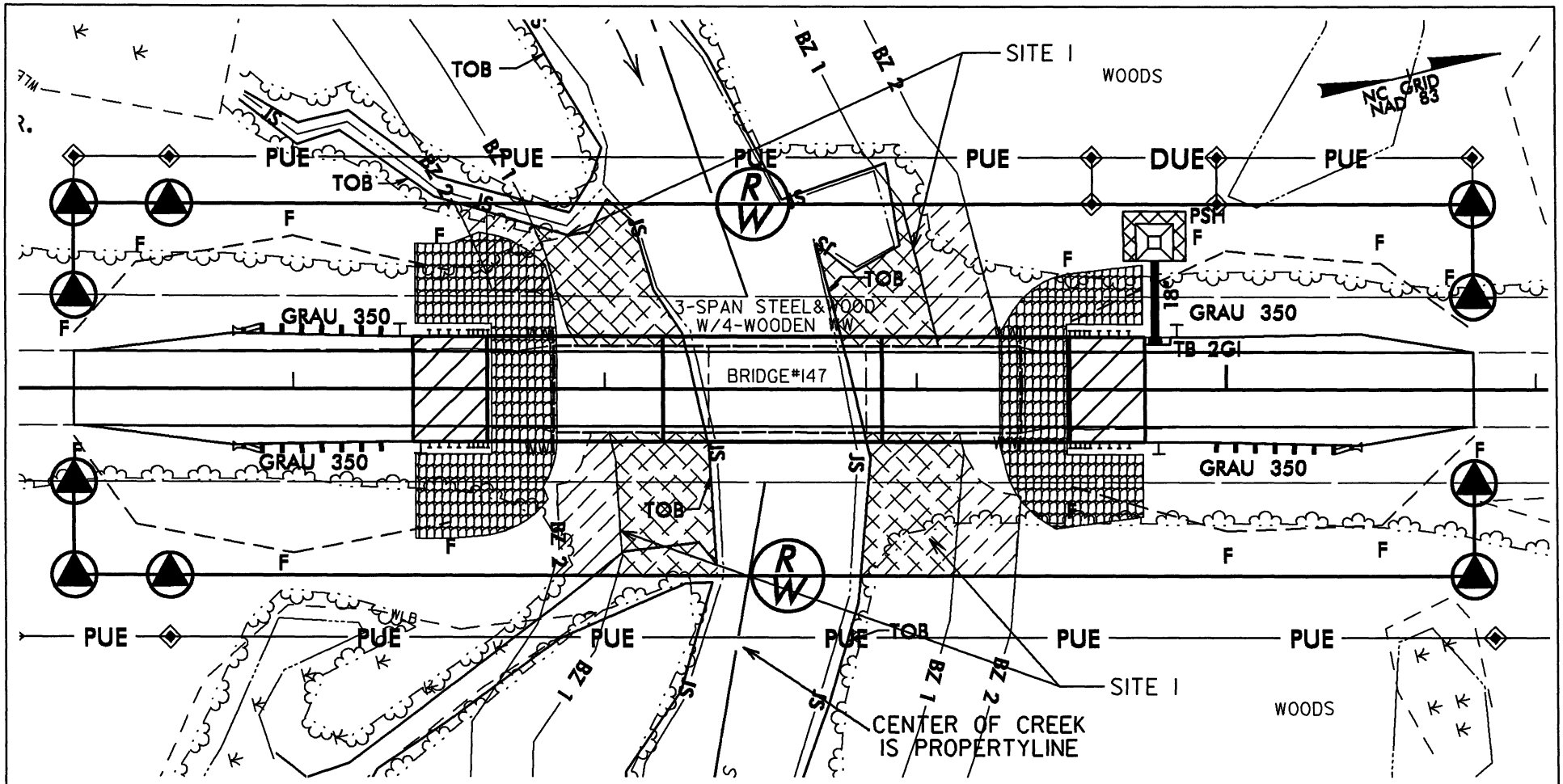
▧ ALLOWABLE IMPACTS ZONE 2

Buffer Drawing
Sheet 2 of 7

NOTES:

1. SEE SHEET 5 FOR -L- PROFILE.
2. SEE SHEETS S-1 THROUGH S-?? FOR STRUCTURE PLANS.

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



50′ 0′ 50′ 100′ 150′

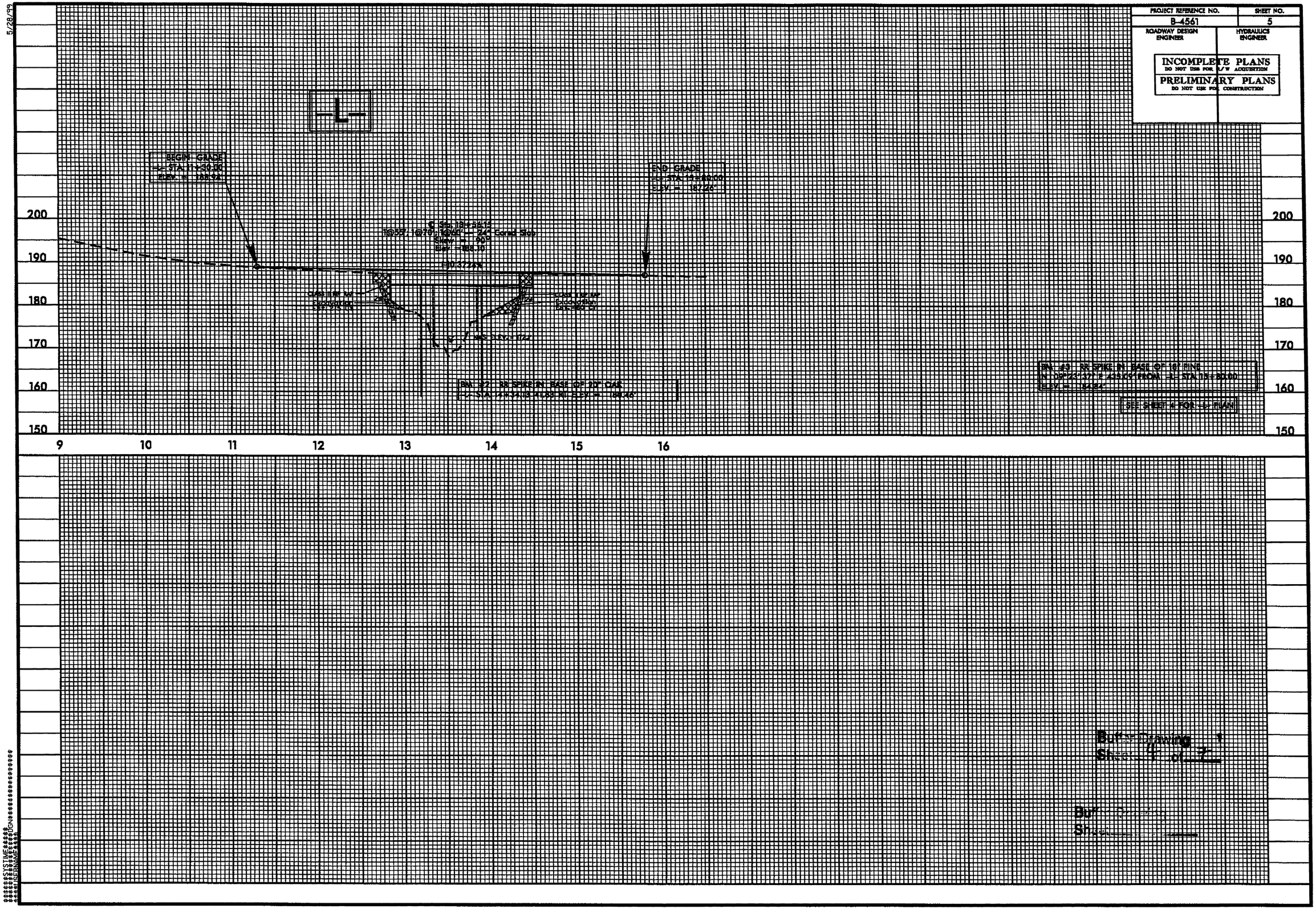
GRAPHIC SCALE

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

PLAN VIEW

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: 33772.1.1 (B-4561)
REPLACEMENT OF BRG. 147
ON SR 1525 (CORNWALLIS ROAD)
OVER SWIFT CRREK
SHEET 3 OF 37 5/2/12



5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing 1
Sheet 4 of 7

Bu
Sh

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

8/23/9

PROJ. REFERENCE NO.	SHEET NO.
B-4561	X-3

Buffer Drawing
Sheet 5 of 7

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

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	341 SONNY ROAD LLC, c/o JOHN C. JOHNSON, JR.	341 SONNY ROAD. CLAYTON, NC 27520
2	WILLIAM F. TROXLER, JR.	PO BOX 6423 RALEIGH, NC 27628-6423
3	POLLY P. (YEARGAND) HARDIE	7777 WHITE OAK ROAD GARNER, NC 27529

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 33772.1.1 (B-4561)

REPLACEMENT OF BRG. 147

ON SR-1525 (CORNWALLIS ROAD) OVER

SWIFT CREEK

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	Bridge	12+62 to 14+50-L-		X		5030	2750.0	7780.0					
		(Lt & Rt)											
1	Bridge	12+62 to 14+50-L-	X				101.0	101.0					
		(Lt & Rt)											
TOTAL:						5030.0	2851.0	7881.0	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: 33772.1.1 (B-4561)

5/2/2012
SHEET 7 OF 7

B-4561 NEU ENVIRONMENTAL PERMIT NARRATIVE

JOHNSTON COUNTY PUBLIC UTILITIES – 6 inch force sewer main: The 6" force sewer main (Force Sanitary Sewer; 6" FSS) will be directionally bored on the east end of the L-line and will require open trenching (excavation of 3 foot trench).outside the wetland boundaries. No impacts will occur due to the 6" force sewer line. Contact: Mrs. Chandra Coats – Public Works Director (water/sewer); Johnston County Public Utilities; P. O. Box 309 E. Market St. P.O. Box 2263 Smithfield, N.C. 27577; Phone 919-982-5046.

