



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

May 31, 2013

North Carolina Division of Water Quality
1650 Mail Service Center
Raleigh, NC 27699-1650

ATTN: Mr. Rob Ridings
NCDOT Division 5 Project Coordinator

SUBJECT: **Application for Section 401 Water Quality Certification and Neuse River Riparian Buffer Authorization and Notice of Intent to Use Section 404 Nationwide Permits 3 and 13** for the replacement of Bridge No. 225 over an Unnamed Tributary of Knap of Reeds Creek on SR 1140 (Uzzle Road), Granville County, North Carolina. Federal Aid Project No. BRZ-1140 (9), TIP No. B-4944.

Debit \$240.00 from WBS Element No. 40146.1.1 .

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 225 over an Unnamed Tributary (UT) of Knap of Reeds Creek on SR 1140 (Uzzle Road) in Granville County.

Please find enclosed the Pre-Construction Notification (PCN), Marks Creek Mitigation Site Debit Ledger, Stormwater Management Plan, permit drawings, buffer drawings, and roadway design plans for the above-referenced project. A Programmatic Categorical Exclusion (PCE) was completed for this project in August 2011 and distributed shortly thereafter. Additional copies are available upon request.

The proposed let date for this project is December 17, 2013, with a let review date of October 29, 2013. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at: <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>

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

TELEPHONE: 919-707-6100

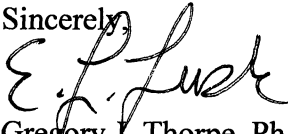
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

PHYSICAL ADDRESS:
Century Center - Building B
1020 Birch Ridge Dr
Raleigh, NC 27610-4328

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jim Mason at either jsmason@ncdot.gov or (919) 707-6136.

Sincerely,

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:	<input checked="" type="checkbox"/> Section 404 Permit <input type="checkbox"/> Section 10 Permit	
1b. Specify Nationwide Permit (NWP) number: 3 13	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input checked="" type="checkbox"/> Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	For the record only for Corps Permit: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input 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 No. 225 over a UT of Knap of Reeds Creek on SR 1140 (Uzzle Rd)
2b. County:	Granville
2c. Nearest municipality / town:	Moriah
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no:	B-4944

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) 707-6136
3g. Fax no.:	(919) 212-5785
3h. Email address:	jsmason@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: 36.2574 (DD.DDDDDD) Longitude: - 78.7921 (-DD.DDDDDD)
1c. Property size:	0.9 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Knap of Reeds Creek
2b. Water Quality Classification of nearest receiving water:	WS-II HQW 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: SR 1140 (Uzzle Road) is classified as a Rural Local Route. Land use within the vicinity includes Forested Land, Agriculture, and Low-Density Residential.	
3b. List the total estimated acreage of all existing wetlands on the property: 0 acres	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 80 linear feet	
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 consists of replacing the existing two-span, 36-foot long bridge with a one-span, 72-foot bridge on the existing alignment. A temporary causeway will be constructed on the eastern side of the main creek. Traffic will be maintained via an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
4. Jurisdictional Determinations	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	<input 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): Principal Investigator: Ashley Cox	Agency/Consultant Company: NCDOT Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.	
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 <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 <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 <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 <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 <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 <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 Perm. 0 Temp.

2h. Comments: There are no wetlands within the project boundaries.

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 checked="" type="checkbox"/> P <input type="checkbox"/> T	Bank Stabilization	UT of Knap of Reeds Creek (SB)	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	20-35	60
Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Temporary Causeway	UT of Knap of Reeds Creek (SB)	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	20-35	0.01 ac
Site <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 <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 <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 <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						60 Perm 0.01 ac 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 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
4f. Total open water impacts				0 Permanent 0 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?	<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"/> Catawba		<input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Randleman	<input type="checkbox"/> 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 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Impacts other than Road Crossing (Parrallel Impact)	UT of Knap of Reeds Creek (SA)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0	1,103
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bridge	UT of Knap of Reeds Creek (SB)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2,074	0
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Road Crossing	UT of Knap of Reeds Creek (SB)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	860	1,735
6h. Total buffer impacts				2,934	2,838
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 new bridge will be longer than the existing one; The proposed bridge will span the creek and will have one less bent than the existing bridge; An off-site detour will be employed; A special cut ditch will be installed from -L- STA. 11+00 to STA. 11+80 RT. STA. 11+00 to STA. 11+25 RT will be PSRM-lined; A special lateral V-ditch will be installed from -L- STA. 13+70 to STA. 14+50 LT; A Class B rip rap-lined daylight ditch will be installed in the northwest quadrant of the project.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. NCDOT Best Management Practices for Bridge Demolition and Removal will be implemented during the removal of the existing bridge; Best Management Practices for the Protection of Surface Waters will be employed; Since the project is within a buffer basin and is a WS-II HQW stream, Design Standards in Sensitive Watersheds will also be employed.		
2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Bank stabilization impacts are less than 150 linear feet	
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?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1		0	3 (2 for Catawba)	0
Zone 2	Impacts other than Road Crossing (Parallel Impact)	1,103	1.5	1,103*
6f. Total buffer mitigation required:				1,103*
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). Debit from off-site riparian buffer restoration site				
6h. Comments: *The 1,103 square feet of Zone 2 buffer impacts requiring mitigation will be offset by available buffer restoration credits from the Marks Creek Mitigation Site (see attached debit ledger). These impacts will be offset at a 1:1 ratio.				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: See attached buffer permit drawings	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input checked="" type="checkbox"/> DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input checked="" type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No In progress
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 checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input checked="" 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? NC Natural Heritage Program data, USFWS website, NCDOT field surveys		
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:		
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	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	5-31-13 Date

The Marks Creek site is situated immediately adjacent to the right-of-way of the Knightdale Bypass, R-2547, in the eastern portion of Wake County approximately 8.0 miles east of Raleigh. The Marks Creek Site was constructed as an on-site stream mitigation project associated with R-2547. The stream mitigation project involved the restoration of an unnamed tributary to Marks Creek (the Main Tributary to Marks Creek) and four of its tributaries (the North, West, Southwest, and South Tributaries). Design and construction was implemented during 2002 by NCDOT. Stream restoration involved the construction of new channels and the installation of root-wads, rock vanes, rock cross vanes, log vanes to control grade and stabilize the channel. The plan also included the restoration of the wooded buffers of all the restored channels by planting of native vegetation along the stream banks and in the floodplain.

To offset unavoidable buffer impacts associated with T.I.P. B-4944, the Marks Creek Mitigation Site will be debited 1,103 S.F. of buffer restoration. This debit is reflected in the debit ledger below.

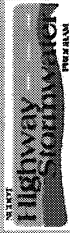
Mitigation Type	Debit Amount (Sq. Ft.)	Site TIP	Notes
Buffer Restoration	114659	U-3804	
Buffer Restoration	114	R-2814-B	
Buffer Restoration	75581	B-3528	
Buffer Restoration	1103	B-4944	

Mitigation Type	Debit Amount (Linear Ft.)	Site TIP	Notes
Stream Restoration	2873	R-2814A&B	

Mitigation Type	Debit Amount (Acres)	Site TIP	Notes
Riverine Wetland Restoration	3.33	R-2547/R-2641 2:1	

Mitigation Type	Debit Amount (Acres)	Notes
Riverine Wetland Preservation	11	No debits as of 5/30/13

Mitigation Type	Debit Amount (Acres)	Site TIP	Notes
Riverine Wetland Enhancement	10.9	R-2000F&G	
Riverine Wetland Enhancement	0.98	R.3825A .49 @2:1	



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



Version 1.2; Released July 2012

General Project Information

Project No.:	B-4944	Project Type:	Bridge Replacement	Date:	3/6/2013
NCDOT Contact:	Marshall Clawson NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590 Phone: 919-707-6713 Email: mclawson@ncdot.gov	Contractor / Designer:	The Louis Berger Group, Inc. Address: 1001 Wade Avenue Suite 400 Raleigh, NC 27605 Phone: 919-886-4410 Email: lfstansell@louisberger.com		
City/Town:	Neuse	County(ies):	Granville		
River Basin(s):	Neuse	CAMA County?	No		
Primary Receiving Water:	Knapp of Reeds Creek Trib 2	NCDWQ Stream Index No.:	27-4(1)		
NCDWQ Surface Water Classification for Primary Receiving Water		Primary:	Water Supply II (WS-II)		
Other Stream Classification:	None	Supplemental:	High Quality Waters (HQW)		
303(d) Impairments:	None				
Buffer Rules in Effect	Neuse				

Project Description

Project Length (lin. Miles or feet):	0.076 miles	Surrounding Land Use:	Existing Site
Project Built-Upon Area (ac.)	0.273 total (w/ 0.088 as new impervious surface) ac.	Proposed Project	0.19 ac.
Typical Cross Section Description:	Proposed bridge is 27' out-to-out. Road is a two lane road that is 26' wide with 10' lanes and 3' shoulders. 1 ft of the should is paved.		
Average Daily Traffic (veh/hr/day):	Design/Future: Existing:		
General Project Narrative:	<p>TIP project B-4944 is a Bridge Replacement project in Granville County, North Carolina. The mainline road SR1140 (Uzzle Road) is an existing 2-lane open shoulder roadway. The length of the mainline roadway is 0.076 miles (475' including a 70 ft single span 24" cored slab bridge).</p> <p>The bridge deck runoff will be collected via a piping network which discharges into a roadside stormwater treatment swale.</p>		



Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
Site 1	10+32 LT	Buffer	Neuse	UT to Knapp of Reeds Creek Trib 2					Road Fill and clearing	N/A	N/A
	11+31 LT										
Site 2	11+68 LT	Buffer	Neuse	Knapp of Reeds Creek Trib 2		27-4(1)	WS-II; HQW; NSW	None	Road Fill and clearing	N/A	N/A
	12+11 LT										
Site 2	12+38 LT	Buffer	Neuse	Knapp of Reeds Creek Trib 2		27-4(1)	WS-II; HQW; NSW	None	Bridge Fill and Clearing	N/A	N/A
	12+81 LT										
Site 2	13+15 LT	Buffer	Neuse	Knapp of Reeds Creek Trib 2		27-4(1)	WS-II; HQW; NSW	None	Bridge Fill and Clearing	N/A	N/A
	11+78 RT										
Site 2	12+11 RT	Buffer	Neuse	Knapp of Reeds Creek Trib 2		27-4(1)	WS-II; HQW; NSW	None	Road Fill and clearing	N/A	N/A
	12+30 RT										
Site 2	12+48 RT	Buffer	Neuse	Knapp of Reeds Creek Trib 2		27-4(1)	WS-II; HQW; NSW	None	Road Fill and clearing	N/A	N/A
	12+61 RT										
Site 2	12+61 RT	Buffer	Neuse	Knapp of Reeds Creek Trib 2		27-4(1)	WS-II; HQW; NSW	None	Bridge Fill and Clearing	N/A	N/A
	13+36 RT										
	12+30	Stream	Perennial	Knapp of Reeds Creek Trib 2		27-4(1)	WS-II; HQW; NSW	None	Road Fill and clearing	N/A	N/A
	12+65										
	12+44	Stream	Perennial	Knapp of Reeds Creek Trib 2		27-4(1)	WS-II; HQW; NSW	None	Stabilization	N/A	N/A
	12+65										

* List all stream and surface water impact locations regardless of jurisdiction or size. Equalizer Pipes to be noted as a minimization of impacts.

All proposed SCMs listed must also be listed under Swales, Performed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

Description of Minimization of Impacts or Mitigation

Impacts were minimized to the maximum extent practicable. The buffer impacts will be mitigated as required per the buffers impact summary spreadsheet. A treatment swale was provided from station 11+25 to 11+80 RT to treat stormwater runoff from the bridge.

