



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

November 16, 2011

U. S. Army Corps of Engineers  
Regulatory Field Office  
69 Darlington Ave  
Wilmington, NC 28402-1890

ATTN: Mr. Ronnie Smith  
NCDOT Coordinator

Dear Sir:

**Subject: Application for Section 404 Nationwide Permit 23 and Section 401 Water Quality Certification for the replacement of Bridge No. 44 over Juniper Swamp on NC 904 in Columbus County. State Project No. 8.1432201; Federal Aid Project Number BRSTP-904(4); Debit \$240 from WBS 33720.1.1; TIP No. B-4471.**

The North Carolina Department of Transportation (NCDOT), Division of Highways, in consultation with the Federal Highway Administration (FHWA), proposes to replace Bridge No. 44 in Columbus County. The proposed let date for the project is July 17, 2012 with a review date of May 29, 2012; however, the let date may advance as additional funds become available. Permanent impacts to Waters of the US (wetlands) associated with this project are 0.89 acre.

Please find enclosed a Pre-Construction Notification (PCN) form, permit drawings, utility drawings, roadway plans, a copy of the State Stormwater Management Plan, US Fish and Wildlife Concurrence Letter, and EEP Mitigation Acceptance Letter. A Categorical Exclusion (CE) was completed for this project on November 24, 2009, and distributed shortly thereafter. Additional copies are available upon request.

### Regulatory Approvals

**Section 404 Permit:** NCDOT requests that a Nationwide Permit 23 be issued to authorize the impacts resulting from this project in accordance with 23 CFR 771.115(b).

**Section 401 Permit:** We anticipate 401 Certification number 3701 will apply to this project. All general conditions of the Water Quality Certification will be met and we are requesting written

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

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

WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610-4328

approval from NCDWQ. We are providing three copies of this application to the NCDWQ for their approval.

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

If you have any questions or need additional information, please call or email Dr. Lance P. Fontaine at 919-431-6667 or [lpfontaine@ncdot.gov](mailto:lpfontaine@ncdot.gov).

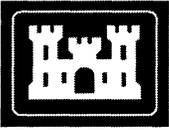
Sincerely,



*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: 23	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	<input checked="" type="checkbox"/> Yes <input 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 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	<input checked="" type="checkbox"/> Yes <input 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 44 over Juniper Swamp on NC 904
2b. County:	Columbus
2c. Nearest municipality / town:	Tabor City
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no:	B-4471

#### 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) 707-6118
3g. Fax no.:	(919) 212-5785
3h. Email address:	lpfontaine@ncdot.gov

<b>4. Applicant Information (if different from owner)</b>	
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:	
<b>5. Agent/Consultant Information (if applicable)</b>	
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>B. Project Information and Prior Project History</b>	
<b>1. Property Identification</b>	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 34.84059 (DD.DDDDDD) Longitude: - 78.767196 (-DD.DDDDDD)
1c. Property size:	3.4 acres
<b>2. Surface Waters</b>	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Juniper Swamp
2b. Water Quality Classification of nearest receiving water:	C; Sw
2c. River basin:	Lumber
<b>3. Project Description</b>	
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: The site is predominantly maintained / disturbed roadside shoulder and agriculture in addition to forested wetlands. Land use in the project vicinity is predominantly agriculture with some residence.	
3b. List the total estimated acreage of all existing wetlands on the property: 1.1	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 200	
3d. Explain the purpose of the proposed project: To replace a structurally deficient bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 66-foot bridge with a 128-foot, 2-span bridge on new location north of the existing roadway alignment with an on-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used. Utility work will involve relocation of water, telephone, and electrical facilities. Open trench method will be used outside of jurisdictional boundaries and directional bore (trenchless method) will be employed under jurisdictional features.	
<b>4. Jurisdictional Determinations</b>	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): Matt Smith	Agency/Consultant Company: ESI, Inc. Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. On-site determination made by USACE (R. Spencer) and ESI on July 15, 2008. No tear-sheet or Action ID assigned.	
<b>5. Project History</b>	
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.	
<b>6. Future Project Plans</b>	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6b. If yes, explain.	



<b>C. Proposed Impacts Inventory</b>						
<b>1. Impacts Summary</b>						
1a. Which sections were completed below for your project (check all that apply):						
<input checked="" type="checkbox"/> Wetlands		<input checked="" type="checkbox"/> Streams - tributaries		<input type="checkbox"/> Buffers		
<input type="checkbox"/> Open Waters		<input type="checkbox"/> Pond Construction				
<b>2. Wetland Impacts</b>						
If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.						
2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)	
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Fill	Riparian	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.65	
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Excavation	Riparian	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.06	
Site 3 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Mechanized Clearing	Riparian	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	0.18	
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
<b>2g. Total wetland impacts</b>					0.89 Permanent 0 Temporary	
2h. Comments: Sites 1, 2, & 3 capture impacts associated with replacement of bridge on new location to the north of existing bridge. Hand clearing (HC) due to bridge construction = 0.14 ac; HC due to utilities = 0.44 ac; Fill due to utilities (1 power pole) < 0.01 ac.						
<b>3. Stream Impacts</b>						
If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.						
3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
<b>3h. Total stream and tributary impacts</b>					X Perm X Temp	

3i. Comments: Surface Water impacts due to bents is 15 square feet (<0.01 acre).