JOHNSTON COUNTY PUBLIC UTILITIES – 12 inch force sewer main: The 12" force sewer main (Force Sanitary Sewer; 12" FSS) will be directionally bored outside of wetland boundaries on the south end of the project but will require open trenching (excavation of 3 foot trench) and hand clearing within wetland boundaries from approximately L-16+95 to L-16+98. These impacts will occur in an area to be permitted for overhead power pole installation. Therefore hand clearing is not listed in the Utility Wetland Impact Summary. The 12" force sewer line will be excavated at a 3 feet. depth from L-15+82 to L-17+04, and on 2 feet each side of the 12" force sewer main. Therefore they are listed as excavation within the Wetland in the Utility Wetland Impact . Contact: Mrs. Chandra Coats – Public Works Director (water/sewer); Johnston County Public Utilities; P. O. Box 309 E. Market St. P.O. Box 2263 Smithfield, N.C. 27577; Phone 919-982-5046.

CENTURYLINK TELEPHONE: 3 telephone cables The overhead telephone lines and poles on the west side of the L-line will be relocated further away from the L-line by open trenching from L-11+23 to a hand hole at L-11+70 and from L-15+85 to a hand hole at L-15+60. The telephone lines will be installed overhead from L-L-11+70 to L-15+60 under Swift Creek. There will be no impacts to the wetland due to the telephone lines. Contact: Mr. Kevin Godwin 717 McGillary St. Fayetteville, N.C 28311.

JOHNSTON COUNTY PUBLIC UTILITIES – 8" water line: The 8" water line will be directionally bored outside of wetland boundaries on the west end of the L-line under Swift Creek but will require open trenching (excavation of 3 foot trench) from approximately L-10+56 to L-11+12 and from L 15+64 to L-16+27. No impacts to the wetland will occur due to installation of the water line. Contact: Mrs. Chandra Coats – Public Works Director (water/sewer); Johnston County Public Utilities; P. O. Box 309 E. Market St. P.O. Box 2263 Smithfield, N.C. 27577; Phone 919-982-5046.

PROGRESS ENERGY – overhead power – The overhead power line will be relocated further away from the L-line. The power poles will be removed near the bridge and relocated. The proposed line will run at an angle from west side of the L line to the east side of the L-line. On the east side of the L-line hand clearing will occur in buffer zone 1 and buffer zone 2 on both sides of Swift Creek 15 feet each side of the power line. The power line will cross a wetland on the north east side of the proposed bridge and will be hand cleared below the overhead power line in the wetland between L-15+82 to L-17+04. Contact: Mrs. Sheila Talton Senior Utilities Coordinator 1020 W. Chatham St. Cary, N.C. 27511 Phone 919 481-6126.

09/08/99

TIP PROJECT: B-4561

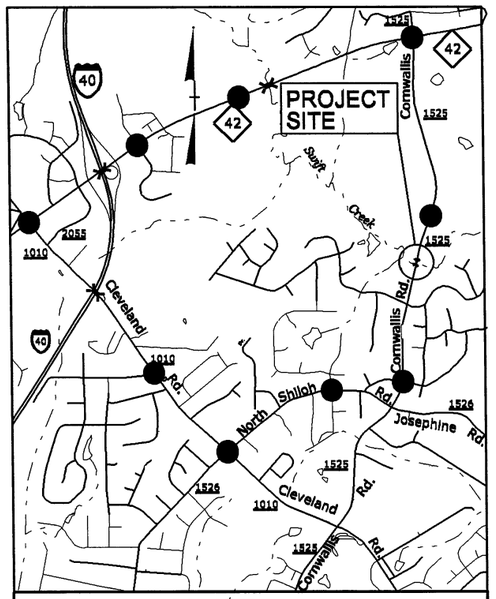
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
B-4561	UC-1

NEU UTILITY
RELOCATION PLANS

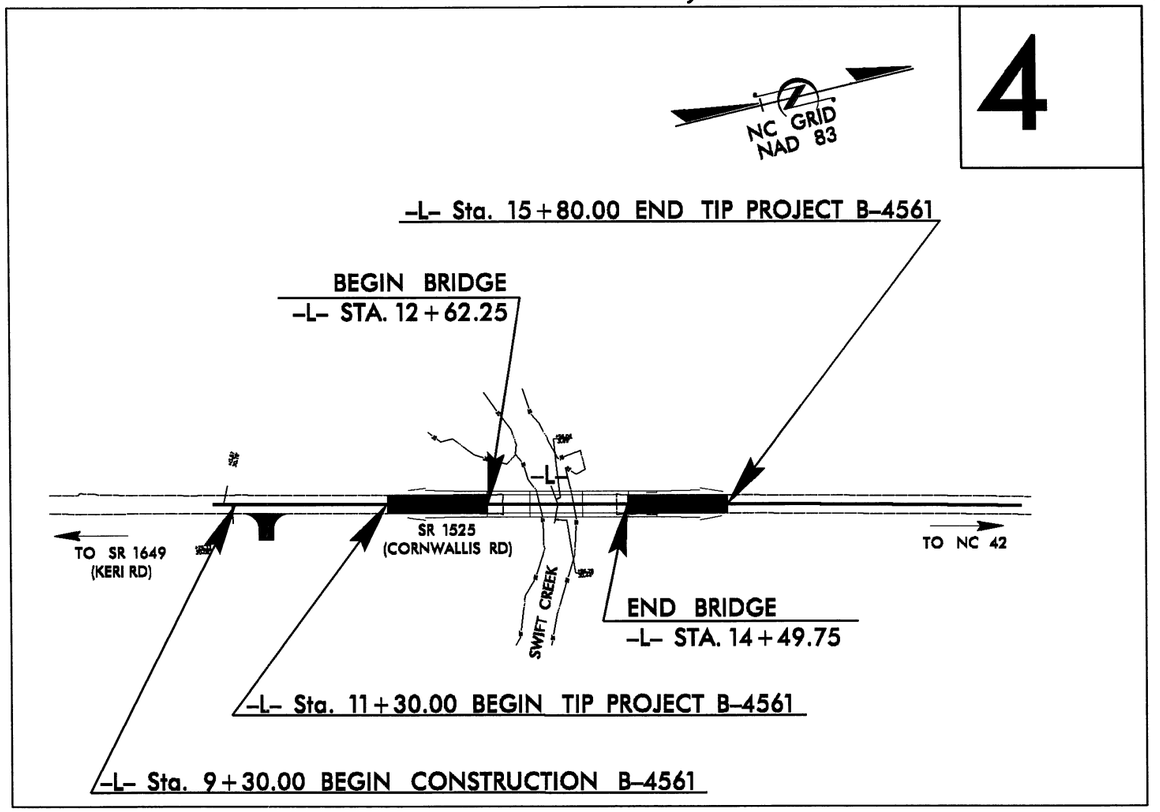
NEU
UTILITY RELOCATION PLANS
JOHNSTON COUNTY

LOCATION: BRIDGE NO. 147 OVER SWIFT CREEK ON SR 1525
TYPE OF WORK: RELOCATION OF WATER, SEWER AND TELEPHONE UTILITIES



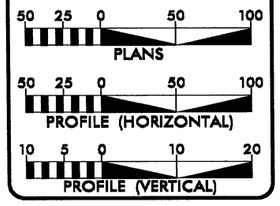
VICINITY MAP

●—●—● OFFSITE DETOUR



Utility Permit Drawing
Sheet 3 of 15

GRAPHIC SCALES



INDEX OF SHEETS

WATER AND SEWER OWNERS ON PROJECT

(1) *JOHNSTON COUNTY PUBLIC UTILITIES*
WATER AND SEWER
(2) *CENTURYLINK TELEPHONE*
(3) *PROGRESS ENERGY*

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER COREY D. BOUSQUET

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. — *UTILITIES SECTION ENGINEER*
Corey Bousquet, P.E. — *UTILITIES SQUAD LEADER PROJECT ENGINEER*
Kelvin Martin — *UTILITIES PROJECT DESIGNER*

19-APR-2012 16:34
R:\UTILITIES\UT\Proj\B-4561_UT_NEUTSH.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-2