References



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



Version 1.2; Released July 2012
 Project/TIP No.: B-4944

County(ies): Granville

Page 3 of 3

Swales

Sheet No.	Station (From / To)	Stream Crossing Station	Base Width (ft)	Front Slope (H:V)	Back Slope (H:V)	Drainage Area (ac)	Recommended Treatment Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used
4	11+25 RT 11+80 RT	12+30 RT	0.0	4	3	0.55	55	55	0.44%	1.2	1.1	1.6	1.6	No
							0							
							0							
							0							
							0							
							0							
							0							
							0							
							0							
							0							
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							0							
							0							
							0							
							0							

YES NO Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), been met and verified? If No, provide further explanation of why design criteria was not met.

Additional Comments

The treatment swale will discharge at the beginning of Buffer Zone 2. The swale will be graded within Buffer Zone 2 to tie into the existing swale within the Buffer Zone.

09/08/95

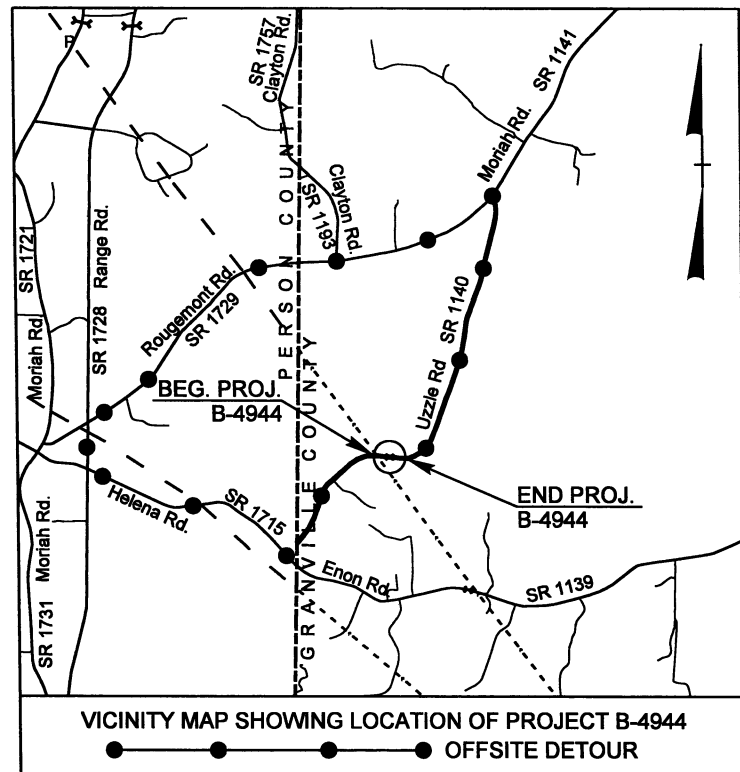
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Permit Drawing
Sheet 1 of 6

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4944	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40146.1.1	BRZ-1140(9)	PE	
40146.2.1	BRZ-1140(9)	ROW & UTIL	
40146.3.1	BRZ-1140(9)	CONSTRUCTION	

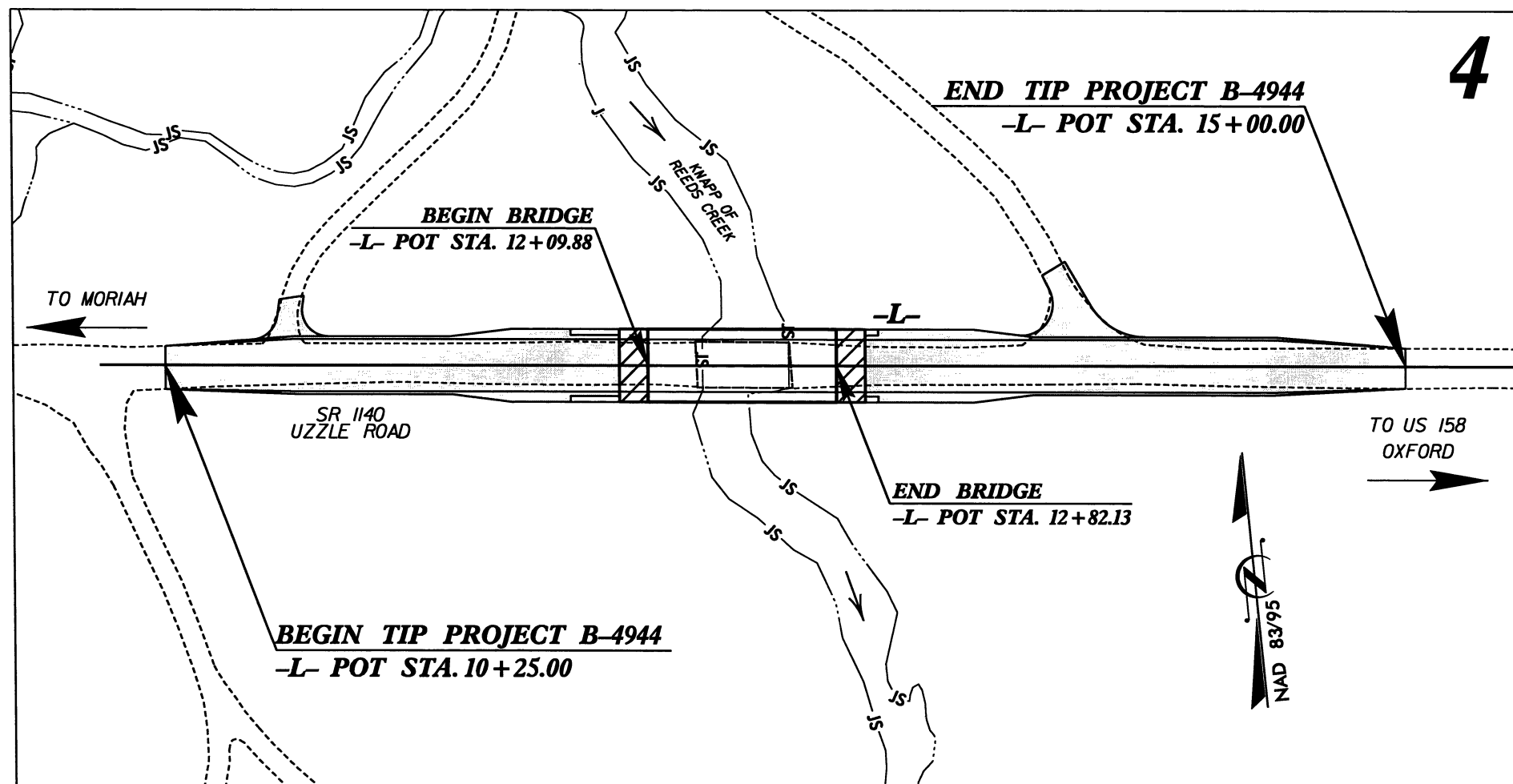
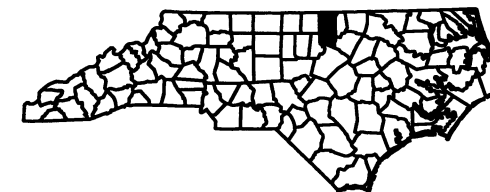
TIP PROJECT: B-4944



GRANVILLE COUNTY

LOCATION: BRIDGE NO. 225 OVER KNAPP REEDS CREEK
ON SR 1140 (UZZLE ROAD)

TYPE OF WORK: STREAM IMPACTS



THIS PROJECT WAS DESIGNED USING
THE SUB REGIONAL TIER GUIDELINES
FOR BRIDGE PROJECTS

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
CLEARING AND GRUBBING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

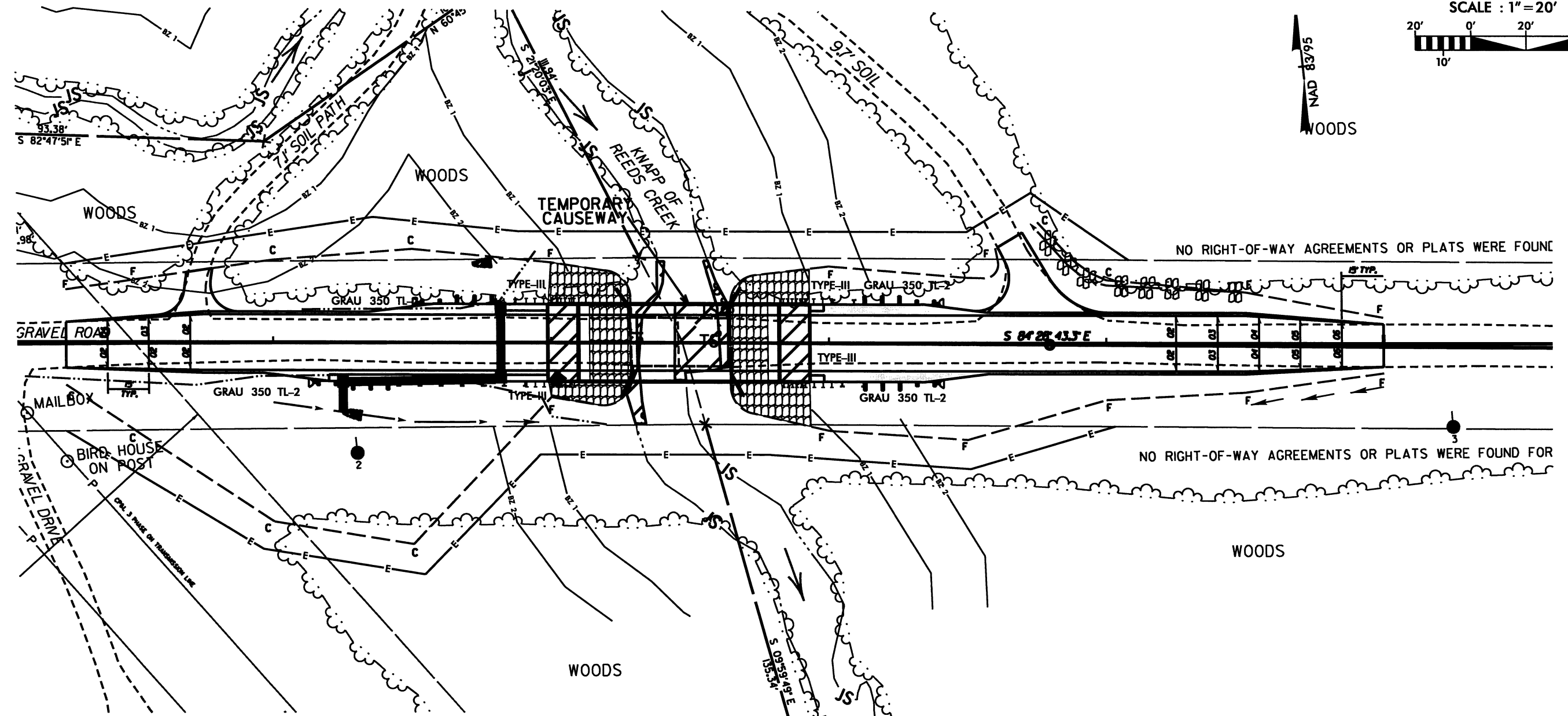
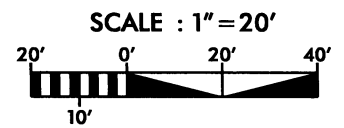
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\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

CONTRACT:

<p>GRAPHIC SCALES</p> <p>PLANS: 20 10 0 20 40</p> <p>PROFILE (HORIZONTAL): 20 10 0 20 40</p> <p>PROFILE (VERTICAL): 5 2.5 0 5 10</p>	<p>DESIGN DATA</p> <p>ADT 2013 = 250 ADT 2035 = 800 DHV = 15 % D = 45 % T = 6 % * V = 30 MPH * TTST = 1% DUAL 5% FUNC CLASS = RURAL LOCAL</p>	<p>PROJECT LENGTH</p> <p>LENGTH OF ROADWAY TIP PROJECT B-4944 = 0.076 MILES LENGTH OF STRUCTURE TIP PROJECT B-4944 = 0.014 MILES TOTAL LENGTH OF TIP PROJECT B-4944 = 0.090 MILES</p>	<p>Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610</p> <p>2012 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: DECEMBER 18, 2012</p> <p>LETTING DATE: DECEMBER 17, 2013</p> <p>TONY HOUSER, P.E. PROJECT ENGINEER</p> <p>LEE ANN MOORE PROJECT DESIGN ENGINEER</p>	<p>HYDRAULICS ENGINEER</p> <p>SIGNATURE: _____ P.E.</p> <p>ROADWAY DESIGN ENGINEER</p> <p>SIGNATURE: _____ P.E.</p>	
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PROJECT REFERENCE NO. B-4944	SHEET NO. 2
PLAN VIEW	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR L/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

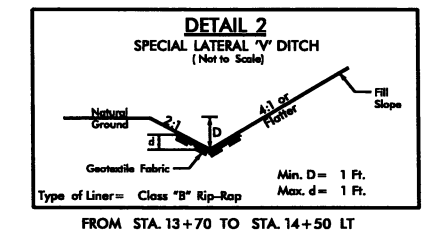
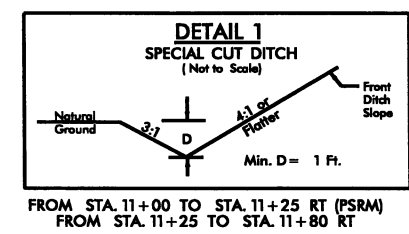
Permit Drawing
Sheet 2 of 6



NO RIGHT-OF-WAY AGREEMENTS OR PLATS WERE FOUND

NO RIGHT-OF-WAY AGREEMENTS OR PLATS WERE FOUND FOR

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



REVISIONS

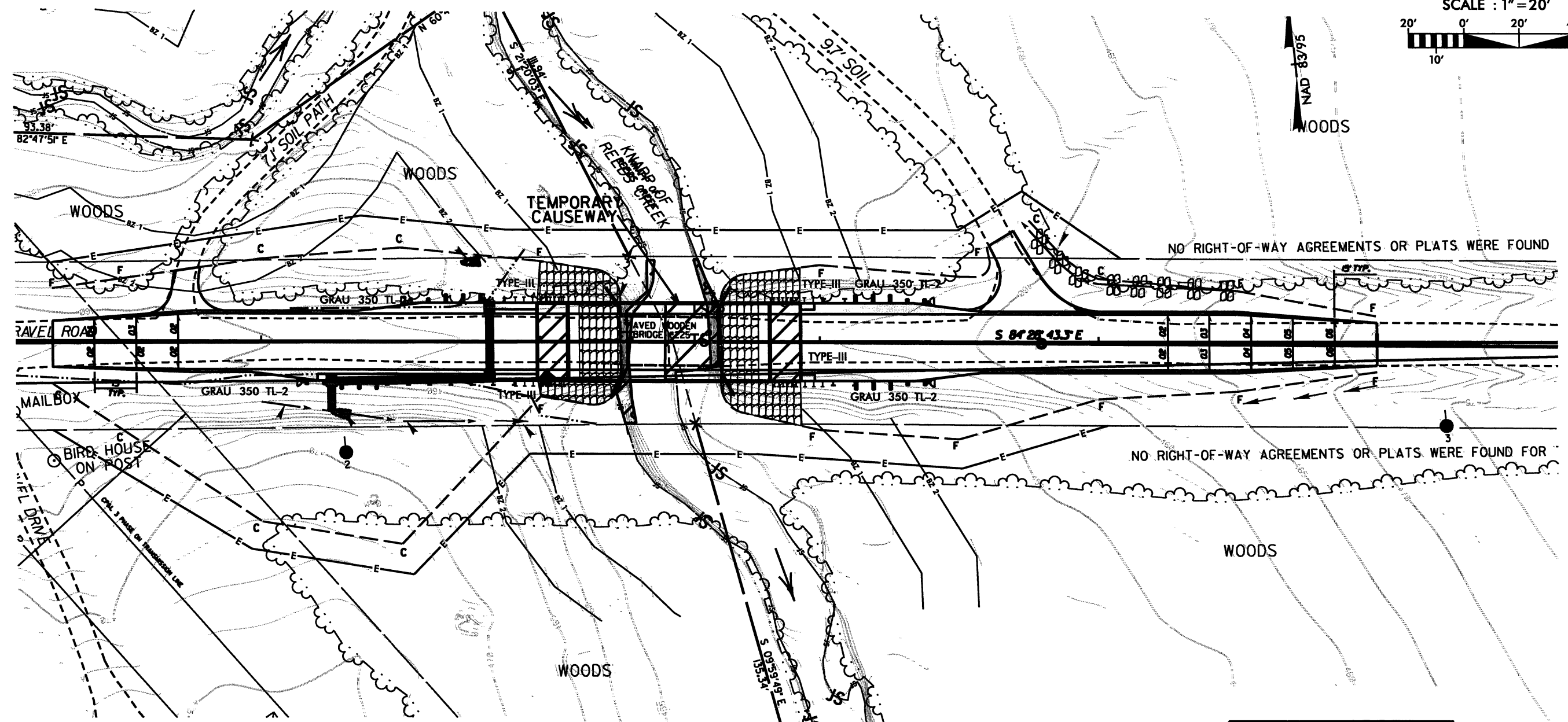
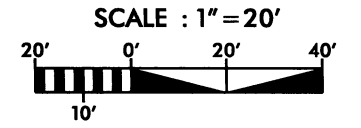
8/17/99

SYSTEMS ENGINEERING
DESIGN
DRAWING

8/17/95

Permit Drawing
Sheet 3 of 6

PROJECT REFERENCE NO. B-4944	SHEET NO. 3
PLAN VIEW	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/V ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



NO RIGHT-OF-WAY AGREEMENTS OR PLATS WERE FOUND

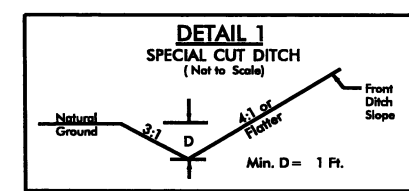
NO RIGHT-OF-WAY AGREEMENTS OR PLATS WERE FOUND FOR



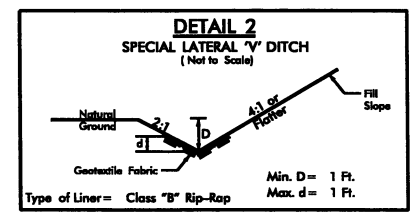
DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



FROM STA. 11+00 TO STA. 11+25 RT (PSRM)
FROM STA. 11+25 TO STA. 11+80 RT

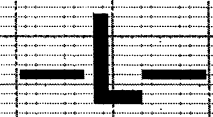


FROM STA. 13+70 TO STA. 14+50 LT

REVISIONS

SYSTEMS
SUN
DYNAMIC

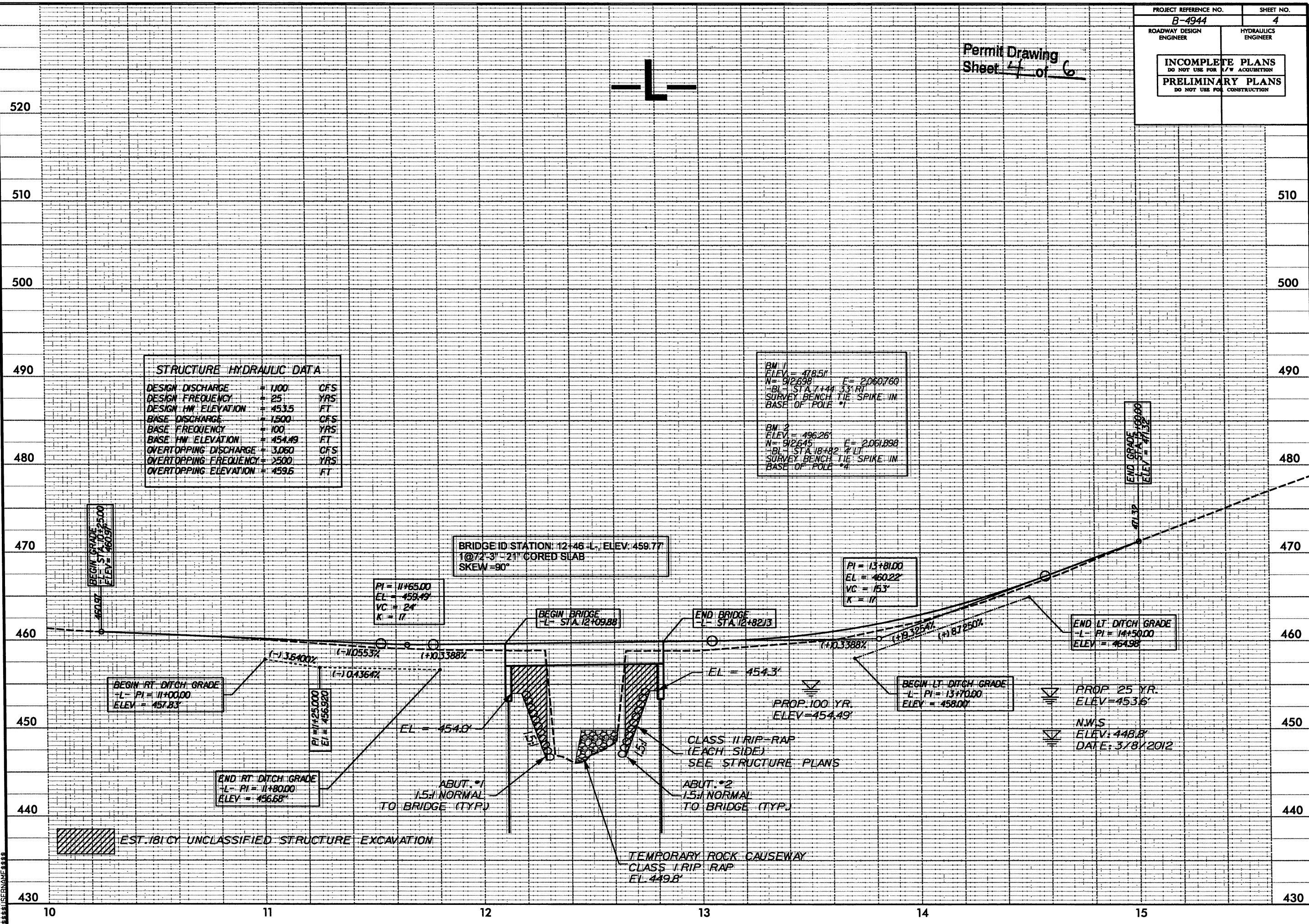
Permit Drawing
Sheet 4 of 6



STRUCTURE HYDRAULIC DATA		
DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 4535	FT
BASE DISCHARGE	= 1500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 454.49	FT
OVERTOPPING DISCHARGE	= 3.060	CFS
OVERTOPPING FREQUENCY	= 2500	YRS
OVERTOPPING ELEVATION	= 4596	FT

BM 1
ELEV = 478.51
N = 92698 E = 2060760
-BL- STA 7+44.33 RT
SURVEY BENCH TIE SPIKE IN
BASE OF POLE *1

BM 2
ELEV = 496.26
N = 92645 E = 2061898
-BL- STA 18+82.7 LT
SURVEY BENCH TIE SPIKE IN
BASE OF POLE *4



BRIDGE ID STATION: 12+46 -L-, ELEV: 459.77'
1@72"-3" 21" CORED SLAB
SKEW = 90°

PI = 11+65.00
EL = 459.49'
VC = 24'
K = 17

BEGIN BRIDGE
L- STA 12+09.88

END BRIDGE
L- STA 12+82.13

PI = 13+81.00
EL = 460.22'
VC = 16.3'
K = 17

END LT DITCH GRADE
L- PI = 14+50.00
ELEV = 464.98

BEGIN GRADE
L- STA 10+25.00
ELEV = 460.97

BEGIN RT DITCH GRADE
L- PI = 11+00.00
ELEV = 457.83

PI = 11+25.00
EL = 456.92

END RT DITCH GRADE
L- PI = 11+80.00
ELEV = 456.68

BEGIN LT DITCH GRADE
L- PI = 13+70.00
ELEV = 458.00

PROP 25 YR.
ELEV = 453.6'
N.W.S
ELEV: 448.8'
DATE: 3/8/2012

PROP 100 YR.
ELEV = 454.49'

CLASS II RIP-RAP
(EACH SIDE)
SEE STRUCTURE PLANS

ABUT. #2
1.5:1 NORMAL
TO BRIDGE (TYP.)