**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				
<b>4f. Total open water impacts</b>				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								
<b>5f. Total</b>								

5g. Comments:

5h. Is a dam high hazard permit required?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If yes, permit ID no:
5i. Expected pond surface area (acres):			
5j. Size of pond watershed (acres):			
5k. Method of construction:			

**6. Buffer Impacts (for DWQ)**

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

6a. Project is in which protected basin?		<input type="checkbox"/> Neuse <input 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)		
B1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No				
B2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No				
B3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No				
<b>6h. Total buffer impacts</b>							
6i. Comments:							

<b>D. Impact Justification and Mitigation</b>		
<b>1. Avoidance and Minimization</b>		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. <p>The proposed structure will be 62 feet longer than the existing structure to provide improved hydrological connectivity. The proposed bridge will be at approximately the same grade as the existing bridge. The number of bents in the stream will be reduced from two to one. Traffic will be maintained on the existing facility during construction. An off-site detour alternative was eliminated due to inadequate road and bridge facilities on detour routes. Existing detour routes have weight restrictions and potentially dangerous conditions limiting the existing truck traffic currently accommodated by NC 904. 3:1 fill slopes are used where practicable. No temporary access within Juniper Swamp will be required. The bridge is designed so that no deck drains will be used in order to avoid any direct discharges into Juniper Swamp. All deck drainage will be picked up in a stormwater system and discharged at the toe of slope near the bridge and onto rip rap dissipater pads. Rip rap dissipater pads will be used in order to dissipate energy and attain non-erosive velocities at pipe outlets. These structures were used at pipe outlets in the wetlands in lieu of preformed scour holes to prevent excavation in wetlands.</p>		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. <p>A temporary rock causeway will be used to construct proposed bents and to set the cored slab units. This causeway will be placed in an area where excavation is taking place to minimize further impacts. Utility work will involve relocation of water line and telephone line; open trench method will be used outside of jurisdictional boundaries and directional bore (trenchless method) will be employed under jurisdictional features with staging areas set outside of jurisdictional boundaries. Hand clearing utilized in lieu of mechanized clearing where practicable to reduce permanent impacts.</p>		
<b>2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State</b>		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain:	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input checked="" type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input checked="" type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> Permittee Responsible Mitigation	
<b>3. Complete if Using a Mitigation Bank</b>		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
<b>4. Complete if Making a Payment to In-lieu Fee Program</b>		
4a. Approval letter from in-lieu fee program is attached.	<input checked="" type="checkbox"/> Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:	1.78 acres	
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	
4h. Comments:		
<b>5. Complete if Using a Permittee Responsible Mitigation Plan</b>		

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.  
 NC EEP will provide wetland mitigation.

**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.

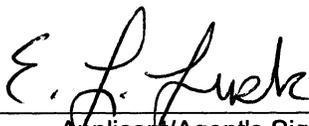
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
<b>6f. Total buffer mitigation required:</b>				

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:

<b>E. Stormwater Management and Diffuse Flow Plan (required by DWQ)</b>	
<b>1. Diffuse Flow Plan</b>	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments:	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Stormwater Management Plan</b>	
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 and stormwater management plan.	
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
<b>3. Certified Local Government Stormwater Review</b>	
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
<b>4. DWQ Stormwater Program Review</b>	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>5. DWQ 401 Unit Stormwater Review</b>	
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

<b>F. Supplementary Information</b>	
<b>1. Environmental Documentation (DWQ Requirement)</b>	
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
<b>2. Violations (DWQ Requirement)</b>	
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):	
<b>3. Cumulative Impacts (DWQ Requirement)</b>	
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.	
<b>4. Sewage Disposal (DWQ Requirement)</b>	
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	

<b>5. Endangered Species and Designated Critical Habitat (Corps Requirement)</b>		
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? USFWS and NCNHP databases; field surveys; USFWS concurrence		
<b>6. Essential Fish Habitat (Corps Requirement)</b>		
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		
<b>7. Historic or Prehistoric Cultural Resources (Corps Requirement)</b>		
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		
<b>8. Flood Zone Designation (Corps Requirement)</b>		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
<u>Dr. Gregory J. Thorpe, Ph D</u> Applicant/Agent's Printed Name	 _____ Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	11.16.11 Date

# STORMWATER MANAGEMENT PLAN

August 15, 2011

Project: 33720.1.1

TIP No.: B-4471

County: Columbus

Hydraulics Project Manager: Kevin B. Alford, PE (Mulkey Engineers and Consultants)  
Marshall W. Clawson, PE (NCDOT Hydraulics Unit)

## ROADWAY DESCRIPTION

The project B-4471 consists of constructing a new bridge 125 feet long to replace the existing bridge #44 in Columbus County on NC 904 over Juniper Swamp. The new bridge will be placed downstream of the existing bridge. The total project length is 0.216 miles. The project creates impacts to Juniper Swamp (which is located in the Lumber River Basin) and the surrounding wetlands. The project drainage consists of grass lined ditches grated inlets with associated pipe systems and rip rap dissipater pads at the pipe outlets.

## ENVIRONMENTAL DESCRIPTION

The project is located within the Lumber River Basin, which no buffer regulations have been implemented. Juniper Swamp is the only stream crossing on this project. Juniper Swamp is listed on the NCDENR classifications list as a Class C and Class Sw. Juniper Swamp is not listed on the 303(d) list for impaired streams. There is a wetland site surrounding the bridge on all four quadrants of the bridge that will be impacted by the proposed project. Impacts have been minimized by using rip rap dissipater pads at the pipe outlets and reducing the roadway approach work to minimize fill slopes encroachment into the wetlands.

## BEST MANGEMENT PRACTICES AND MAJOR STRUCTURE

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

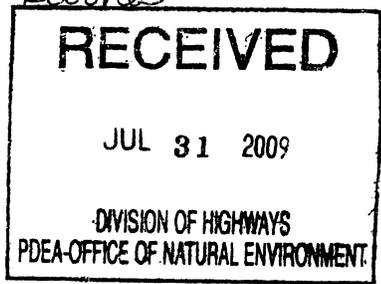
- ***Rip Rap Dissipater Pads***

Rip Rap pads dissipater pads were used in order to dissipate energy and attain non-erosive velocities at pipe outlets. These structures were used at the pipe outlets in the wetlands in lieu of Preformed Scour holes to prevent excavation in wetlands. These structures are located at -L- Stations 14+72 Lt. and 19+20 Lt.