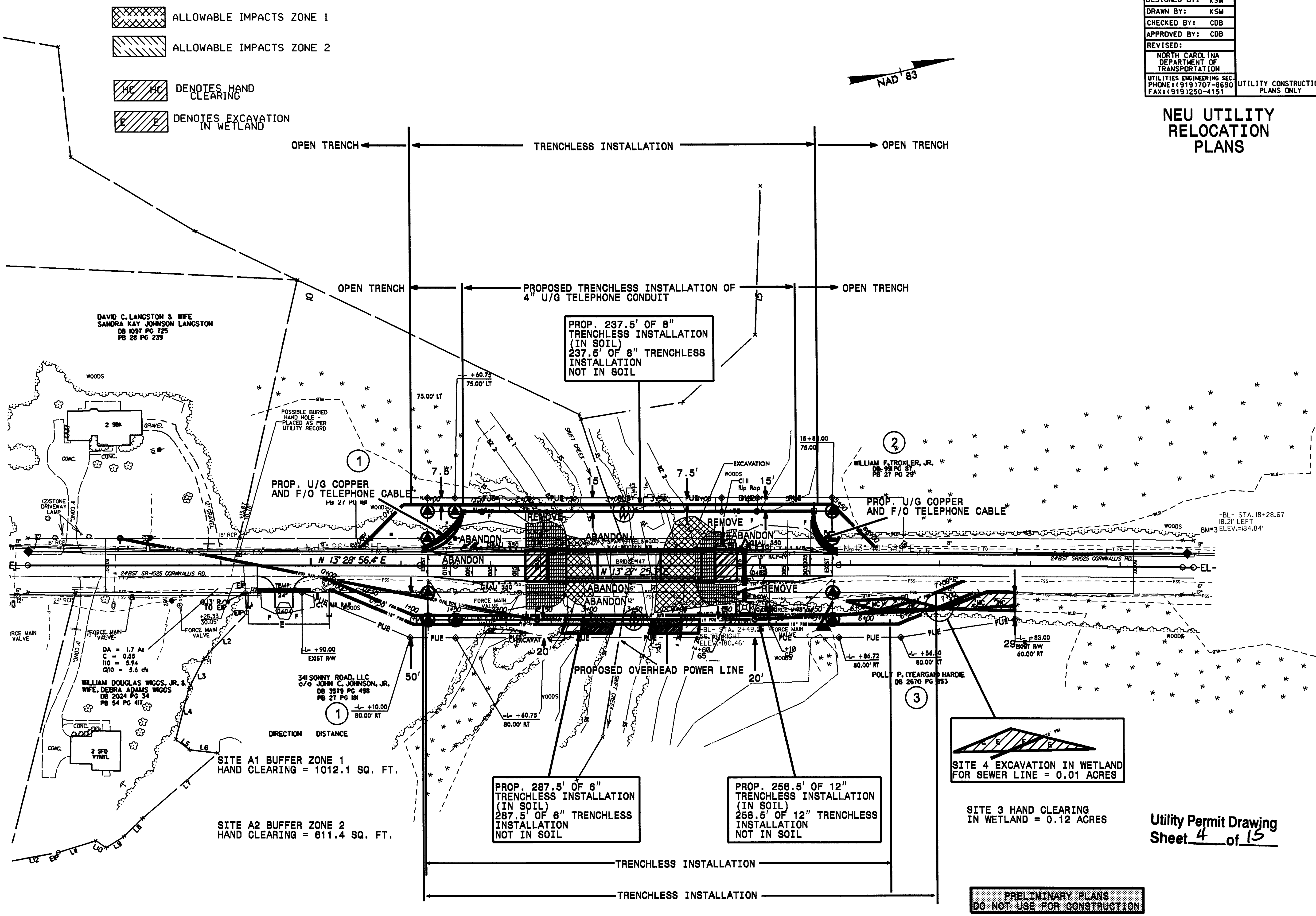
DESIGNED BY: KSM
DRAWN BY: KSM
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

NEU UTILITY RELOCATION PLANS



ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
NAD 83
OPEN TRENCH
TRENCHLESS INSTALLATION
OPEN TRENCH
OPEN TRENCH
PROPOSED TRENCHLESS INSTALLATION OF 4" U/G TELEPHONE CONDUIT
OPEN TRENCH
PROP. 237.5' OF 8" TRENCHLESS INSTALLATION (IN SOIL) 237.5' OF 8" TRENCHLESS INSTALLATION NOT IN SOIL
DAVID C. LANGSTON & WIFE SANDRA KAY JOHNSON LANGSTON DB 1097 PG 725 PB 28 PG 239
WILLIAM F. TROXLER, JR.
PROP. U/G COPPER AND F/O TELEPHONE CABLE
PROP. U/G COPPER AND F/O TELEPHONE CABLE
REMOVE
ABANDON
N 13° 28' 56.4" E
24'BST SR-1525 CORNWALLIS RD.
-BL- STA. 18+28.67 18.21' LEFT BM#3 ELEV.=184.84'
PROPOSED OVERHEAD POWER LINE
DA = 1.7 Ac C = 0.55 I10 = 5.94 Q10 = 5.6 cfs
WILLIAM DOUGLAS WIGGS, JR. & WIFE, DEBRA ADAMS WIGGS DB 2024 PG 34 PB 54 PG 417
341 SONNY ROAD, LLC c/o JOHN C. JOHNSON, JR. DB 3579 PG 498 PB 27 PG 181
POLLY P. (YEARGAN) HARDIE DB 2670 PG 853
DIRECTION DISTANCE
SITE A1 BUFFER ZONE 1 HAND CLEARING = 1012.1 SQ. FT.
SITE A2 BUFFER ZONE 2 HAND CLEARING = 611.4 SQ. FT.
PROP. 287.5' OF 6" TRENCHLESS INSTALLATION (IN SOIL) 287.5' OF 6" TRENCHLESS INSTALLATION NOT IN SOIL
PROP. 258.5' OF 12" TRENCHLESS INSTALLATION (IN SOIL) 258.5' OF 12" TRENCHLESS INSTALLATION NOT IN SOIL
SITE 4 EXCAVATION IN WETLAND FOR SEWER LINE = 0.01 ACRES
SITE 3 HAND CLEARING IN WETLAND = 0.12 ACRES
TRENCHLESS INSTALLATION
TRENCHLESS INSTALLATION

Utility Permit Drawing
Sheet 4 of 15

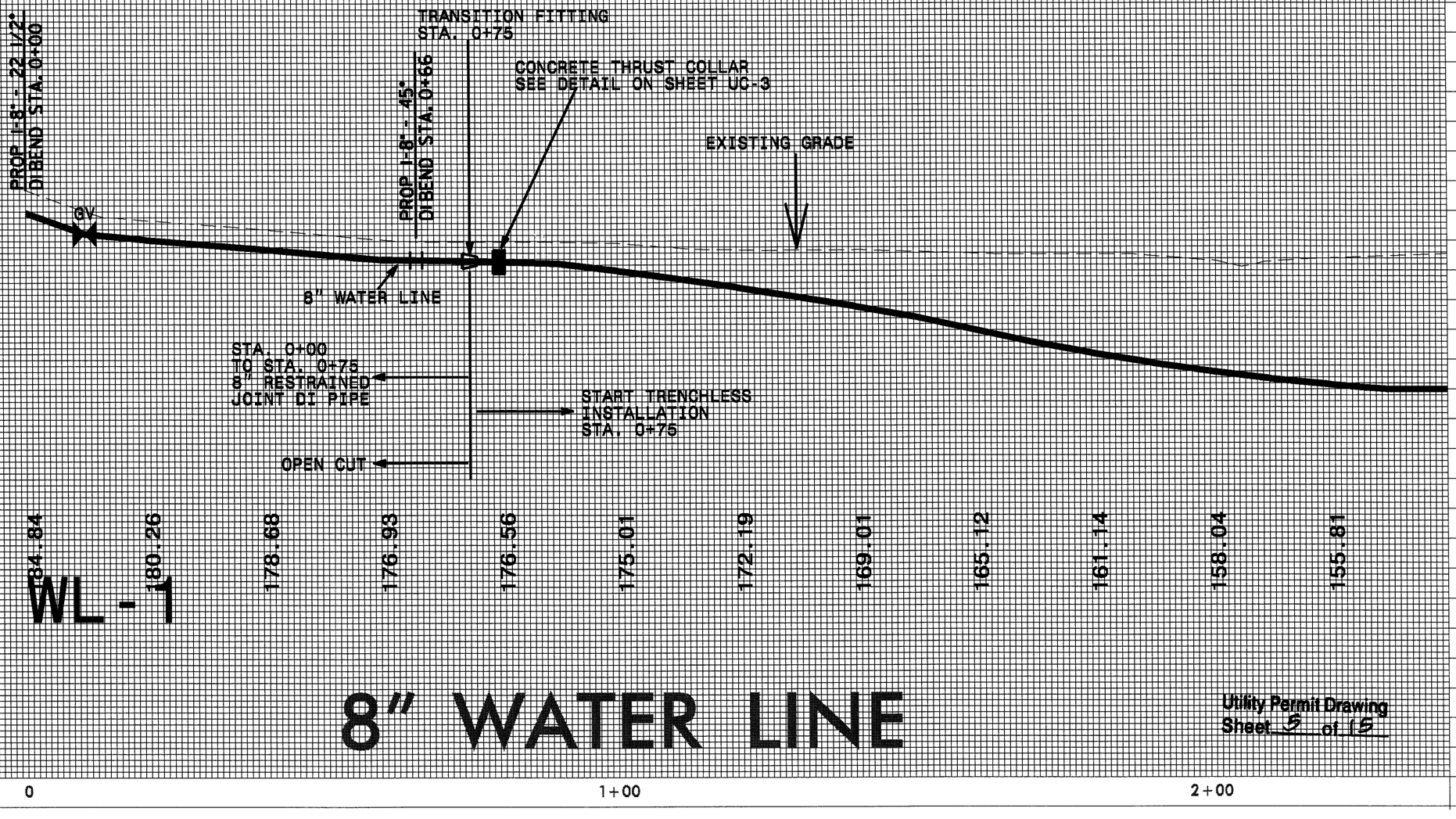
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



Utility Permit Drawing
Sheet 15 of 15

13-APR-2012 16:07
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-4

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SWIFT CREEK
℄

15'

WETLAND BOUNDARY

WETLAND BOUNDARY

END TRENCHLESS INSTALLATION STA. 5+40

8" WATER LINE

8" WATER LINE

155.00 155.00 155.00 155.00 155.00 155.00 155.00 155.73 157.43 160.17 163.70 167.22 170.75 174.04

260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80

3+00 4+00 5+00

Utility Permit Drawing
Sheet 6 of 15

19-APR-2012 16:08
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$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100