ABUT. #1
1.5:1 NORMAL
TO BRIDGE (TYP.)

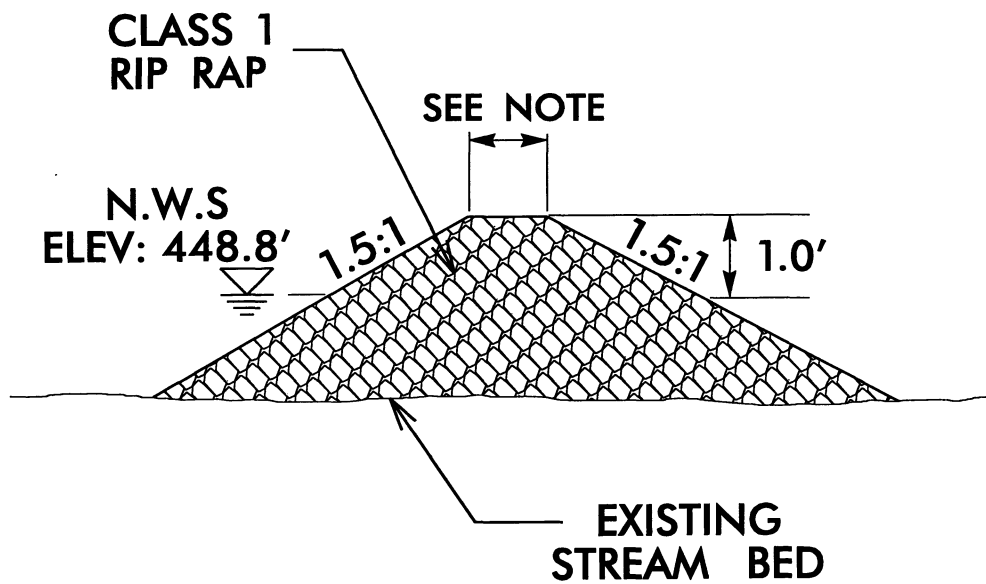
TEMPORARY ROCK CAUSEWAY
CLASS I RIP RAP
EL 449.8'

EST. 181 CY UNCLASSIFIED STRUCTURE EXCAVATION

5/14/99

 SYSTEMS

DETAIL
TEMPORARY CAUSEWAY



NOTE: CAUSEWAY WIDTH SHALL BE
EXISTING BRIDGE WIDTH PLUS
5' ON EACH SIDE.

NCDOT
DIVISION OF HIGHWAYS
GRANVILLE COUNTY
PROJECT: 40146.1.1 (B-4940)
BRIDGE NO. 225 OVER
KNAPP REEDS CREEK
ON SR 1140 (UZZLE ROAD)

WETLAND PERMIT IMPACT SUMMARY

		WETLAND IMPACTS					SURFACE WATER IMPACTS					
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. ¹ (ft)	Natural Stream Design (ft)
1	12+30 to 12+65	Rip Rap Stabilization						<0.01		60		
1	12+44 TO 12+65	Temp. Causeway							0.01		30	
TOTALS:								<0.01	0.01	60	30	

1 THE TEMPORARY LINEAR FOOTAGE OF IMPACT IS ALONG A PORTION OF THE PERMANENT IMPACT SO NO ADDITIONAL LINEAR FOOTAGE OF IMPACT IS CREATED FOR THE TEMPORARY IMPACT.

09/08/09

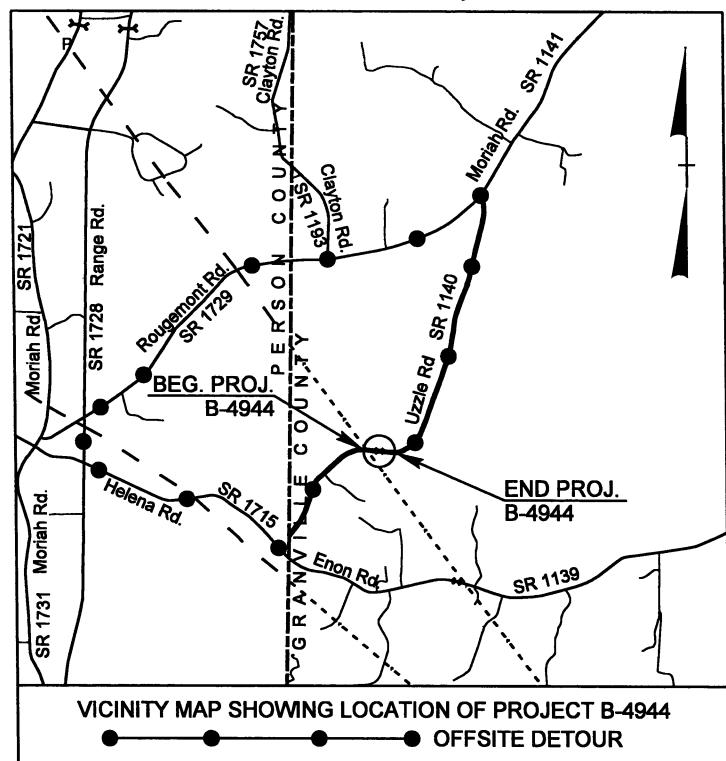
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Buffer Drawing
Sheet 1 of 3

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4944	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40146.1.1	BRZ-1140(9)	PE	
40146.2.1	BRZ-1140(9)	ROW & UTIL	
40146.3.1	BRZ-1140(9)	CONSTRUCTION	

TIP PROJECT: B-4944

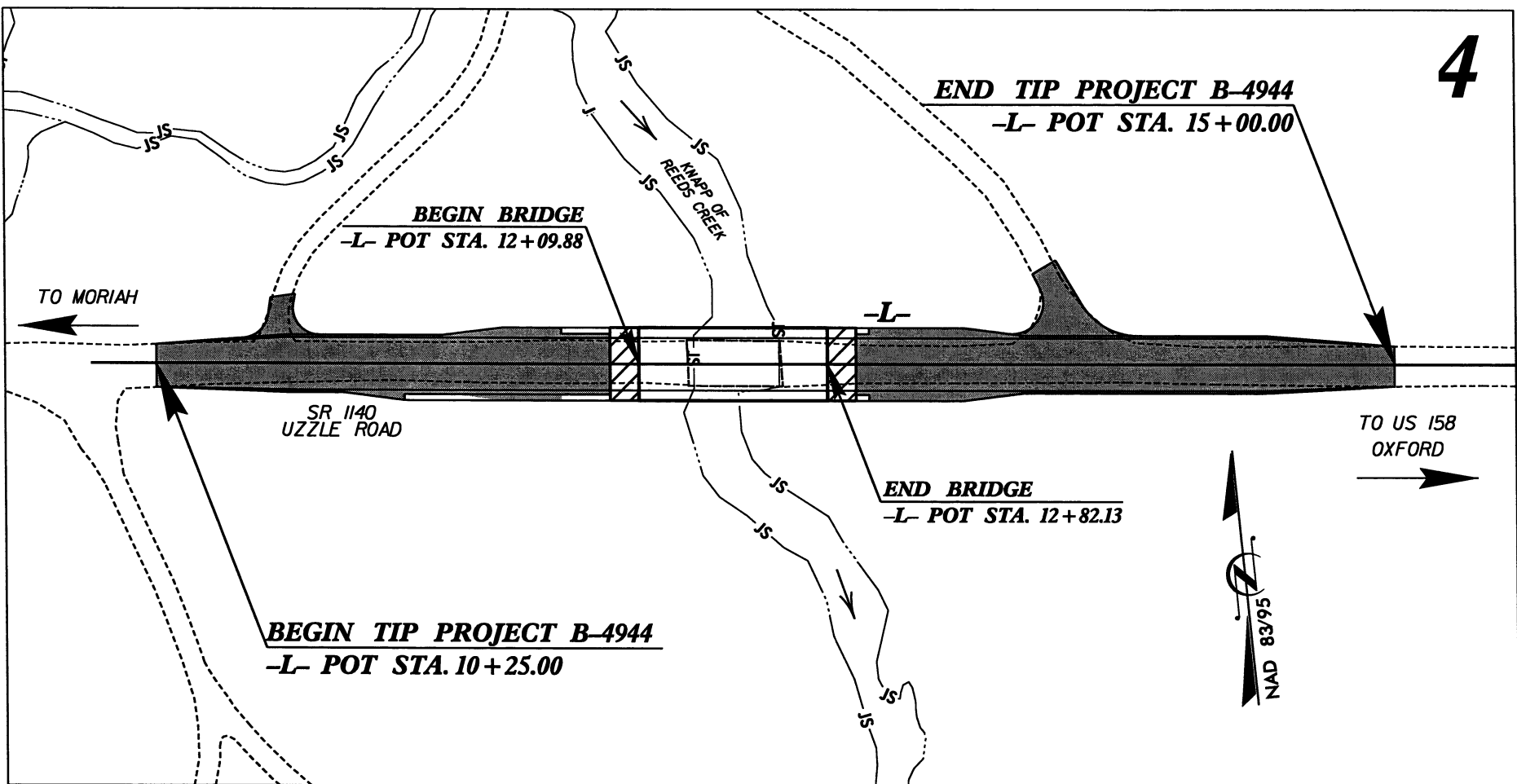


VICINITY MAP SHOWING LOCATION OF PROJECT B-4944
OFFSITE DETOUR

GRANVILLE COUNTY

**LOCATION: BRIDGE NO. 225 OVER KNAPP REEDS CREEK
ON SR 1140 (UZZLE ROAD)**

TYPE OF WORK: BUFFER IMPACTS

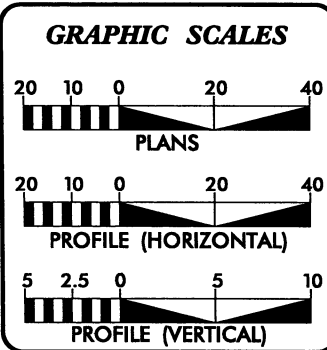


**THIS PROJECT WAS DESIGNED USING
THE SUB REGIONAL TIER GUIDELINES
FOR BRIDGE PROJECTS**

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
CLEARING AND GRUBBING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:



DESIGN DATA

ADT 2013 =	250
ADT 2035 =	800
DHV =	15 %
D =	45 %
T =	6 % *
V =	30 MPH
* TTST =	1% DUAL 5%
FUNC CLASS =	RURAL LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4944 =	0.076 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4944 =	0.014 MILES
TOTAL LENGTH OF TIP PROJECT B-4944 =	0.090 MILES

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

2012 STANDARD SPECIFICATIONS

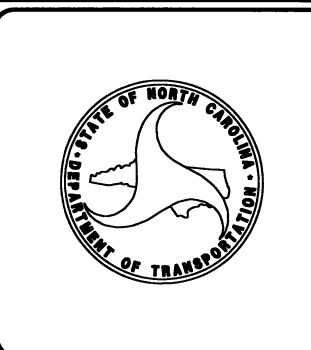
RIGHT OF WAY DATE: DECEMBER 18, 2012	TONY HOUSER, P.E. PROJECT ENGINEER
LETTING DATE: DECEMBER 17, 2013	LEE ANN MOORE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