- ***Major Structure***

A two span bridge will be placed from –L- Station 16+03.81 to –L- Station 17+31.19 in order to replace the existing bridge that is constructed of a reinforced concrete deck on I-beams with reinforced concrete caps and timber piles. The existing and proposed bridge have spill thru abutments. The existing bridge has two bents in the channel, while the proposed bridge only has one bent in the channel. The proposed bridge will require a causeway to be constructed, but the causeway will be built in the area of permanent impacts in order to avoid further impacts. The bridge is also designed so that no deck drains will be used in order to avoid any direct discharges into Juniper Swamp. All deck drainage will be picked up in a storm system and discharged at the toe of slope near the bridge and onto a rip rap dissipater pad.

CC: L. Williams ✓ CM 01  
7-31  
Barnes



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Raleigh Field Office  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

July 30, 2009

Gregory J. Thorpe, Ph.D.  
North Carolina Department of Transportation  
Project Development and Environmental Analysis  
1598 Mail Service Center  
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

This letter is in response to your letter of July 23, 2009 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 44 on NC 904 over Juniper Swamp in Columbus County (TIP No. B-4471) may affect, but is not likely to adversely affect the federally endangered wood stork (*Mycteria americana*). In addition, NCDOT has determined that the project will have no effect on the federally listed red-cockaded woodpecker (*Picoides borealis*), Waccamaw silverside (*Menidia extensa*), Cooley's meadowrue (*Thalictrum cooleyi*) and rough-leaved loosestrife (*Lysimachia asperulaefolia*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information provided, a survey was conducted within suitable habitat at the project site on July 21, 2009, and no wood storks were observed. Based on the survey results and other available information, the Service concurs with your determination that the project may affect, but is not likely to adversely affect the wood stork. Also, due to lack of habitat, the Service concurs with your determination that the project will have no effect on the red-cockaded woodpecker, Waccamaw silverside, Cooley's meadowrue and rough-leaved loosestrife. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,  
*Gary Jordan*  
for Pete Benjamin  
Field Supervisor

cc: Kim Garvey, USACE, Wilmington, NC  
Travis Wilson, NCWRC, Creedmoor, NC  
Chris Militscher, USEPA, Raleigh, NC  
John Sullivan, FHWA, Raleigh, NC  
David Harris, NCDOT, Raleigh, NC



November 1, 2011

Mr. Gregory J. Thorpe, Ph.D.  
Manager, Project Development and Environmental Analysis Branch  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4471, Replace Bridge Number 44 over Juniper Swamp on NC 904, Columbus County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riparian wetland mitigation for the subject project. Based on the information supplied by you on October 31, 2011, the impacts are located in CU 03040206 of the Lumber River basin in the Southern Inner Coastal Plain (SICP) Eco-Region, and are as follows:

Lumber 03040206 SICP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	0	0.89	0	0	0	0

EEP commits to implementing sufficient compensatory riparian wetland mitigation credits to offset the impacts associated with this project in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

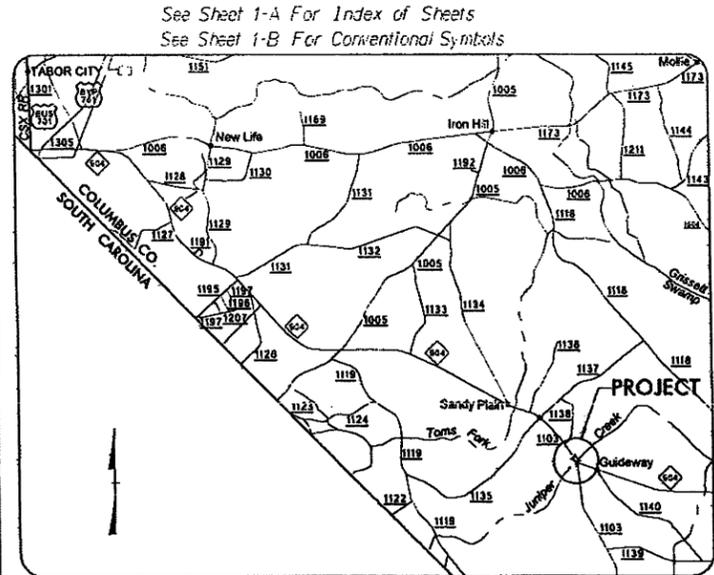
Michael Ellison  
EEP Deputy Director

cc: Mr. Ronnie Smith, USACE – Wilmington Regulatory Field Office  
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit  
File: B-4471