CONCRETE THRUST COLLAR
SEE DETAIL ON SHEET UC-3

PROP 1-8"-45° DIBEND STA. 5+43

EXISTING GRADE

PROP 1-8"-45° DIBEND STA. 7+22

TRANSITION FITTING
STA. 5+40

GV

STA. 5+40
TO STA. 6+10
8" RESTRAINED
JOINT DI PIPE

OPEN CUT

176.04
176.03
176.02
176.00
178.85

8" WATER LINE

6+00

Utility Permit Drawing
Sheet 7 of 15

19-APR-2012 16:09
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$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PROP. 1-22.5° DI BEND
STA. 0+00 - HORIZONTAL

PROPOSED GRADE

EXISTING GRADE

PROP. 1-22.5° DI BEND
STA. 0+97 - HORIZONTAL

STA. 0+00
TO STA. 1+10
12" RESTRAINED
JOINT DI PIPE

START TRENCHLESS
INSTALLATION
STA. 1+10

OPEN CUT

181.27 178.90 178.28 177.46 176.83 176.57 176.24 175.19 173.55 171.22 167.24 162.99

WL - 2

12" Force Main

Utility Permit Drawing
Sheet 2 of 15

260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90

0 1+00 2+00

19-APR-2012 16:15
K:\Proj\12. force_main 112.dgn
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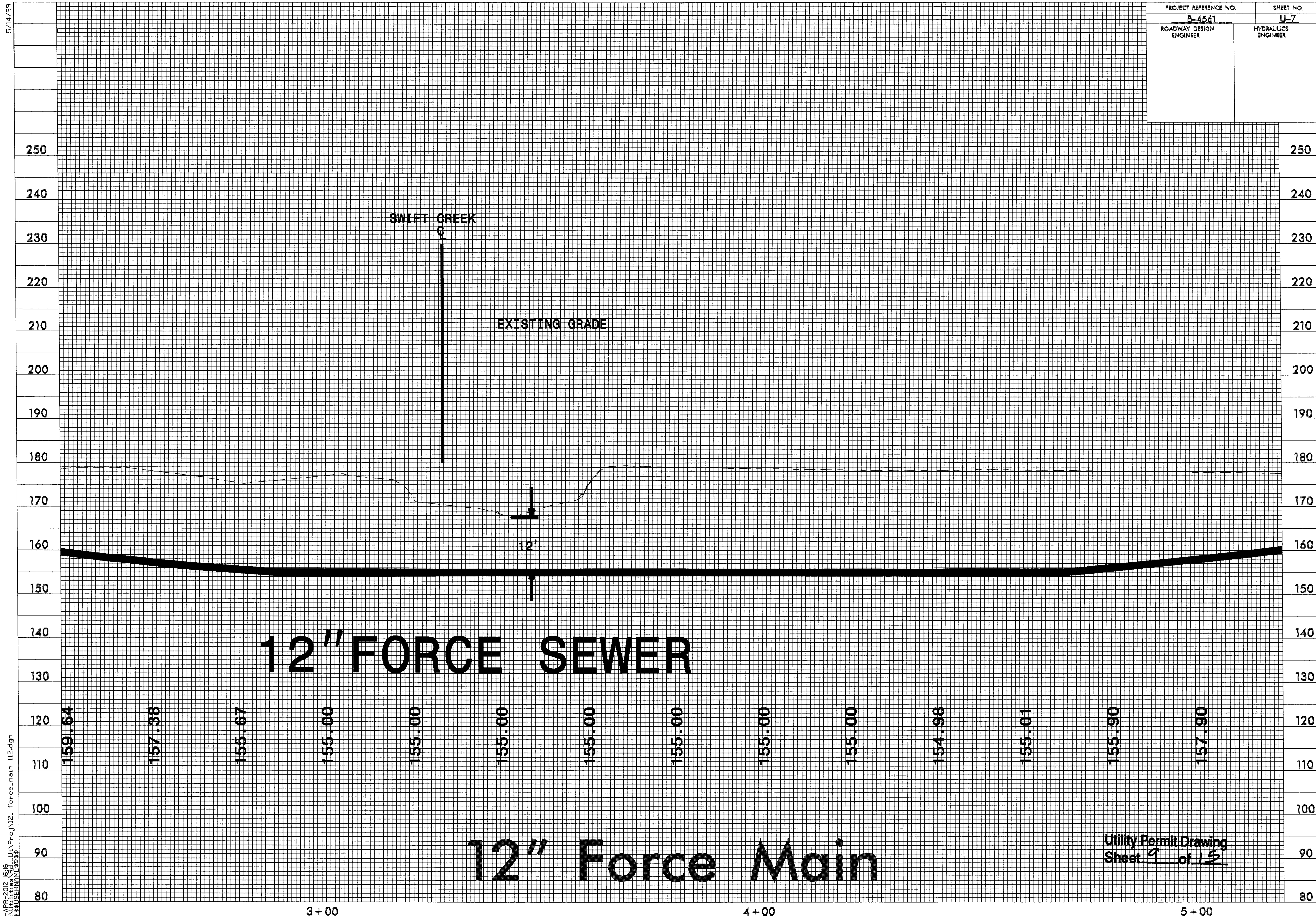
PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Utility Permit Drawing
Sheet 9 of 15

5/14/99

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$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90

WETLAND BOUNDARY

WETLAND BOUNDARY

PROP. 1-22.5° DI BEND
STA. 6+36

PROP. 1-22.5° DI BEND
STA. 7+26

HORIZONTAL

STA. 6+27
TO STA. 7+26
12" DI RESTRAINED
JOINT

END 12" TRENCHLESS
INSTALLATION
STA. 6+27

OPEN
CUT

160.12 163.10 166.89 170.61 173.64 175.70 175.66 175.65 175.66 175.66 176.63

12" Force Main

6+00 7+00

Utility Permit Drawing
Sheet 10 of 15

19-APR-2012 16:16
R:\Utilities\Projects\Proj\12. force_main 112.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90

PROP. 1-6" - 22 1/2° DI BEND STA. 0+00 HORIZONTAL

PROPOSED GRADE

EXISTING GRADE

PROP. 1-6" - 22 1/2° DI BEND STA. 0+00 HORIZONTAL

STA. 0+00
TO STA. 1+15
6" RESTRAINED
JOINT PIPE

START TRENCHLESS
INSTALLATION
STA. 1+15

OPEN
CUT

187.74
182.87
180.54
178.92
177.65
177.38
176.68
175.18
172.74
169.82
166.08
161.84

6" Force Main

Utility Permit Drawing
Sheet 11 of 15

0
1+00
2+00

19-APR-2012 16:33
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$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70

SWIFT CREEK
℄

EXISTING GRADE

11'

6" FORCE SEWER

158.19 156.05 155.06 155.00 155.00 155.00 154.96 154.99 154.99 155.00 155.00 154.99 154.96 154.98

6" Force Main

Utility Permit Drawing
Sheet 12 of 15

19-APR-2012 16:11
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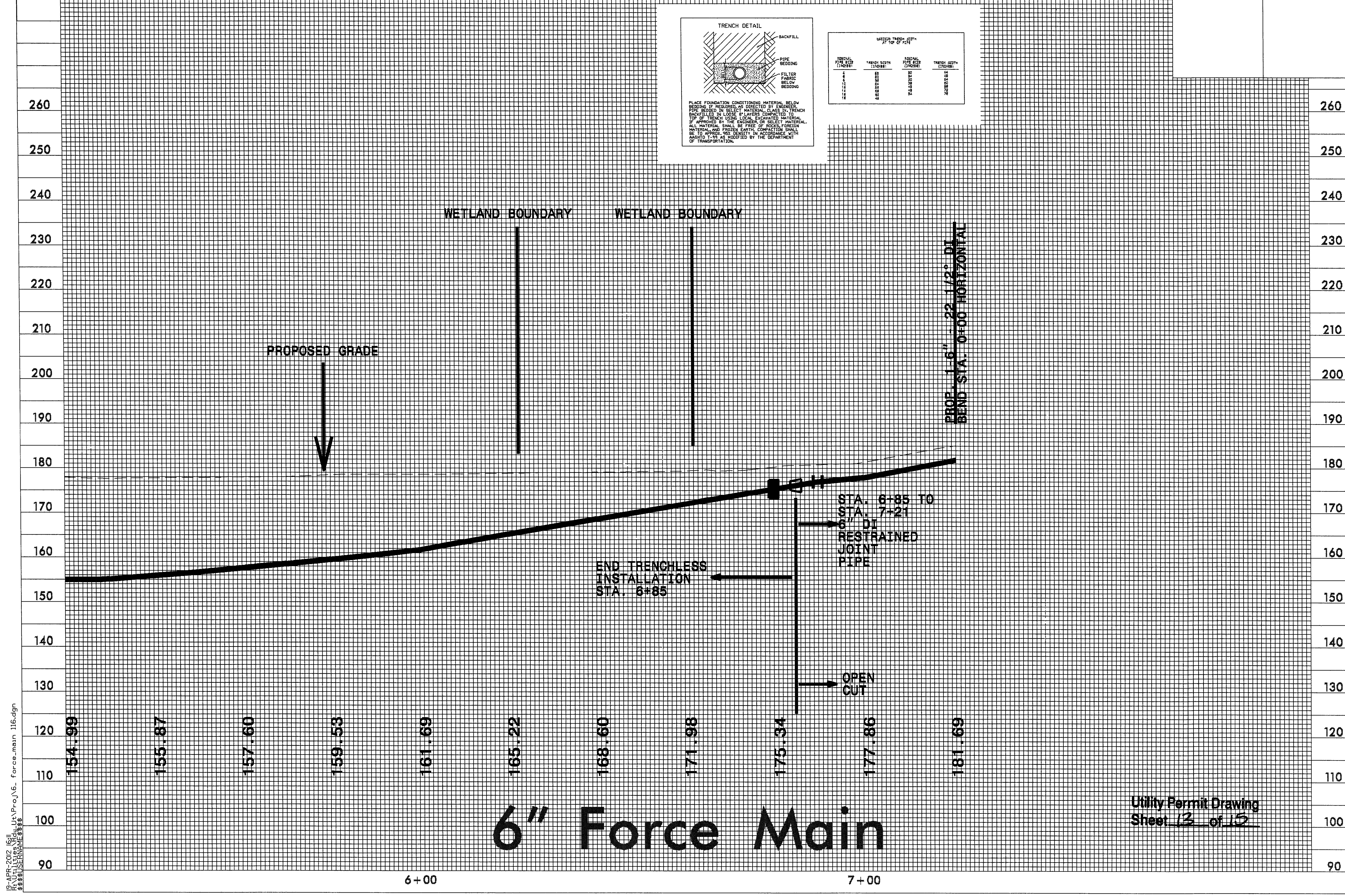
PROJECT REFERENCE NO.	SHEET NO.
B-4561	U-11