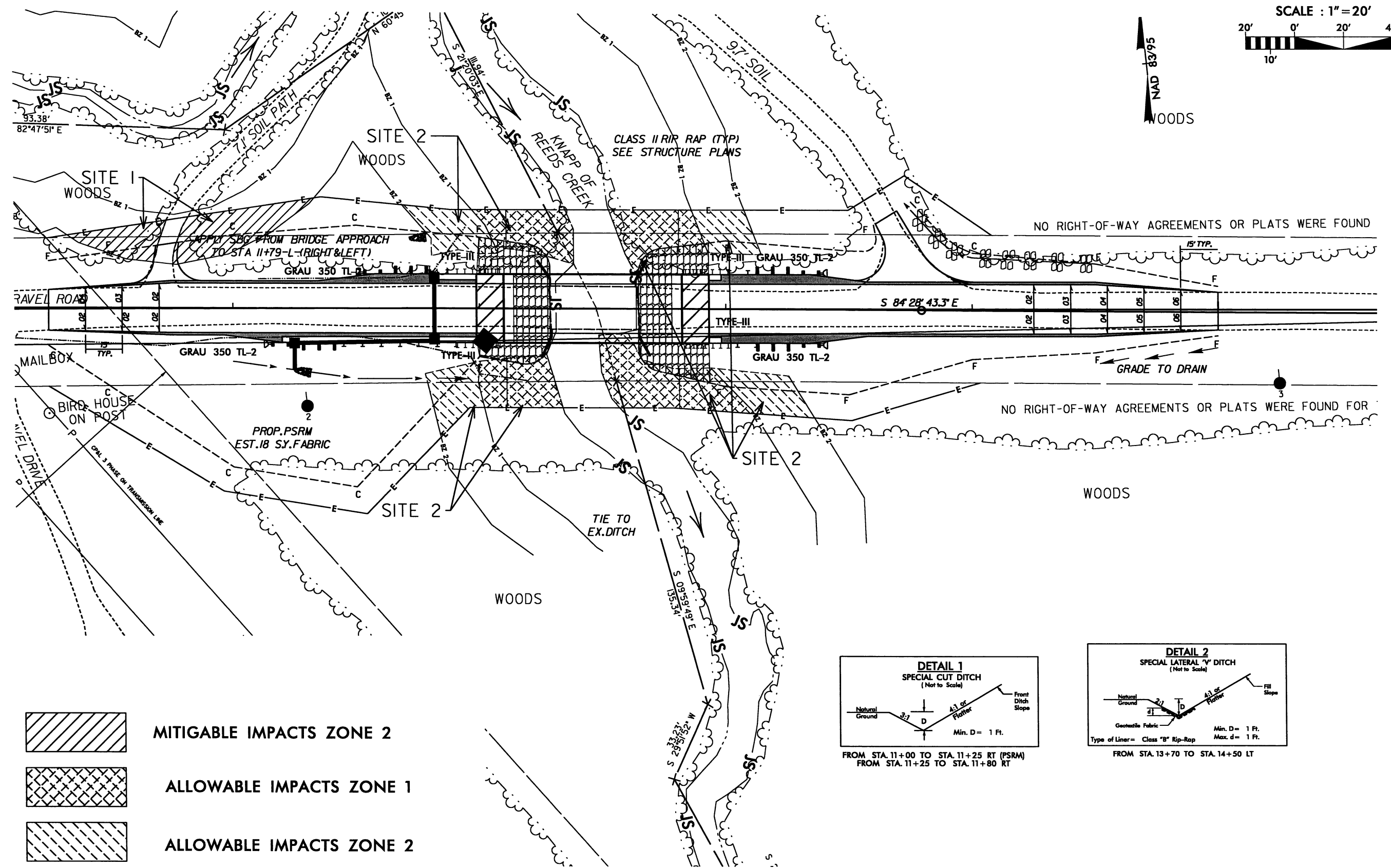
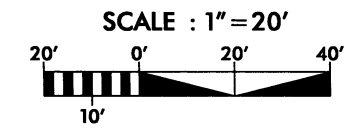
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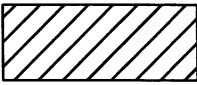
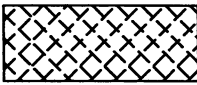
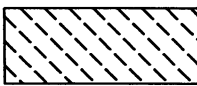
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\$\$\$\$\$EDGNS\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

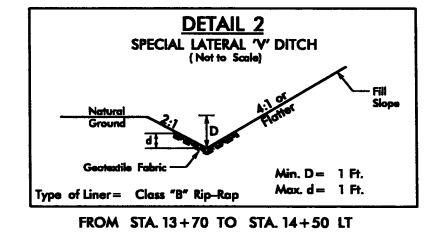
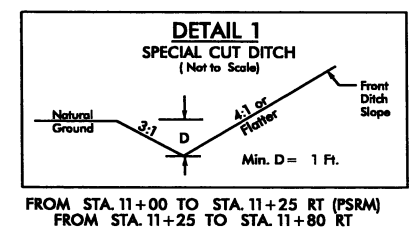
PROJECT REFERENCE NO. B-4944	SHEET NO. 2
PLAN VIEW	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Buffer Drawing
Sheet 2 of 3



REVISIONS

-  MITIGABLE IMPACTS ZONE 2
-  ALLOWABLE IMPACTS ZONE 1
-  ALLOWABLE IMPACTS ZONE 2



8/17/99
 SYSTEMS DESIGN
 CONSULTANTS
 INC.
 10000 WILSON BLVD
 SUITE 100
 FORT WORTH, TX 76154
 TEL: 817/339-8800
 FAX: 817/339-8801
 WWW: WWW.SDCI.COM

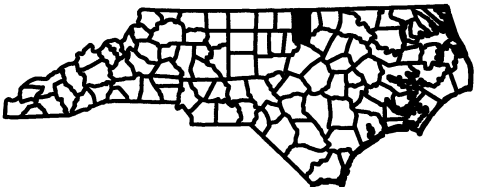
BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT					BUFFER REPLACEMENT					
			TYPE		ALLOWABLE		MITIGABLE		REPLACEMENT				
			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)		
Site 1	Road Fill and Clearing	10+32 to 11+31 LT, 11+68 to 12+11 LT, 12+81 13+15 LT, 11+78 to 12+11 RT, 12+81 to 13+36 RT			X				1103		1103		
Site 2	Road Fill and Clearing	12+11 to 12+38 LT, 12+56 to 12+81 LT, 12+11 to 12+30 RT, 12+48 to 12+81 RT	X			860	1735	2595					
Site 2	Bridge Fill and Clearing			X		2074		2074					
TOTAL:							2934	1735	4669	0	1103	1103	

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GRANVILLE COUNTY
 PROJECT: 40146.1.1 (B-4944)
 BRIDGE NO. 225 OVER KNAPP REEDS CREEK
 ON SR 1140 (UXXLE ROAD)

5/10/2013
 SHEET **3** OF **3**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4944	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40146.1.1	BRZ-1140(9)	PE	
40146.2.1	BRZ-1140(9)	ROW & UTIL	
40146.3.1	BRZ-1140(9)	CONSTRUCTION	



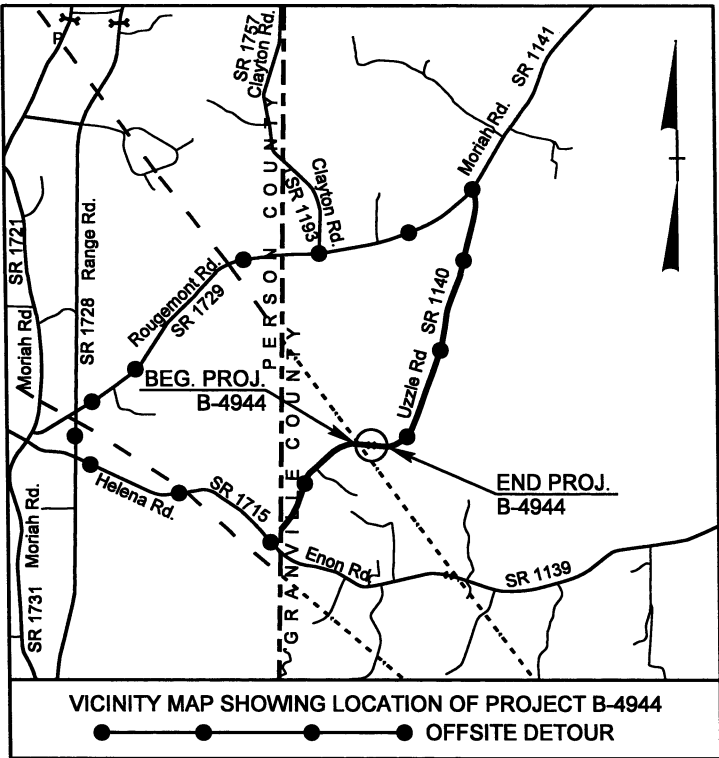
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GRANVILLE COUNTY

**LOCATION: BRIDGE NO. 225 OVER KNAPP REEDS CREEK
ON SR 1140 (UZZLE ROAD)**

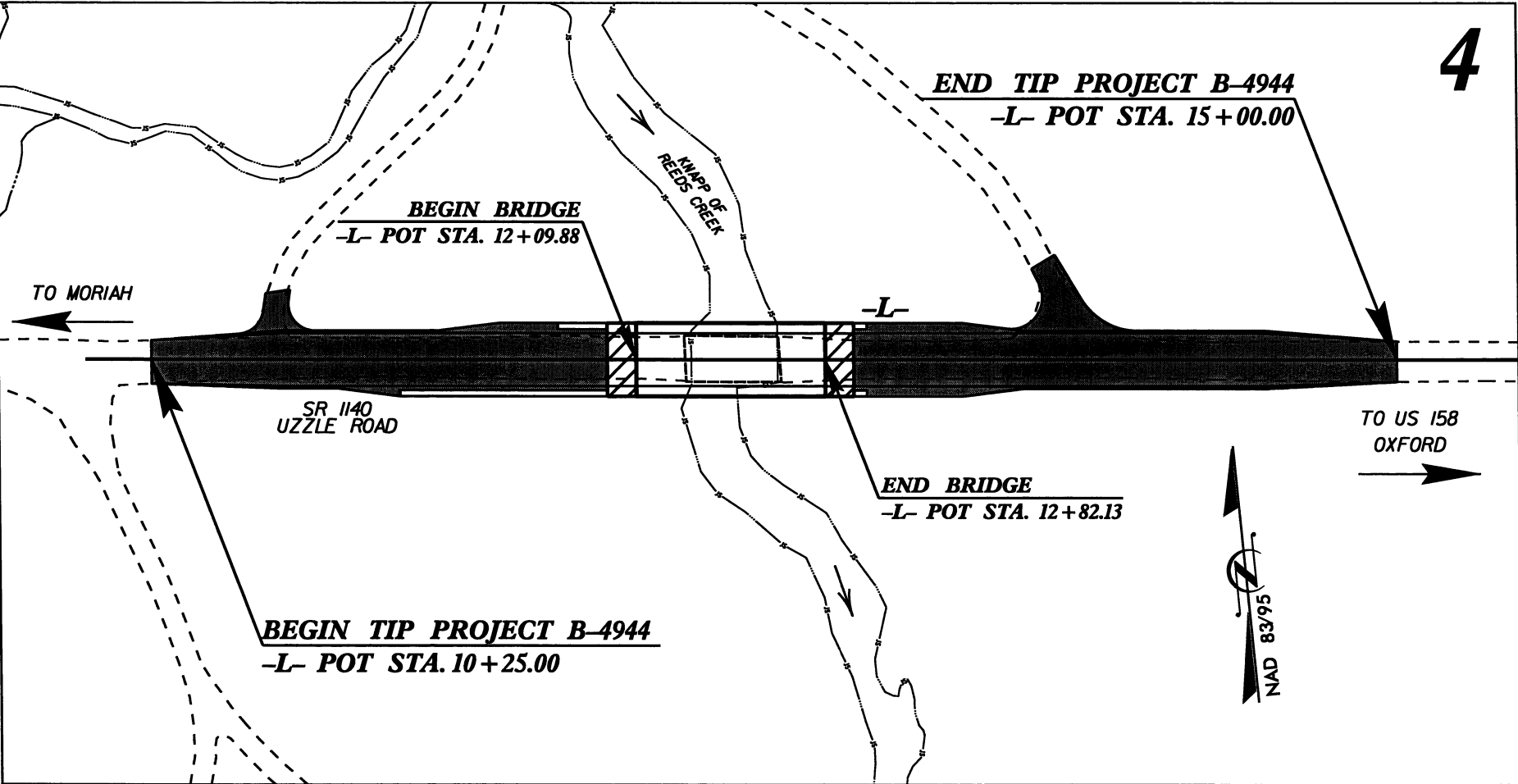
**TYPE OF WORK: GRADING, PAVING, DRAINAGE
AND STRUCTURE**