*Restoring... Enhancing... Protecting Our State*



**TIP PROJECT: B-4471**



VICINITY MAP

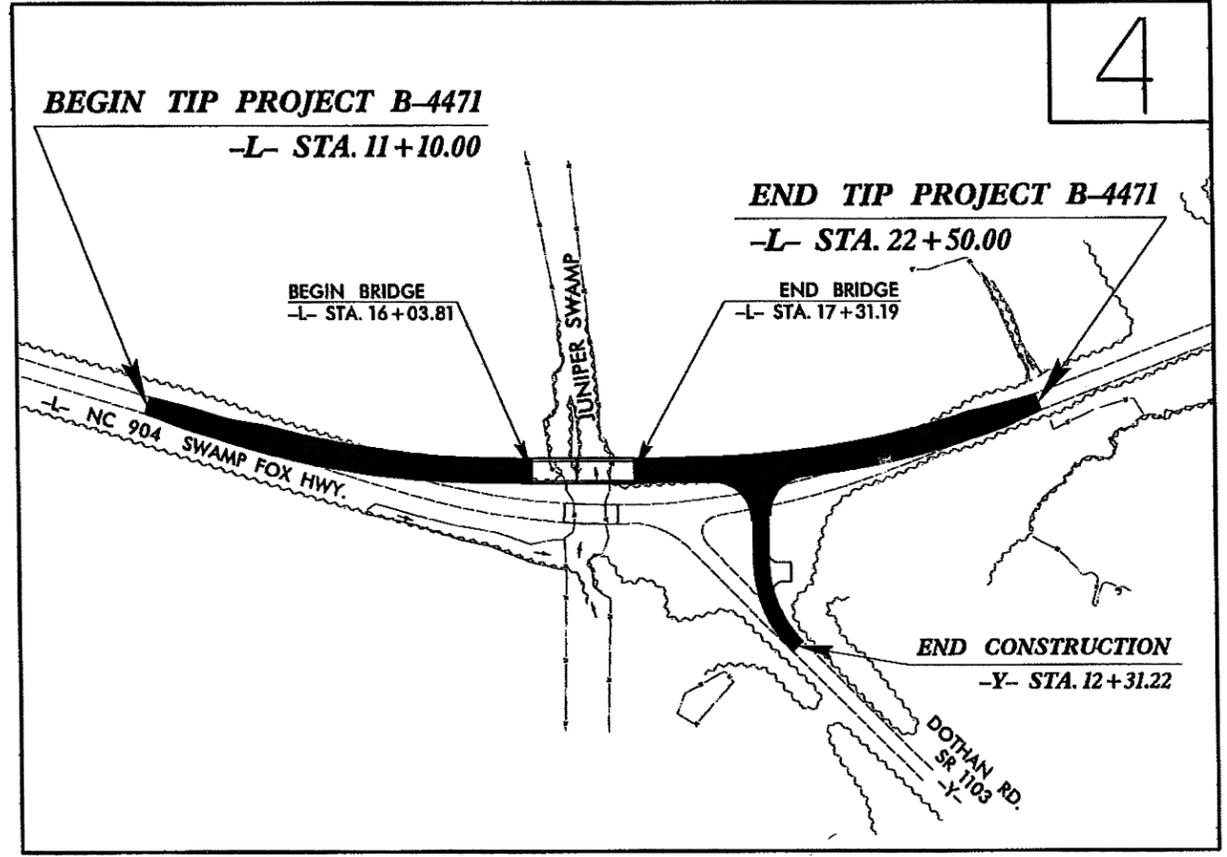
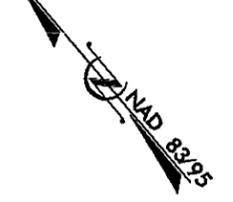
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**COLUMBUS COUNTY**

LOCATION: BRIDGE NO. 44 OVER JUNIPER SWAMP ON NC 904  
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

**WETLAND AND STREAM IMPACTS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4471	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33720.1.1	BRSTP-0904(4)	PE	
33720.2.1	BRSTP-0904(4)	RW & UTILITY	

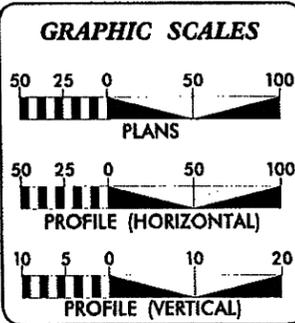
Permit Drawing Sheet 1 of 9



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

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

**CONTRACT:**



**DESIGN DATA**

ADT 2012 = 2700
ADT 2032 = 4256
DHV = 14 %
D = 65 %
T = 5 %
**V = 60 MPH
* TTST 2% DUAL 3%
FUNC. CLASS = RURAL COLLECTOR
REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4471	= 0.192 MILES
LENGTH STRUCTURE TIP PROJECT B-4471	= 0.024 MILES
TOTAL LENGTH TIP PROJECT B-4471	= 0.216 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 15, 2011

LETTING DATE: JULY 17, 2012

GARY LOVERING, PE  
PROJECT ENGINEER

RICK DECOLA, PE  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN ENGINEER

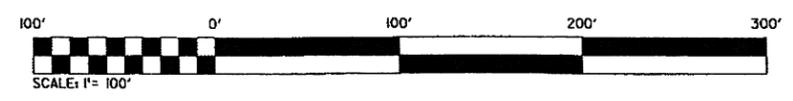
SIGNATURE: \_\_\_\_\_ P.E.