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER


TRENCH DETAIL
BACKFILL
PIPE BEDDING
FILTER FABRIC BELOW BEDDING
BELL
PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS IV. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.
WETLAND BOUNDARY
WETLAND BOUNDARY
PROPOSED GRADE
PROP. 1-6" - 22 1/2° DI BEND STA. 0+00 HORIZONTAL
STA. 6+85 TO STA. 7+21 6" DI RESTRAINED JOINT PIPE
END TRENCHLESS INSTALLATION STA. 6+85
OPEN CUT
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
154.99
155.87
157.60
159.53
161.69
165.22
168.60
171.98
175.34
177.86
181.69
6+00
7+00
6" Force Main
Utility Permit Drawing
Sheet 13 of 15

5/14/99

19-APR-2012 16:11
R:\Utilities\Rdy_Ut\Proj\6_ force_main 116.dgn
$$$$USERNAME$$$$

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
A1	Power Line	13+02 to 13+36-L-,13+78 to 14+11				1012.0							
A2	Power Line	12+81 to 13+02 -L-, 14+11 to 14+31					612.0						
TOTALS:						1012.0	612.0						

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: B-4561
Revised 07/09/2012

Rev. May 2006

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
3	11+92 to 17+93	O/H Power line					0.12					
4	16+95 to 16+98	12" Force Main			<0.01							
TOTALS:					<.0.01		0.12					

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
WBS - 33772.1.1 (B-4561)

SHEET 15 OF 15 4/19/2012

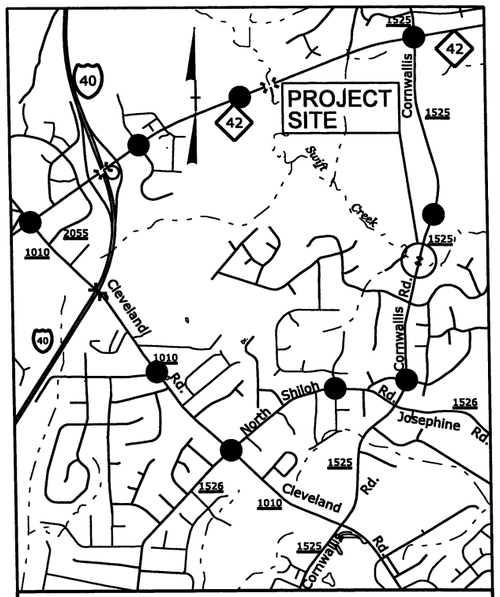
ATN Revised 3/31/05

09/08/99

TIP PROJECT: B-4561

CONTRACT:

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



ROW PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

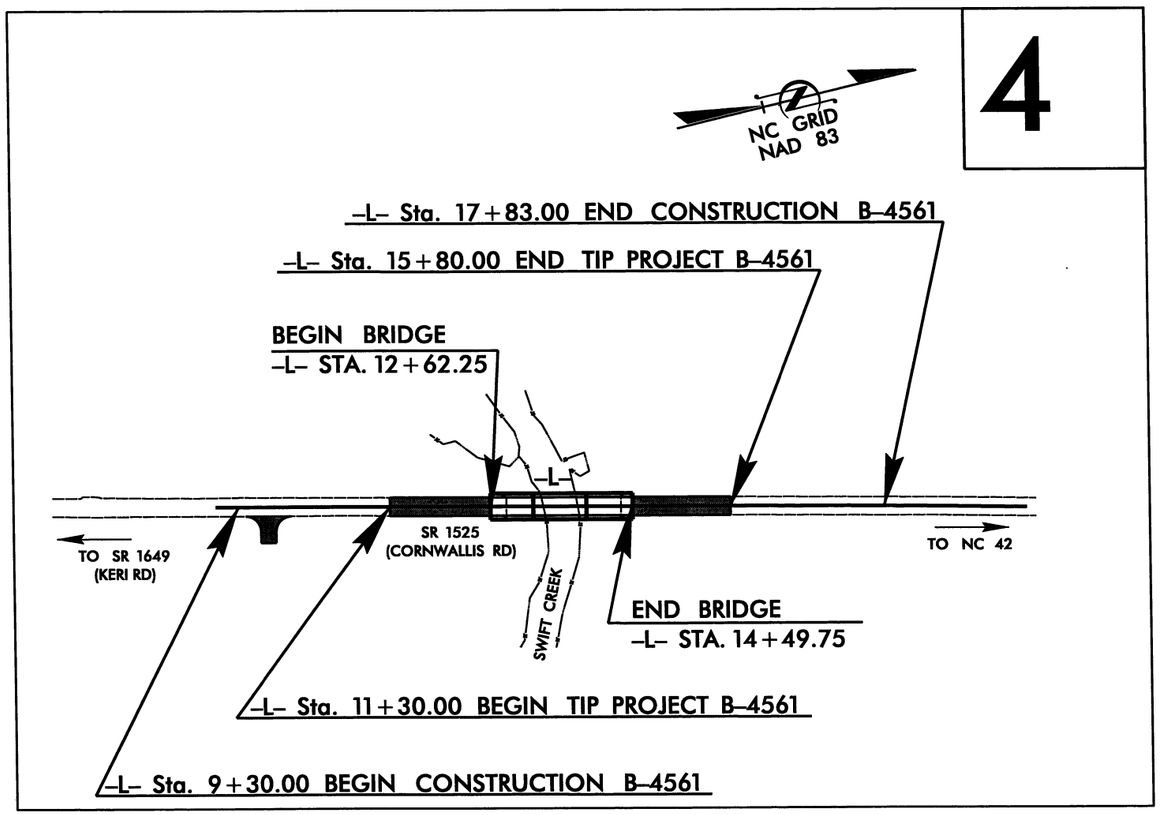
JOHNSTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4561	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33772.1.1	BRZ-1525(5)	P.E.
33772.2.1	BRZ-1525(5)	R.W.

LOCATION: ***BRIDGE NO. 147 OVER SWIFT CREEK ON SR 1525***

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



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

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2013 = 9,400
ADT 2033 = 19,600
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH
* TTST =1 DUAL =2
FUNC CLASS =
LOCAL RURAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4561 = 0.049 MI

LENGTH OF STRUCTURES TIP PROJECT B-4561 = 0.036 MI

TOTAL LENGTH OF TIP PROJECT B-4561 = 0.085 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 26, 2012

LETTING DATE: APRIL 16, 2013

BRENDA MOORE, PE
PROJECT ENGINEER

TATIA L. WHITE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

25-APR-2012 11:27
R:\Roadway\Proj\B4561_Rdy_tsh.dgn
$$$$USERNAME$$$$

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4561	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — IP
- Property Corner
- Property Monument — CM
- Parcel/Sequence Number — 23
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FWF
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite R/W Marker
- Proposed Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth — 3
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

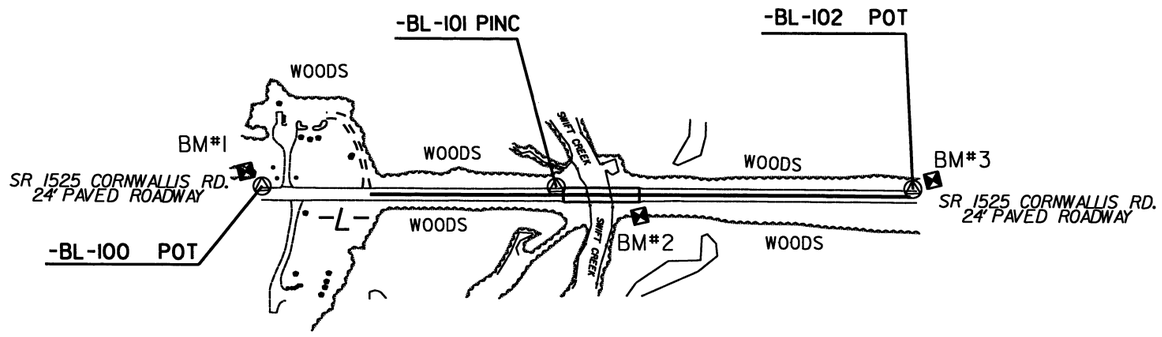
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL?
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4561	1C
Location and Surveys	

SURVEY CONTROL SHEET B-4561

NC GRID NAD 83



BENCHMARK DATA

```
**************************************
1134       ELEVATION = 215.76
N 672953      E 2137853
L STATION 5+00.00
S 55°48'42.75" W  DIST     43.30
BM#1 RR SPIKE IN BASE OF 10" PINE
**************************************

**************************************
1084       ELEVATION = 180.46
N 673692      E 2138119
L STATION 12+49.00 57 RIGHT
BM#2 RR SPIKE IN BASE OF 20" OAK
**************************************

**************************************
1133       ELEVATION = 184.84
N 674273      E 2138183
L STATION 5+00.00
N 12°47'40.74" E  DIST   1328.78
BM#3 RR SPIKE IN BASE OF 18" PINE
**************************************
```