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



VICINITY MAP SHOWING LOCATION OF PROJECT B-4944
OFFSITE DETOUR

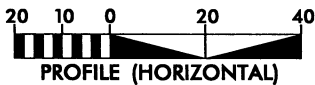
**THIS PROJECT WAS DESIGNED USING
THE SUB REGIONAL TIER GUIDELINES
FOR BRIDGE PROJECTS**



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
CLEARING AND GRUBBING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 250
ADT 2035 = 800
DHV = 15 %
D = 45 %
T = 6 % *
V = 30 MPH
* TTST = 1% DUAL 5%
FUNC CLASS =
RURAL LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4944 = 0.076 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4944 = 0.014 MILES
TOTAL LENGTH OF TIP PROJECT B-4944 = 0.090 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 18, 2012

LETTING DATE:
DECEMBER 17, 2013

TONY HOUSER, P.E.
PROJECT ENGINEER

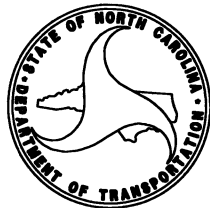
LEE ANN MOORE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



04/16/11

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	⊙
Property Corner	→
Property Monument	⊠
Parcel/Sequence Number	Ⓣ
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	⊠
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----
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	-----
False Sump	⊠

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	⊙
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 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

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	Ⓢ
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	⊠

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	⊠
Bridge Wing Wall, Head Wall and End Wall	⊠
MINOR:	
Head and End Wall	⊠
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	⊠
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊙
Storm Sewer	-----

UTILITIES:

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

TELEPHONE:

Existing Telephone Pole	⊙
Proposed Telephone Pole	⊙
Telephone Manhole	⊙
Telephone Booth	⊠
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	⊠
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

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

TV:

TV Satellite Dish	⊙
TV Pedestal	⊠
TV Tower	⊙
U/G TV Cable Hand Hole	⊠
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	⊙
Utility Pole with Base	⊠
Utility Located Object	⊙
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	⊠
Underground Storage Tank, Approx. Loc.	⊠
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.

SURVEY CONTROL SHEET B-4944

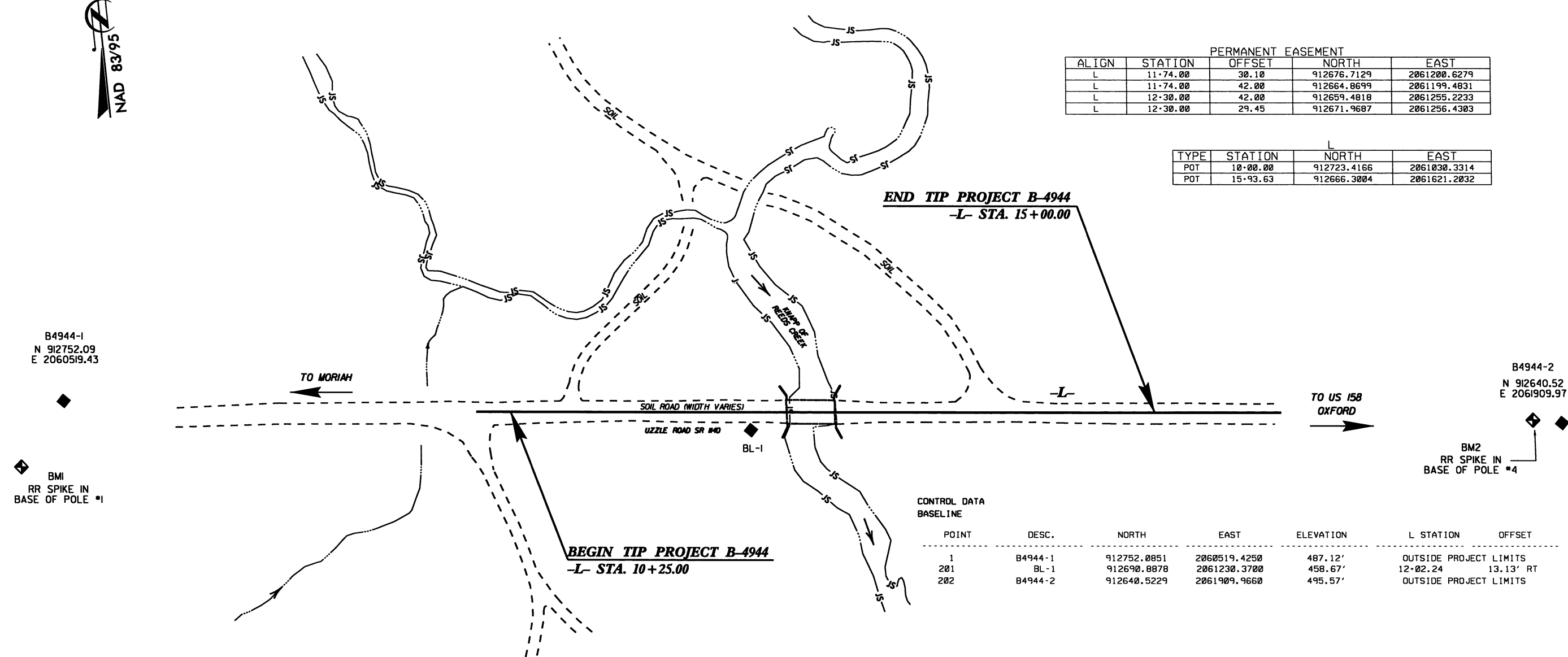
GRANVILLE COUNTY

BRIDGE No. 225 OVER KNAPP REEDS CREEK ON SR 1140 (UZZLE ROAD)



PERMANENT EASEMENT				
ALIGN	STATION	OFFSET	NORTH	EAST
L	11+74.00	30.10	912676.7129	2061200.6279
L	11+74.00	42.00	912664.8699	2061199.4831
L	12+30.00	42.00	912659.4818	2061255.2233
L	12+30.00	29.45	912671.9687	2061256.4303

L			
TYPE	STATION	NORTH	EAST
POT	10+00.00	912723.4166	2061030.3314
POT	15+93.63	912666.3004	2061621.2032



CONTROL DATA BASELINE							
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET	
1	B4944-1	912752.0851	2060519.4250	487.12'	OUTSIDE PROJECT LIMITS		
201	BL-1	912690.8878	2061230.3700	458.67'	12+02.24	13.13' RT	
202	B4944-2	912640.5229	2061909.9660	495.57'	OUTSIDE PROJECT LIMITS		

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX](https://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX)
THE FILES TO BE FOUND ARE AS FOLLOWS:
B4944_LS_CONTROL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4944-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 912752.0852(ft) EASTING: 2060519.4255(ft) ELEVATION: 487.12'(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00000858

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4944-1" TO -L- 10+25.00 IS S 86° 40' 51" E 536.69'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BENCHMARK DATA

.....

BM1 ELEVATION = 478.51'
N 912698 E 2060760
FROM L STATION 10+25.00
S 85°32'35" W DIST 296'
SPIKE IN BASE OF POLE #1

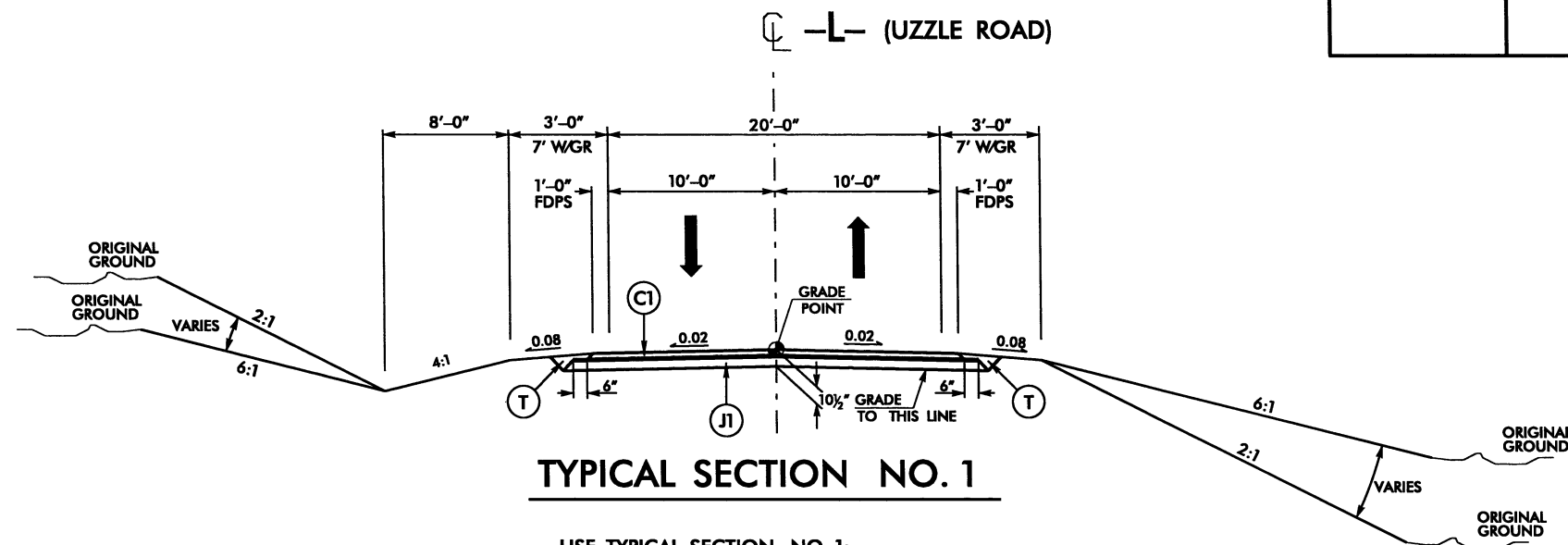
.....