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER



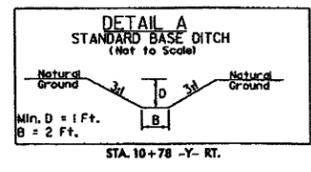
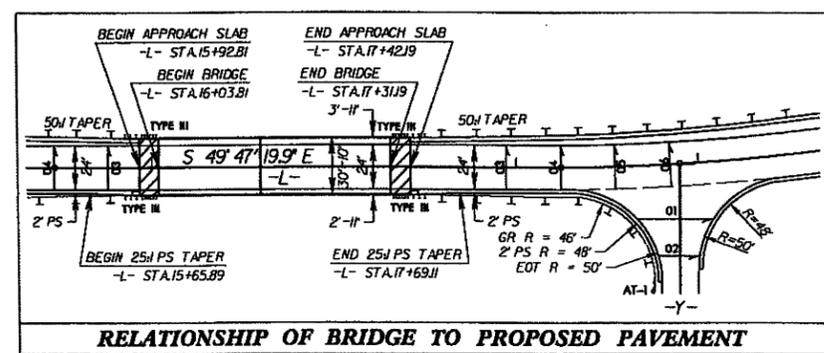
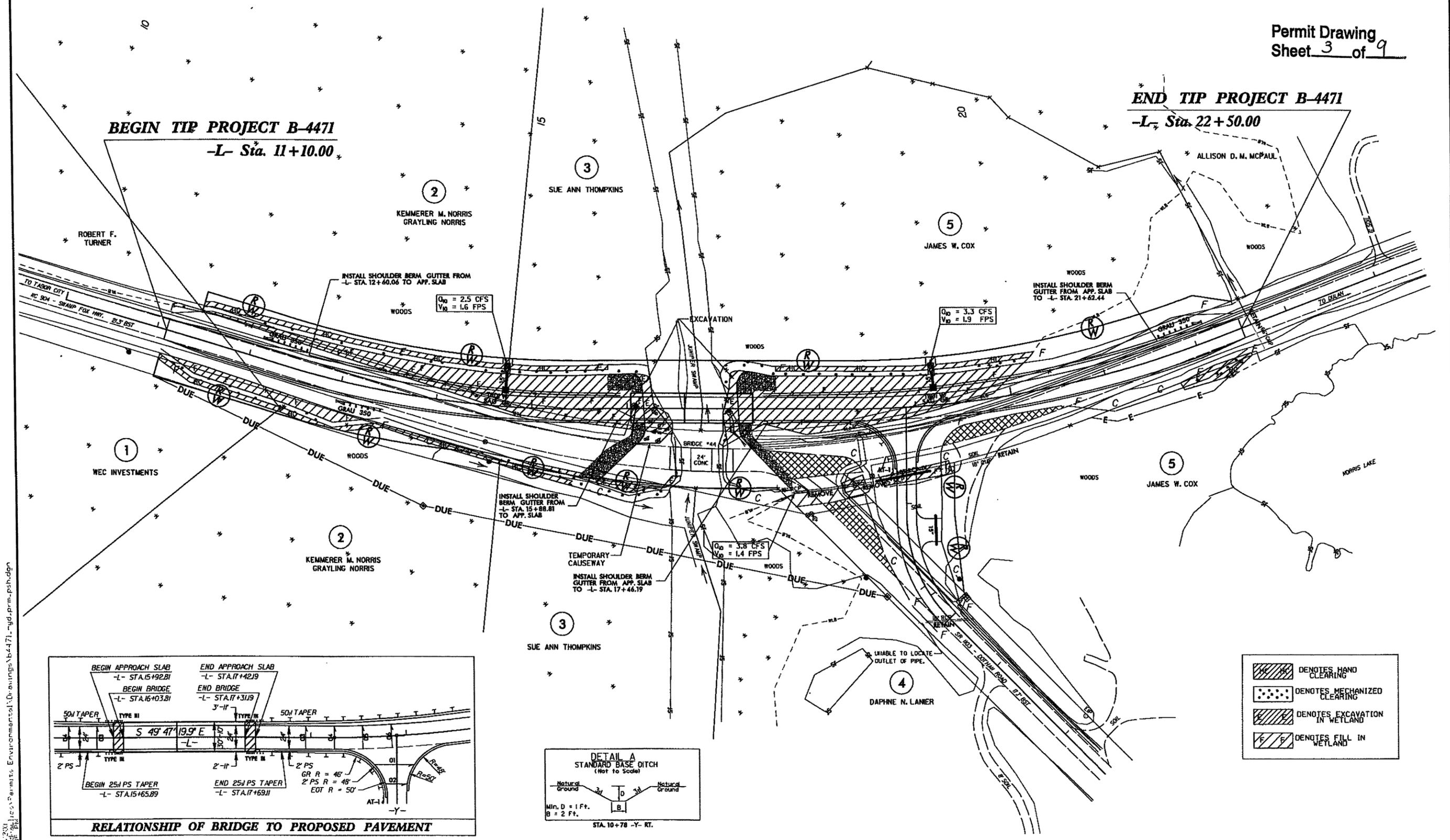
PROJECT REFERENCE NO. B-4471	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Permit Drawing  
Sheet 3 of 9

**BEGIN TIP PROJECT B-4471**  
-L- Sta. 11+10.00

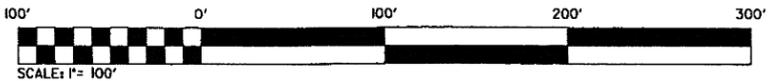
**END TIP PROJECT B-4471**  
-L- Sta. 22+50.00



	DENOTES HAND CLEARING
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES FILL IN WETLAND

2011/05/20 10:20:11 Environmental Drawings\p4471\tyd.prm.psh.dgn  
 2011/05/20 10:20:11 Environmental Drawings\p4471\tyd.prm.psh.dgn  
 2011/05/20 10:20:11 Environmental Drawings\p4471\tyd.prm.psh.dgn