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
100	-BL- 100	672976.8410	2137889.0630	205.57	OUTSIDE PROJECT LIMITS	
101	-BL- 101	673545.0260	2138024.9380	186.72	12+69.51	15.55 LT
102	-BL- 102	674229.9300	2138191.6820	186.69	OUTSIDE PROJECT LIMITS	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4561 GPS-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 675150.675 (FT) EASTING: 2138568.214 (FT) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988675 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4211 GPS-2" TO -L- STATION 19+69.20 IS S 21°19'57.5" W 99.72 FT ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

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/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: B4561_LS_CONTROL_110707.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 USER SERVICE (OPUS)

25-APR-2012 11:27
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6/2/99

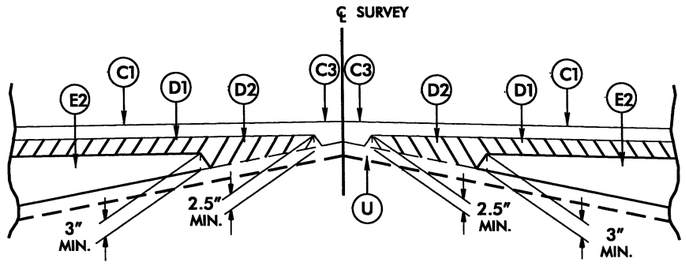
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	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.
C3	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 2" IN DEPTH.
C4	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 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.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

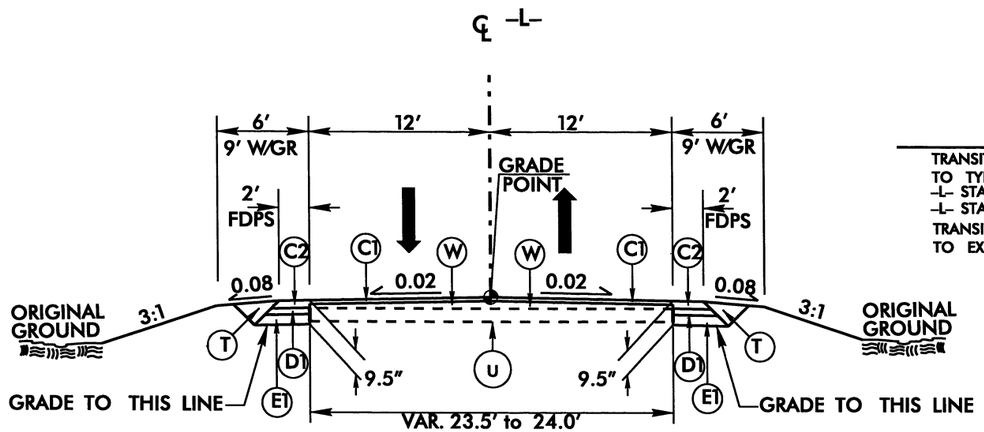
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PROJECT REFERENCE NO.	SHEET NO.
B-4561	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



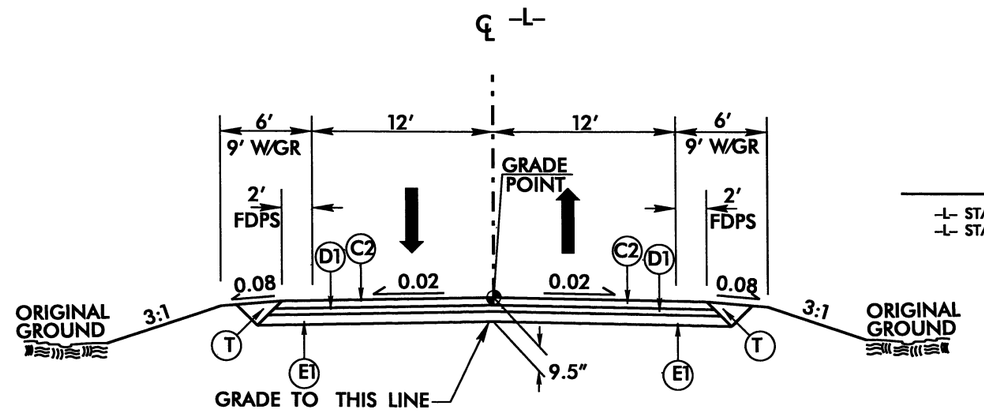
Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
AT THE FOLLOWING LOCATIONS:

TRANSITION FROM EXISTING AT -L- STA. 11+30.00
TO TYPICAL SECTION NO. 1 AT -L- STA. 11+80.00
-L- STA. 11+80.00 TO -L- STA. 12+50.00
-L- STA. 14+80.00 TO 15+30.00
TRANSITION FROM TYPICAL SECTION NO. 1 AT -L- STA. 15+30.00
TO EXISTING AT -L- STA. 15+80.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
AT THE FOLLOWING LOCATIONS:

-L- STA. 12+50.00 TO -L- STA. 12+62.25 (BEGIN BRIDGE)
-L- STA. 14+49.75 (END BRIDGE) TO 14+80.00

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R:\Roadway\Projects\B4561_Rdy_typ.dgn

6/2/99

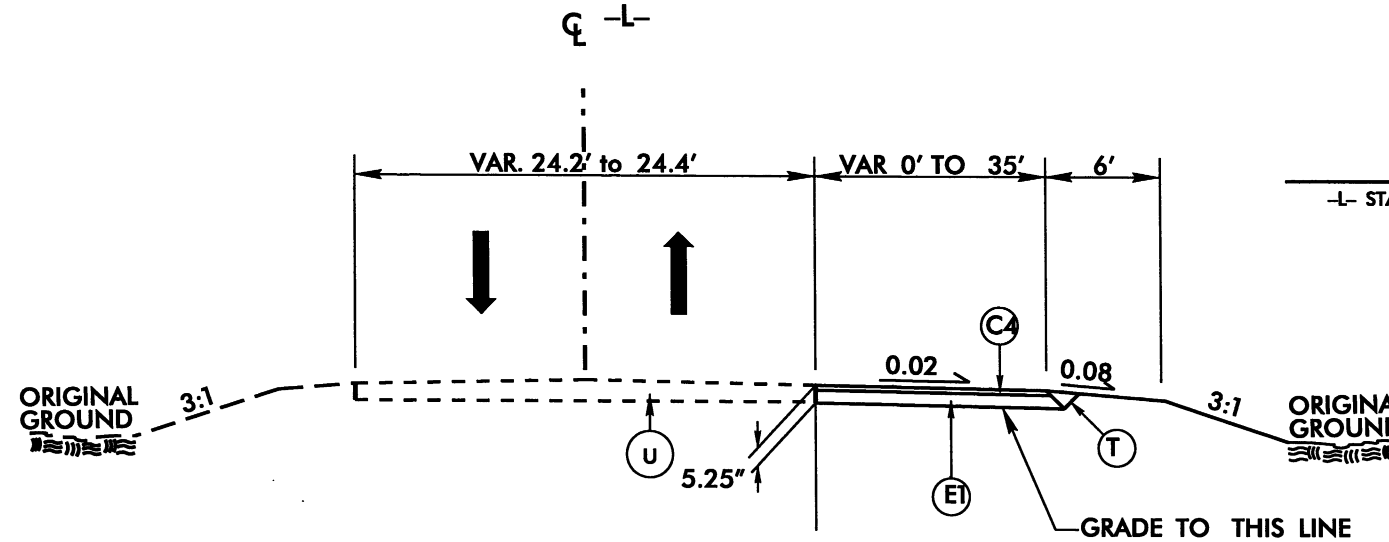
PROJECT REFERENCE NO.	SHEET NO.
B-4561	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FINAL PAVEMENT SCHEDULE

C1	1½" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VAR. DEPTH TYPE S9.5B
C4	1¼" TYPE SF9.5A
D1	2½" TYPE I19.0B
D2	VAR. DEPTH TYPE I19.0B
E1	4" TYPE B25.0B
E2	VAR. DEPTH TYPE B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

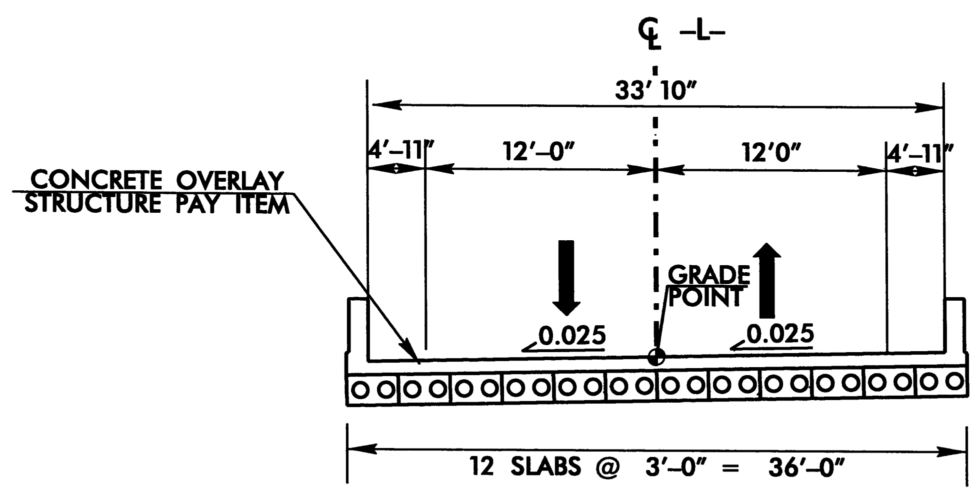
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