BM2 ELEVATION = 496.26'
N 912645 E 2061898
FROM L STATION 15+00.00
S 85°19'01" E DIST 371'
SPIKE IN BASE OF POLE #4

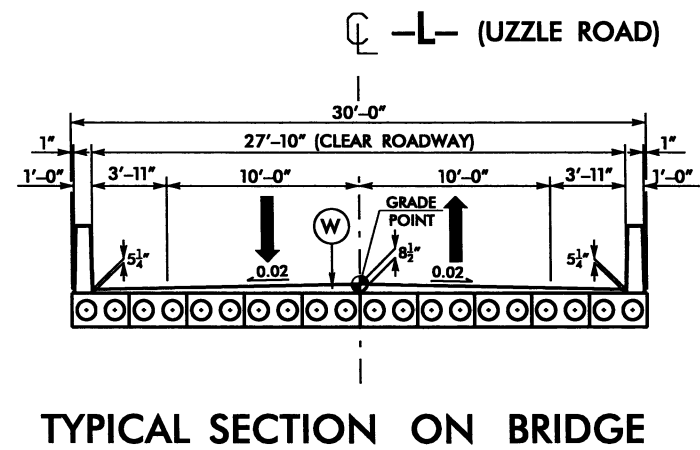
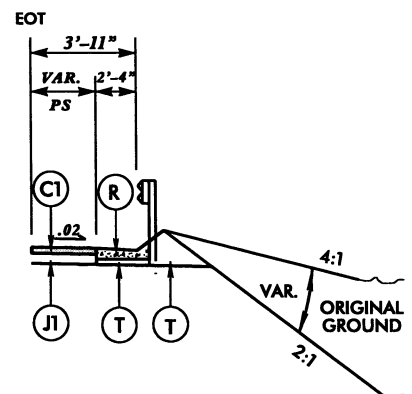
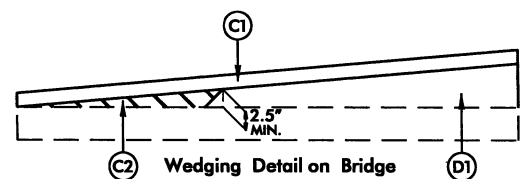
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NOTE: DRAWING NOT TO SCALE

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5X, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	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.
J1	PROP. 8" AGGREGATE BASE COURSE.
R	SHOULDER BERM GUTTER.
W	WEDGING.
T	EARTH MATERIAL.



WEDGING DETAIL ON BRIDGE



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Table with columns: STATION, UNCL. EXCAV., EMBANK. +20%, BORROW, WASTE. Rows include station ranges like 10+25.00 to 12+09.88 and project subtotals.

*RECOMMENDED FOR INCLUSION IN THE CONTRACT AS A CONTINGENCY ITEM PER GEOTECHNICAL'S LETTER DATED APRIL 16, 2012.

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, Breacking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

SHOULDER BERM GUTTER SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, LENGTH. Rows include survey lines like -L-, LT and -L-, RT with station ranges and lengths.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

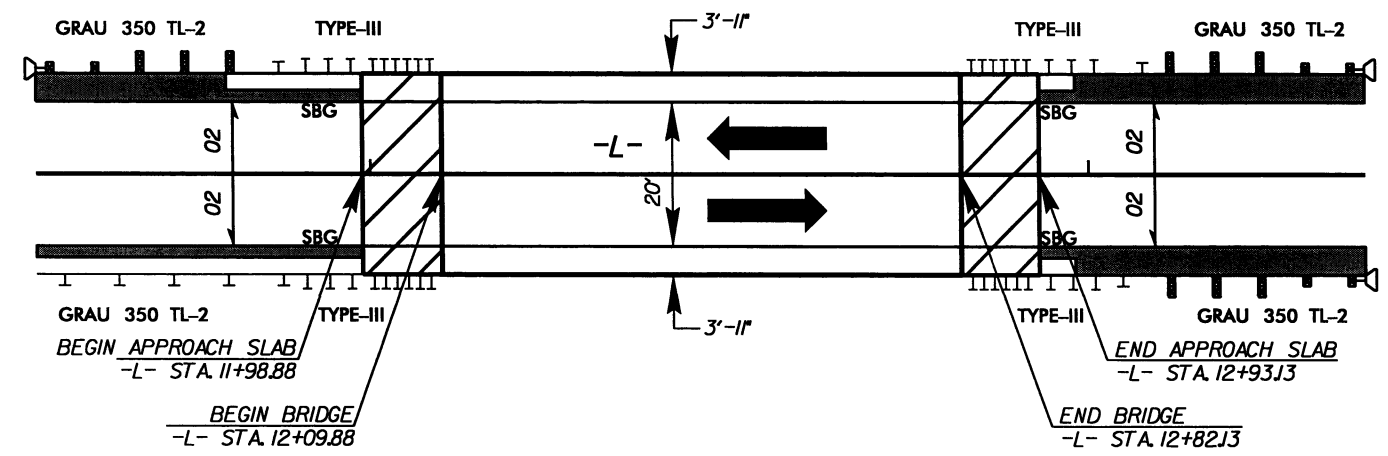
Large table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH, WARRANT POINT, "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH, W, ANCHORS, IMPACT ATTENUATOR TYPE 350, SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS. Includes summary rows for SHEET TOTAL, ANCH. DEDUCTION, and TOTAL.

8/17/99

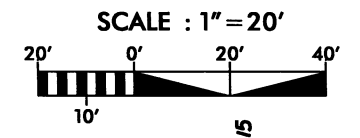
SHOULDER BERM GUTTER LOCATIONS

- L- FROM STA. 11+80.00 TO STA. 11+98.88 (BEG. APPROACH SLAB) LT
- L- FROM STA. 11+20.00 TO STA. 11+98.88 (BEG. APPROACH SLAB) RT
- L- FROM STA. 12+93.13 (END APPROACH SLAB) TO STA. 12+98.13 LT & RT

SKETCH SHOWING BRIDGE & PAVEMENT RELATIONSHIP

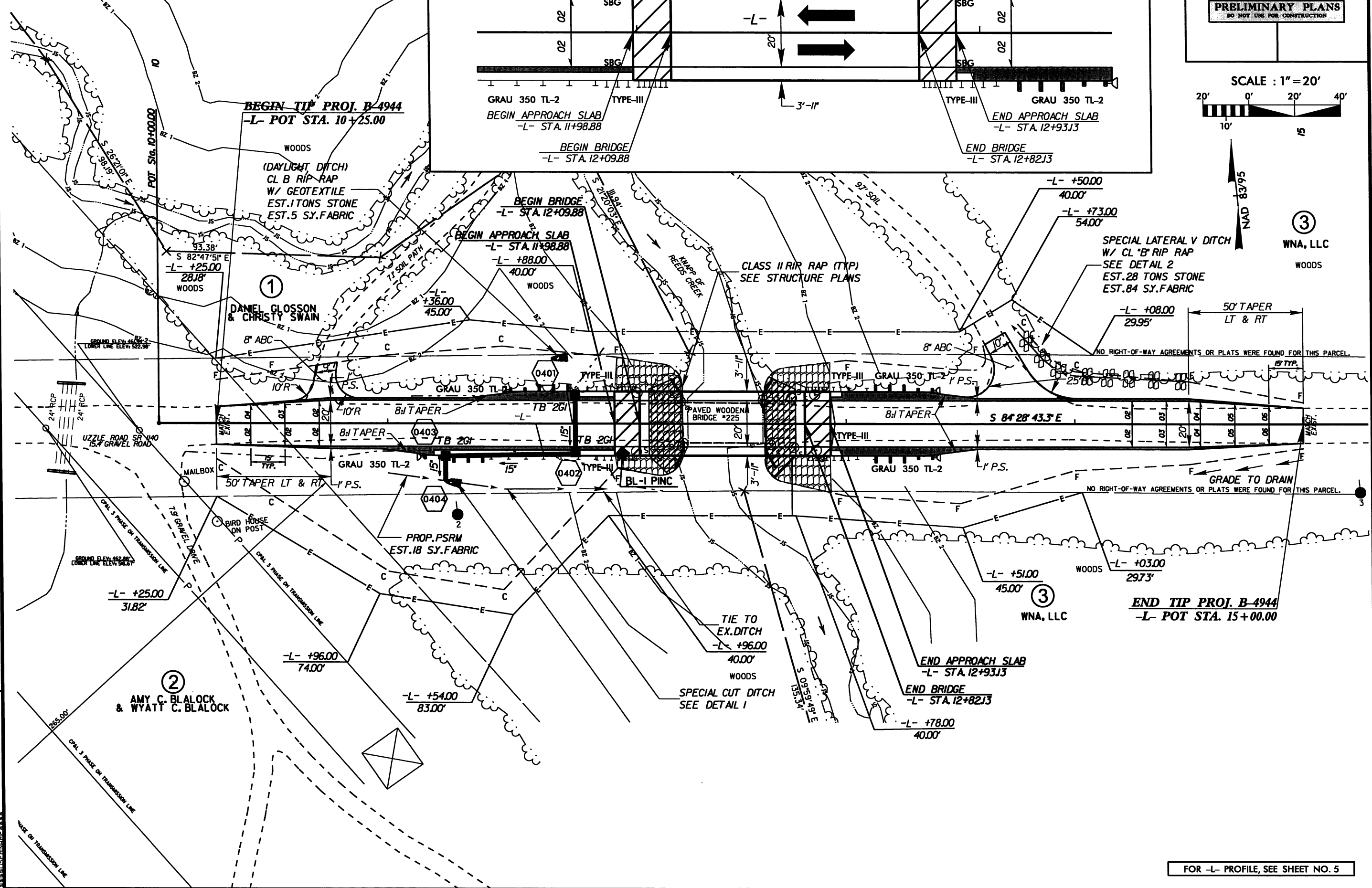


PROJECT REFERENCE NO. B-4944	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



3
WNA, LLC
WOODS

REVISIONS
 RIGHT OF WAY REVISIONS 4/30/13, JWB, TEMPORARY CONSTRUCTION EASEMENT ADJUSTED FOR PARCEL #1, #2, AND #3 TO MAINTAIN 10' MIN. OFFSET FROM CONSTRUCTION LIMIT, PERMANENT DRAINAGE EASEMENT REMOVED FROM PARCEL #2



02-MAY-2013 14:43
 R:\Projects\B-4944\psh4.dgn

FOR -L- PROFILE, SEE SHEET NO. 5

5/14/99

02-MAY-2013 14:43
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PROJECT REFERENCE NO. B-4944	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

500

490

480

470

460

450

440

430

420

410

10

11

12

13

14

15

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 1,000	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 453.5	FT
BASE DISCHARGE	= 1,500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 454.49	FT
OVERTOPPING DISCHARGE	= 3,060	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 459.6	FT

BM 1
ELEV. = 478.51'
N = 912,698 E = 2,060,760
-BL- STA. 7+44 33' RT
SURVEY BENCH TIE SPIKE IN
BASE OF POLE *1

BM 2
ELEV. = 496.26'
N = 912,645 E = 2,061,898
-BL- STA. 18+82 4' LT
SURVEY BENCH TIE SPIKE IN
BASE OF POLE *4

BRIDGE ID STATION: 12+46 -L-, ELEV: 459.77'
1@72'-3" - 21" CORED SLAB
SKEW = 90°

PI = 11+65.00
EL = 459.49'
VC = 24'
K = 17

PI = 13+81.00
EL = 460.22'
VC = 153'
K = 17

END LT DITCH GRADE
-L- PI = 14+50.00
ELEV = 464.98'

BEGIN RT DITCH GRADE
-L- PI = 11+00.00
ELEV = 457.83'

END RT DITCH GRADE
-L- PI = 11+80.00
ELEV = 456.68'

BEGIN LT DITCH GRADE
-L- PI = 13+70.00
ELEV = 458.00'

PROP. 25 YR.
ELEV = 453.6'

N.H.S.
ELEV. 448.8'
DATE: 3/8/2012

CLASS 11 RIP-RAP
(EACH SIDE)
SEE STRUCTURE PLANS

ABUT. #1
15% NORMAL
TO BRIDGE (TYP.)

ABUT. #2
15% NORMAL
TO BRIDGE (TYP.)