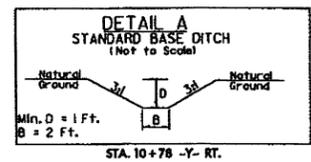
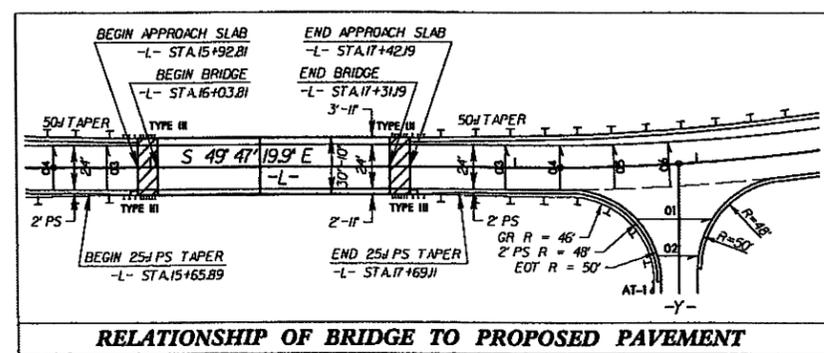
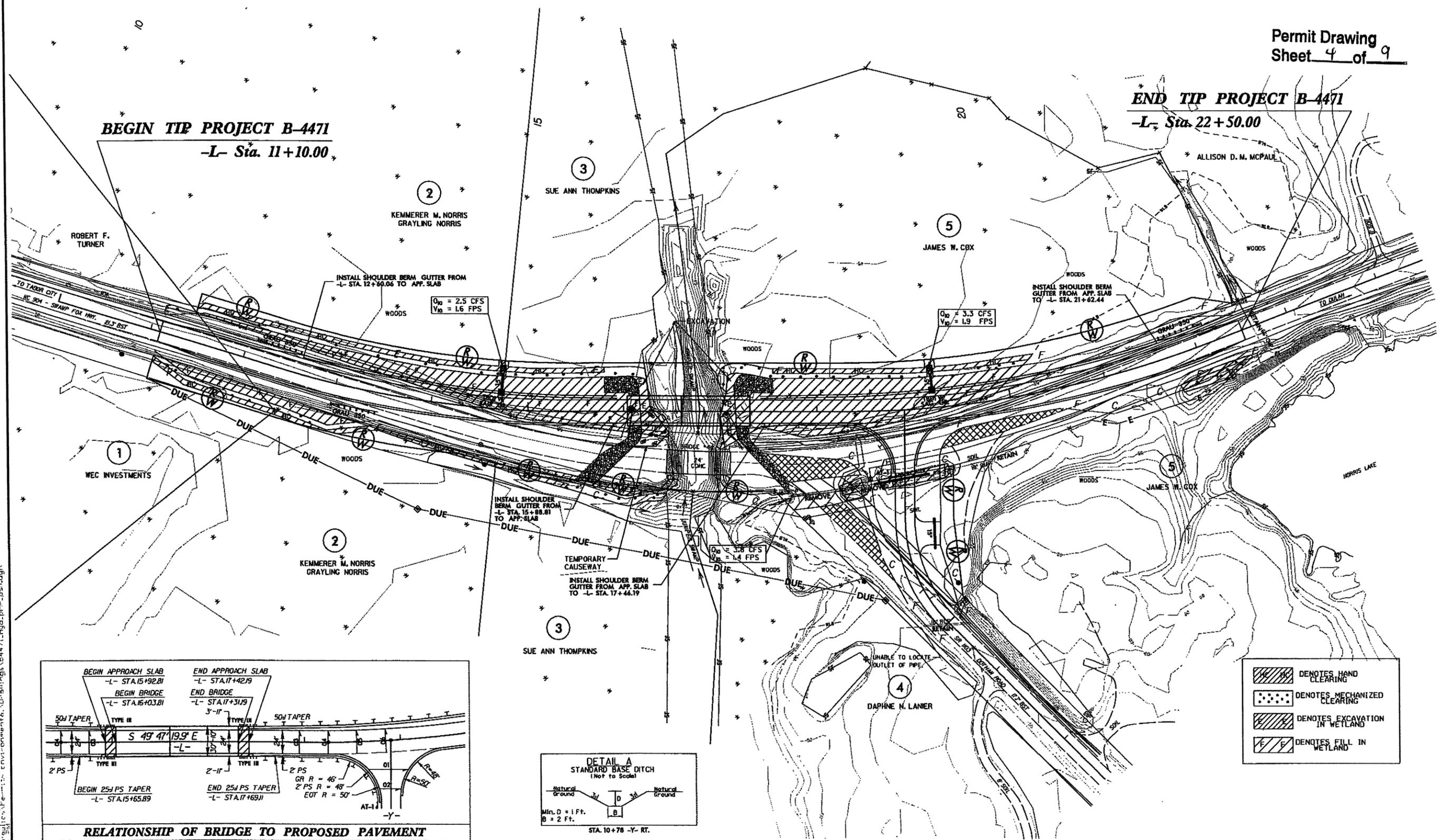
PROJECT REFERENCE NO. B-4471	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Permit Drawing  
Sheet 4 of 9