-L- STA. 9+40.00 TO 10+00.00



TYPICAL SECTION ON STRUCTURE

USE TYPICAL SECTION ON STRUCTURE AT THE FOLLOWING LOCATIONS:

-L- STA. 12+62.25 (BEGIN BRIDGE) TO -L- STA. 14+49.75 (END BRIDGE)

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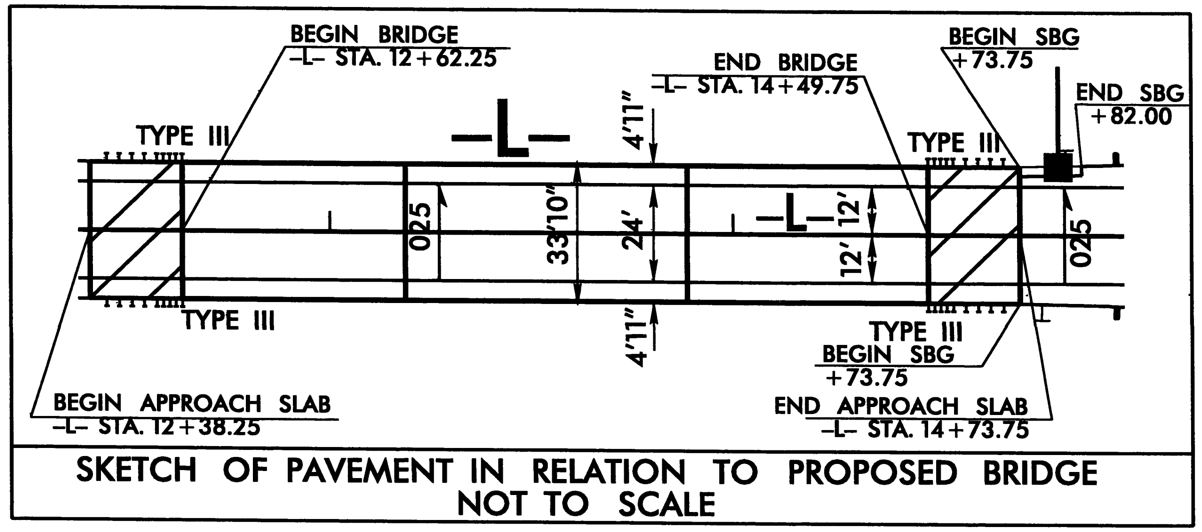
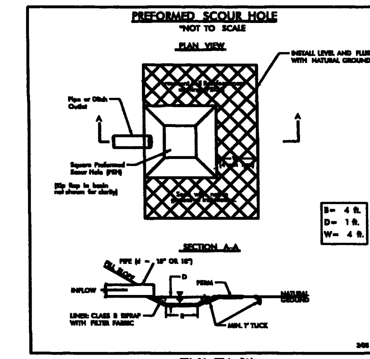
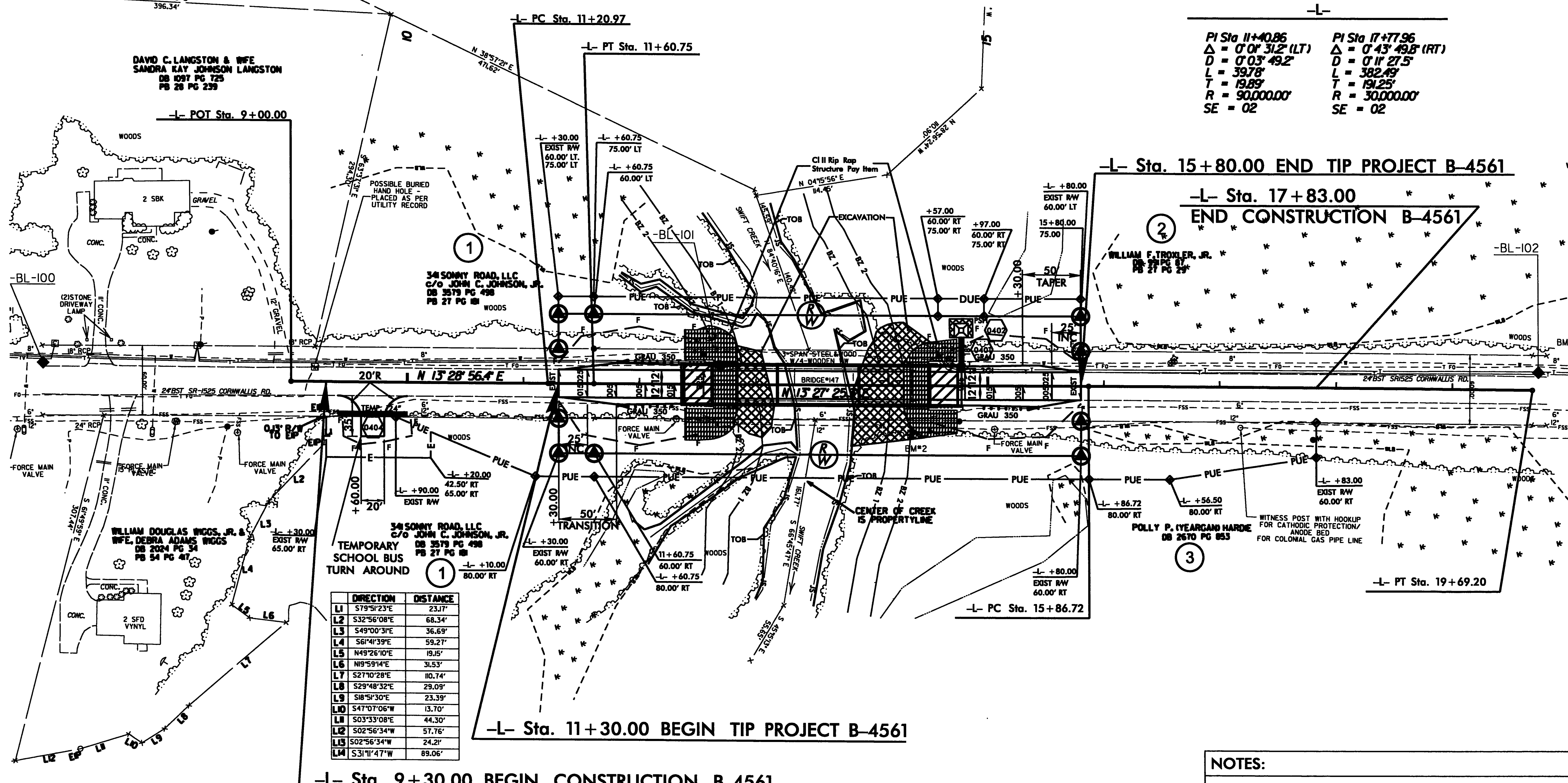
PROJECT REFERENCE NO.	SHEET NO.
B-4561	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NC GRID NAD 83





-L-

PI Sta 11+40.86	PI Sta 17+77.96
Δ = 0° 01' 31.2" (LT)	Δ = 0° 43' 49.8" (RT)
D = 0° 03' 49.2"	D = 0° 11' 27.5"
L = 39.78'	L = 382.49'
T = 19.89'	T = 191.25'
R = 90,000.00'	R = 30,000.00'
SE = 02	SE = 02

	DIRECTION	DISTANCE
L1	S79°51'23"E	23.17'
L2	S32°56'08"E	68.34'
L3	S49°00'31"E	36.69'
L4	S61°41'39"E	59.27'
L5	N49°26'10"E	19.15'
L6	N19°59'14"E	31.53'
L7	S27°10'28"E	110.74'
L8	S29°48'32"E	29.09'
L9	S18°51'30"E	23.39'
L10	S47°07'06"W	13.70'
L11	S03°33'08"E	44.30'
L12	S02°56'34"W	57.76'
L13	S02°56'34"W	24.21'
L14	S31°11'47"W	89.06'

NOTES:

1. SEE SHEET 5 FOR -L- PROFILE.
2. SEE SHEETS S-1 THROUGH S-?? FOR STRUCTURE PLANS.

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4561	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

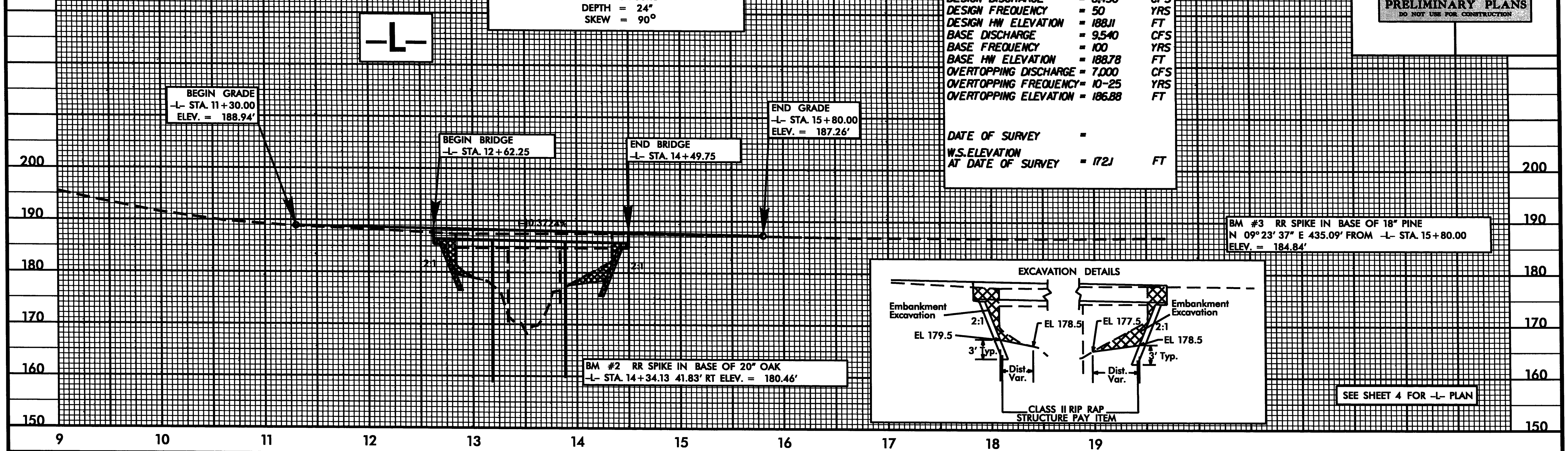
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/99