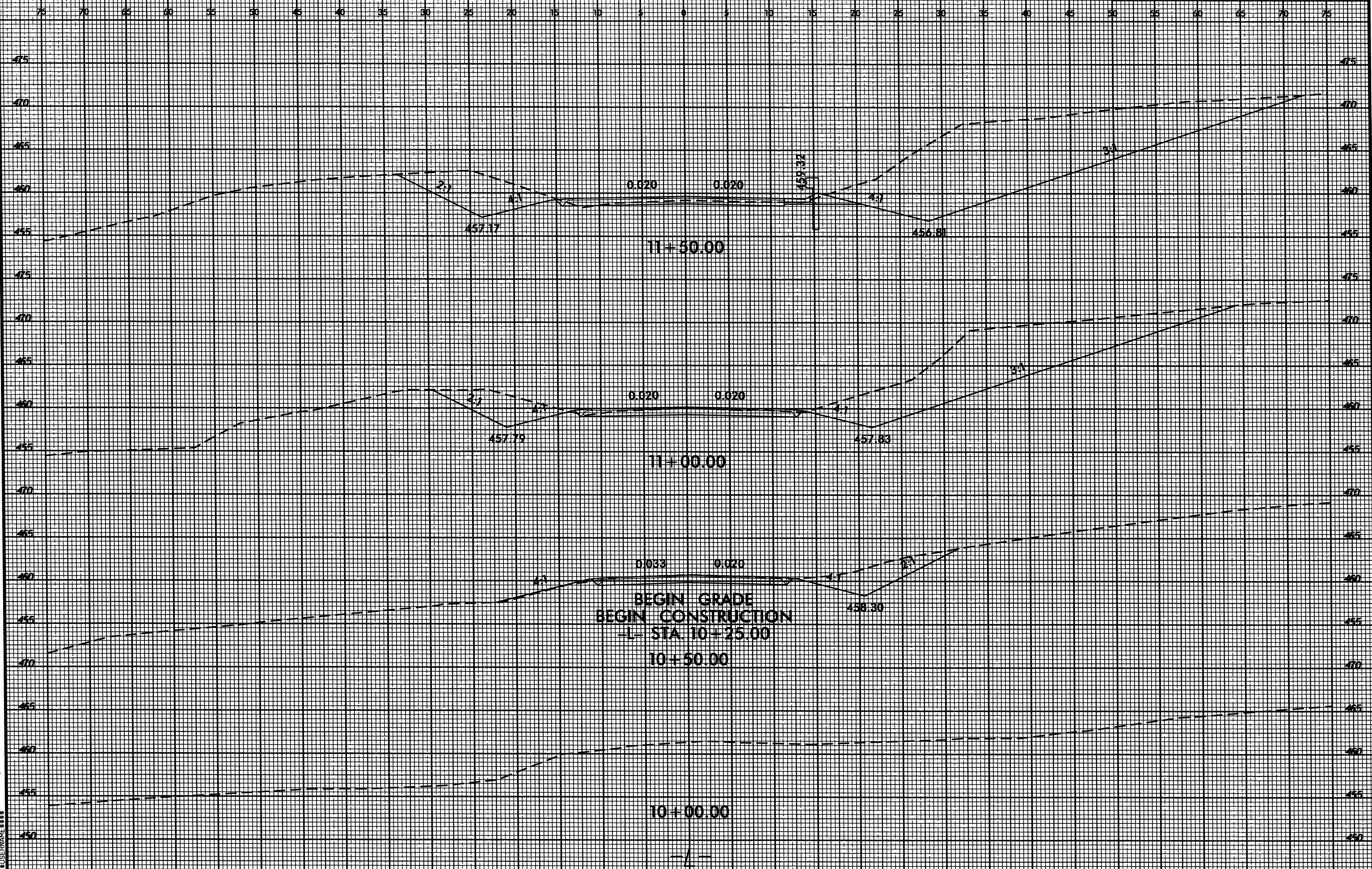
EST. 18 CY UNCLASSIFIED STRUCTURE EXCAVATION

FOR -L- PLAN VIEW, SEE SHEET NO. 4
SEE STRUCTURE PLANS S-1 THRU S-2

8/23/99



PROJ. REFERENCE NO.	SHEET NO.
B-4944	X-1

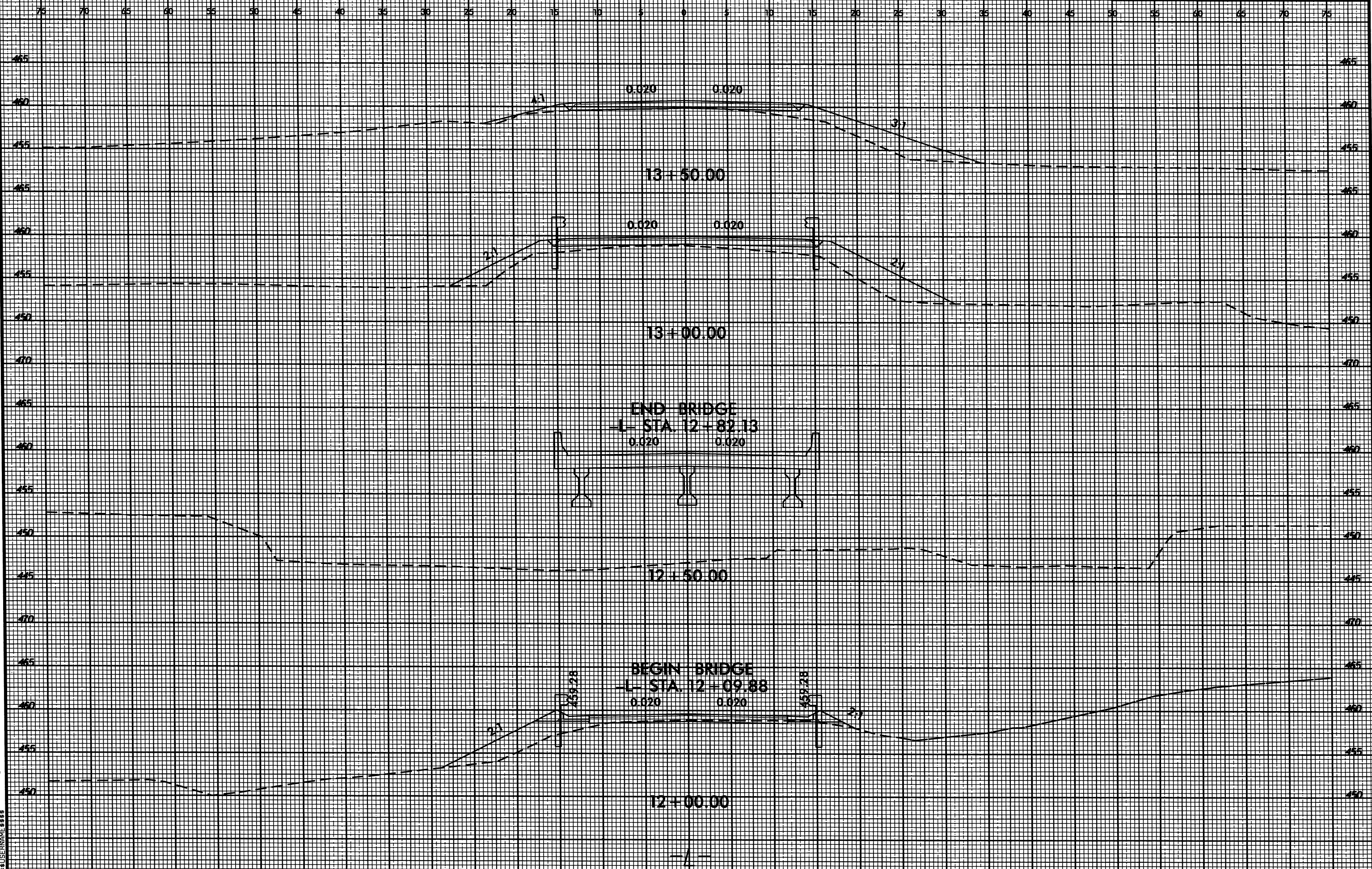


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B/23/99



PROJ. REFERENCE NO. B-4944 SHEET NO. X-2

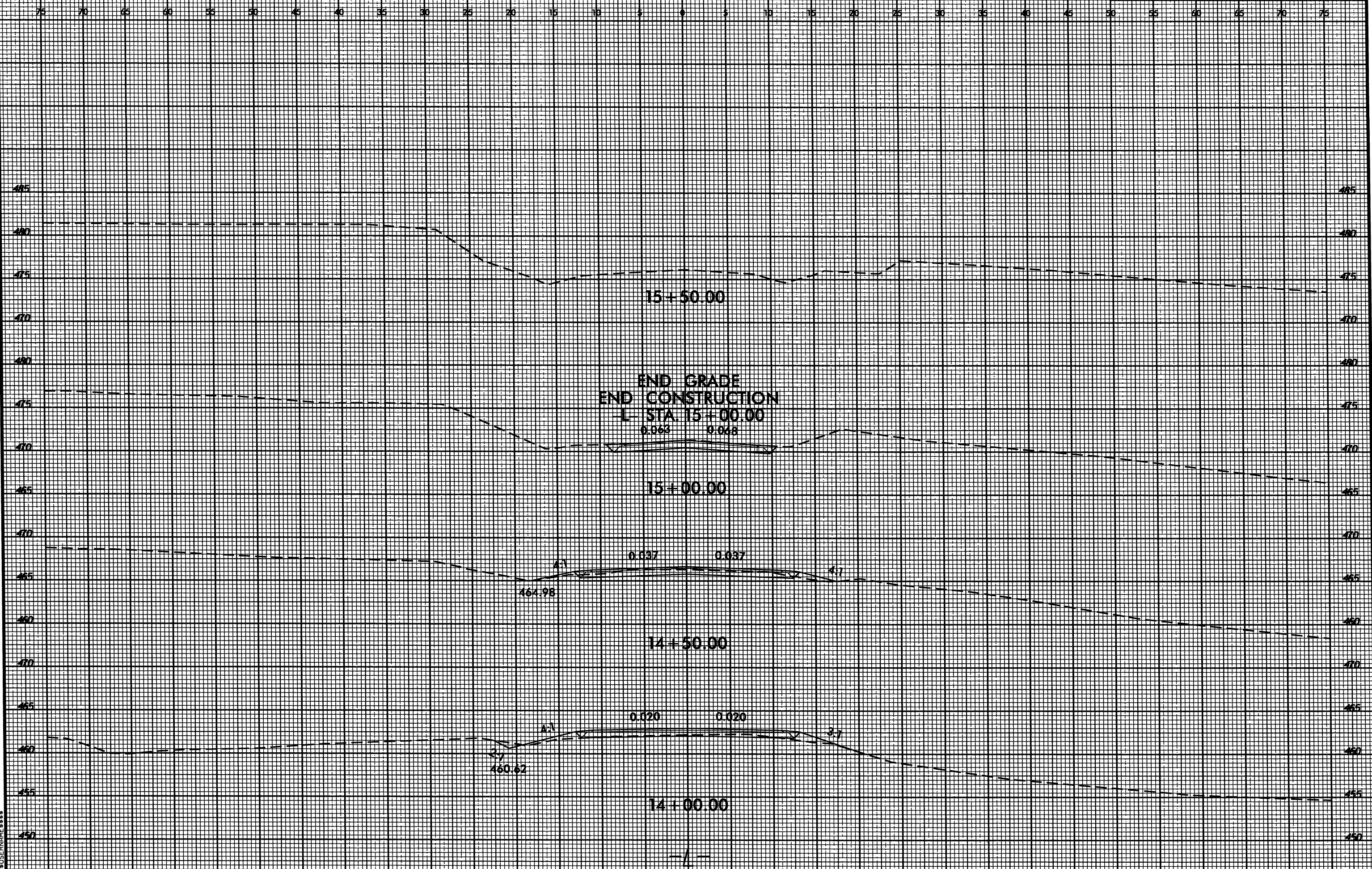


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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
B-4944	X-3



15 + 50.00

END GRADE
 END CONSTRUCTION
 L STA 15 + 00.00
 0.063 0.068

15 + 00.00

0.037 0.037

464.98

14 + 50.00

0.020 0.020

460.62

14 + 00.00

-1-

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