**END TIP PROJECT B-4471**  
-L- Sta. 22+50.00

**BEGIN TIP PROJECT B-4471**  
-L- Sta. 11+10.00

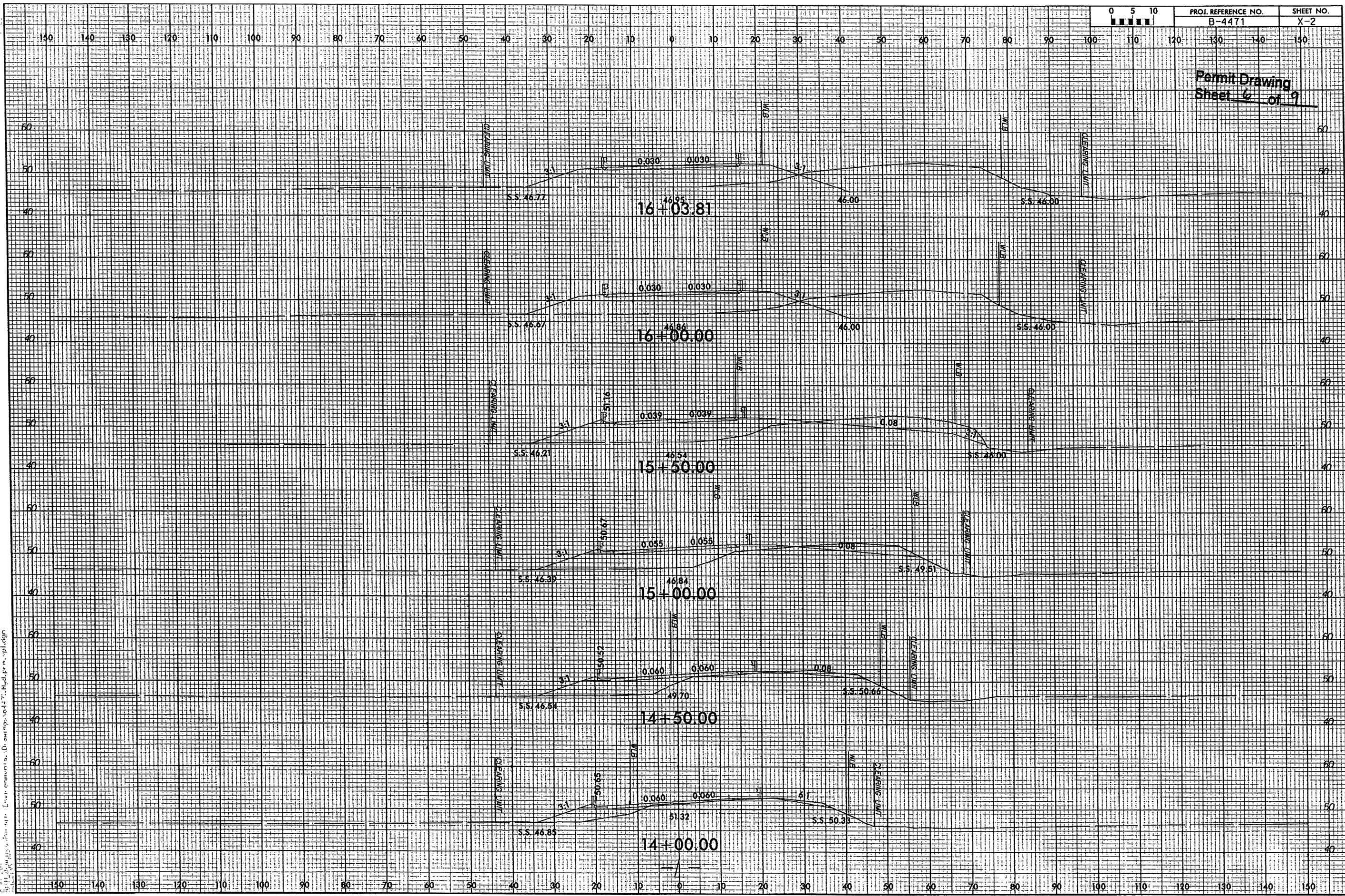


- DENOTES HAND CLEARING
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND

15/25/2011  
 Environmental Drawings\4471\Hwy.prm-psn.dgn  
 3.17.08



Permit Drawing  
Sheet 6 of 9



1. All work to be done in accordance with the specifications for Highway Construction, 1977 Edition, published by the Department of Transportation, State of California.



**PROPERTY OWNERS**  
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	WEC INVESTMENTS	P.O. BOX 457 TABOR CITY, NC 28463
2	* MARILYN NORRIS KEMMERER & GRAYLING NORRIS	5449 OLD PROVIDENCE RD. VIRGINIA BEACH, VA 23464
3	SUE ANN THOMPkins	3441 MILLER RD. TABOR CITY, NC 28463
4	DAPHINE N. LANIER	112 DOTHAN RD. TABOR CITY, NC 28463
5	JAMES W. COX	49 DOTHAN RD. TABOR CITY, NC 28463

\* PER LATEST GIS LISTINGS & COUNTY DEEDS

Permit Drawing  
Sheet 8 of 9

**NCDOT**  
DIVISION OF HIGHWAYS  
COLUMBUS COUNTY  
PROJECT: 33720.11 (B-4471)  
REPLACE BRIDGE NO. 44  
OVER JUNIPER SWAMP  
ON NC 904

SHEET                      OF                      8/14/11



SPAN A (+)0.4732% (-)0.6067% SPAN B

PI = 16+55.00 -L-  
EL = 52.30'  
VC = 165'

GRADE DATA -L-

FIX. FIX. FIX. FIX.