PROPOSED 3 SPAN CORED SLAB BRIDGE
1@55', 1@70', 1@60'
C/L STA. 13+56.15
DEPTH = 24"
SKEW = 90°

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 8,430	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 188.11	FT
BASE DISCHARGE	= 9,540	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 188.78	FT
OVERTOPPING DISCHARGE	= 7,000	CFS
OVERTOPPING FREQUENCY	= 10-25	YRS
OVERTOPPING ELEVATION	= 186.88	FT
DATE OF SURVEY	=	
W.S. ELEVATION AT DATE OF SURVEY	= 172.1	FT



SEE SHEET 4 FOR -L- PLAN

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4561	X-1

0.013 0.027 3:1

188.81

11+30.00

BEGIN PROJECT -L- 11+30.00

189.25

11+00.00

190.13

10+50.00

191.48

10+00.00

0.020 3:1

192.23

9+80.00

0.020 3:1

193.06

9+60.00

193.39

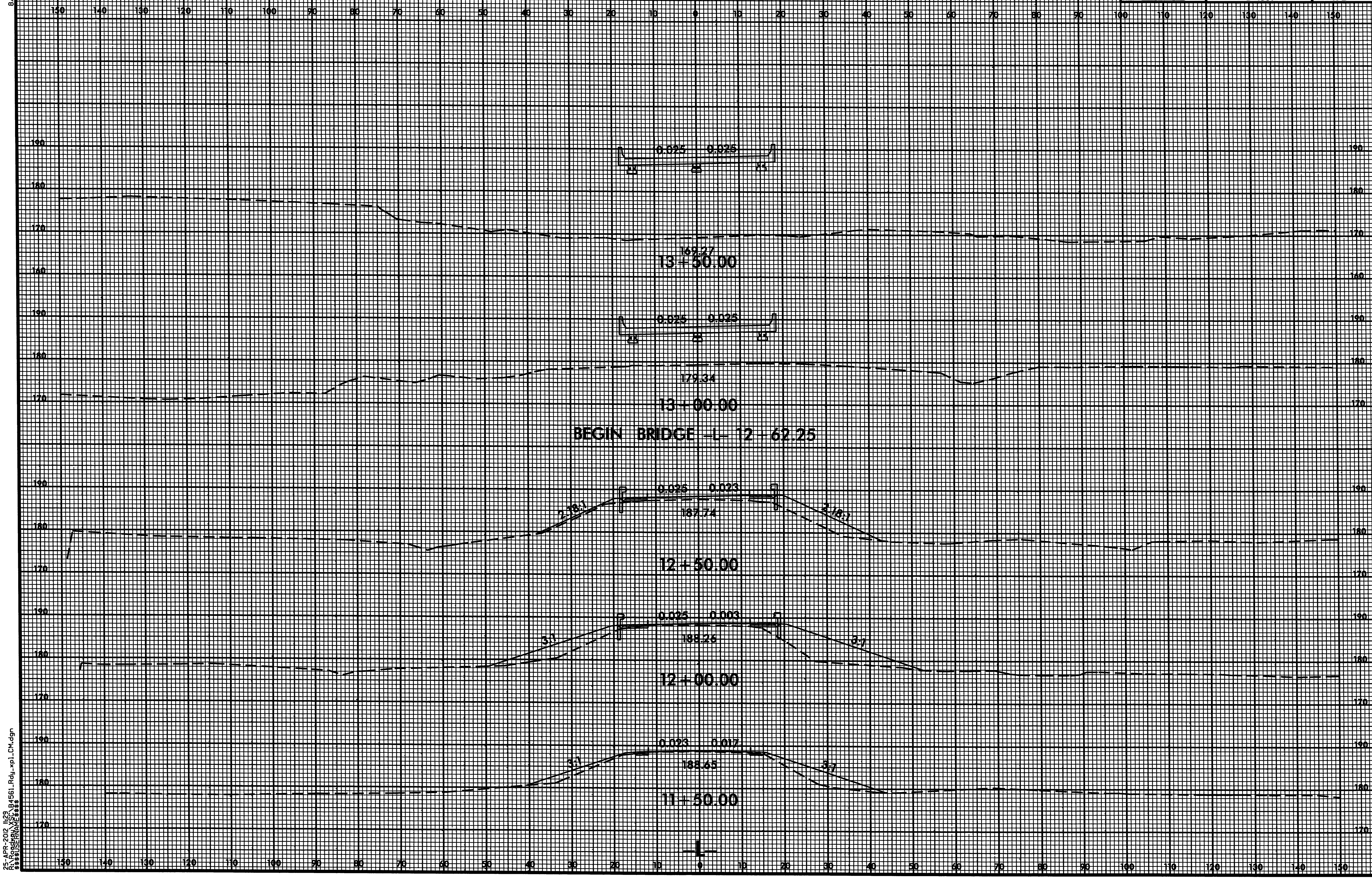
9+50.00

BEGIN CONSTRUCTION -L- 9+30.00

-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4561	X-2



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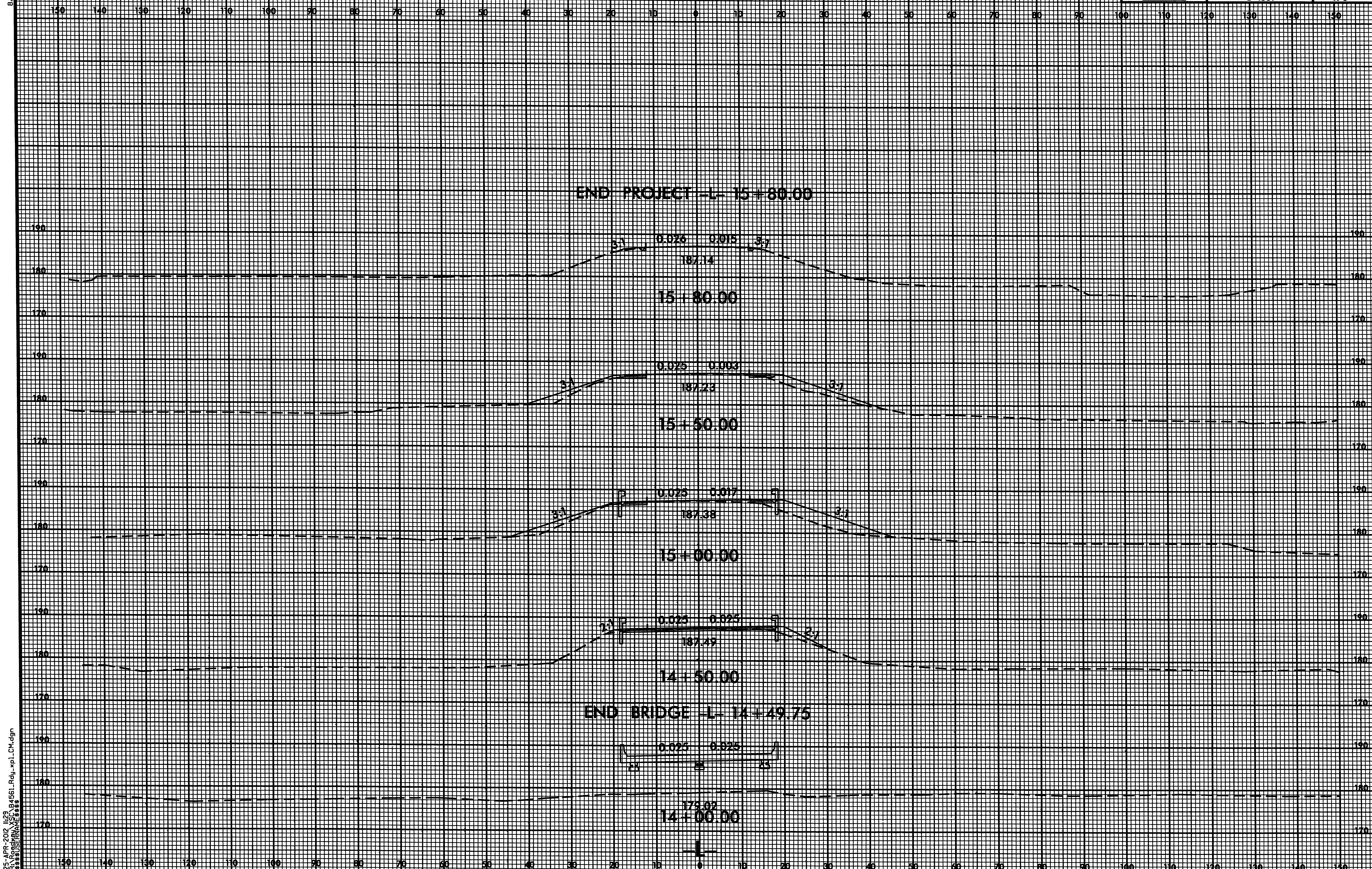
PROJ. REFERENCE NO.	SHEET NO.
B-4561	X-3



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4561	X-4

186.85
18+00.00
END CONSTRUCTION -L- 17+83.00

186.88
17+50.00

186.89
17+00.00

186.94
16+50.00

187.07
16+00.00

-L-

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