Structure  
Permit Drawing  
Sheet of 1

SECTION ALONG C SURVEY -L-

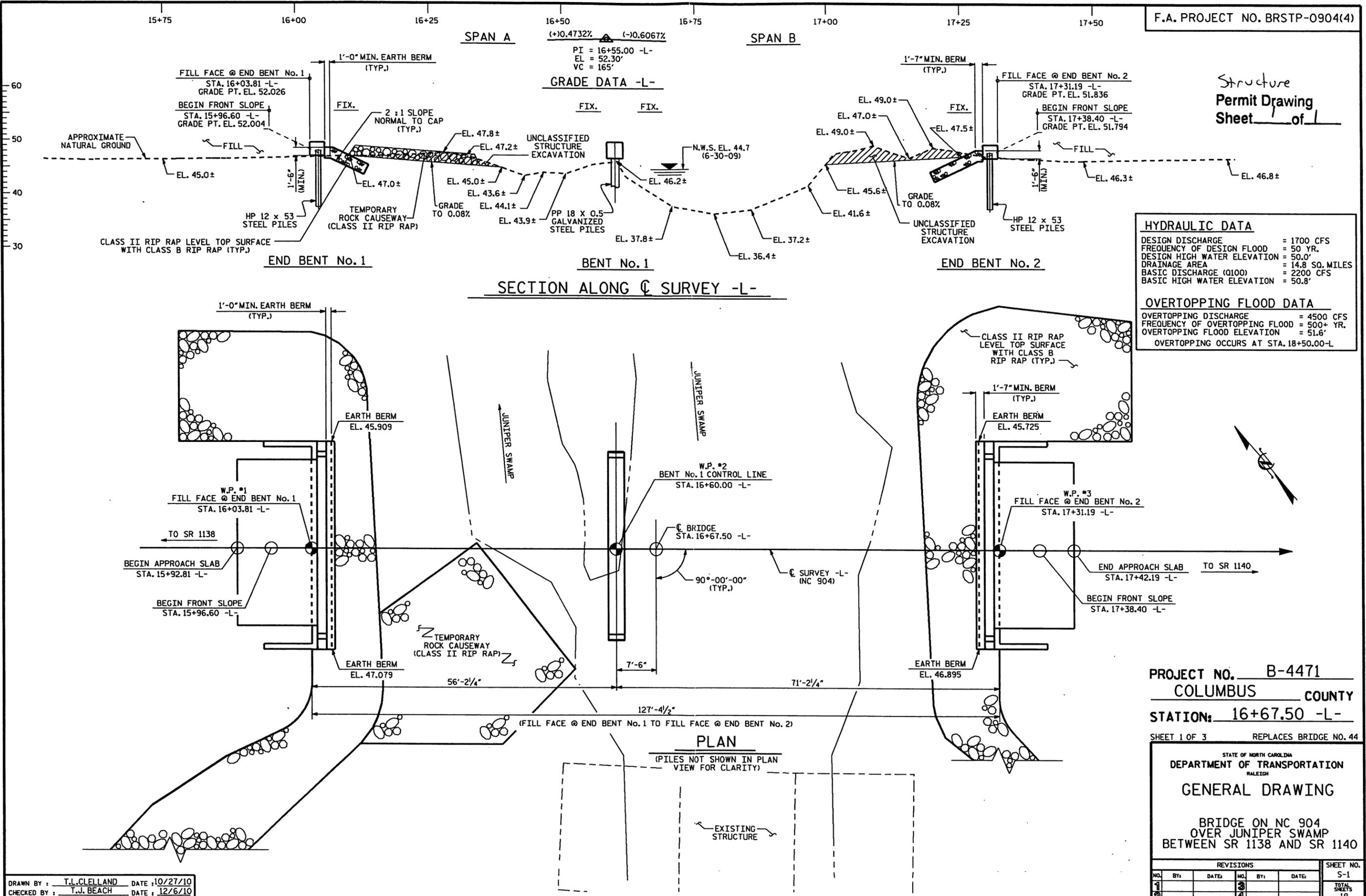
HYDRAULIC DATA	
DESIGN DISCHARGE	= 1700 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YR.
DESIGN HIGH WATER ELEVATION	= 50.0'
DRAINAGE AREA	= 14.8 SQ. MILES
BASIC DISCHARGE (Q100)	= 2200 CFS
BASIC HIGH WATER ELEVATION	= 50.8'

OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 4500 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YR.
OVERTOPPING FLOOD ELEVATION	= 51.8'
OVERTOPPING OCCURS AT STA. 18+50.00-L	

PLAN

(PILES NOT SHOWN IN PLAN  
VIEW FOR CLARITY)



DRAWN BY : T.L.CLELLAND DATE : 10/27/10  
CHECKED BY : T.J.BEACH DATE : 12/6/10

26-JUL-2011 12:05  
R:\Structure\Gen\_drawing\4471.ed.gd  
bcx

PROJECT NO. B-4471  
COLUMBUS COUNTY  
STATION: 16+67.50 -L-  
SHEET 1 OF 3 REPLACES BRIDGE NO. 44

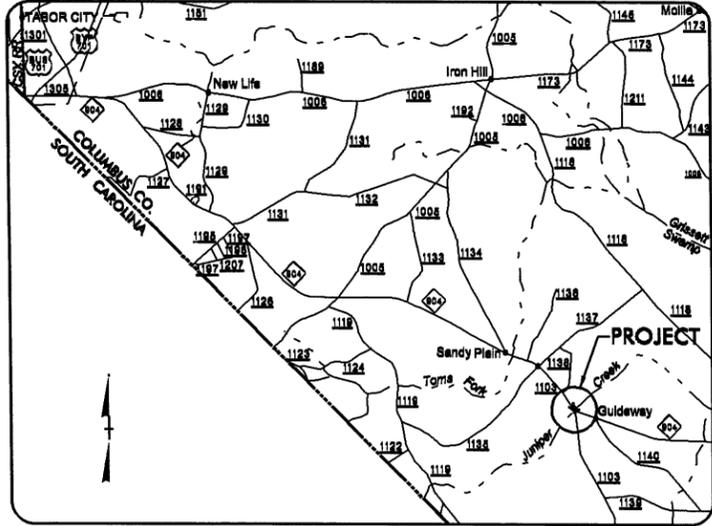
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
BRIDGE ON NC 904  
OVER JUNIPER SWAMP  
BETWEEN SR 1138 AND SR 1140

REVISIONS						SHEET NO. S-1 TOTAL SHEETS 19
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

09/08/99  
 25-AUG-2011 8:48  
 R:\Utilities\RDY\_Ut\Proj\B-4471\UC-t.sh.dgn  
 \$\$\$USERNAME\$\$\$

**TIP PROJECT: B-4471**

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



VICINITY MAP

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

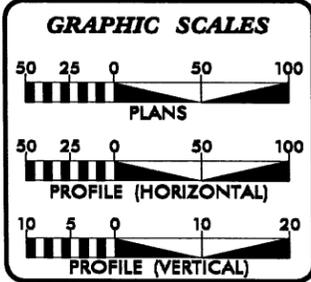
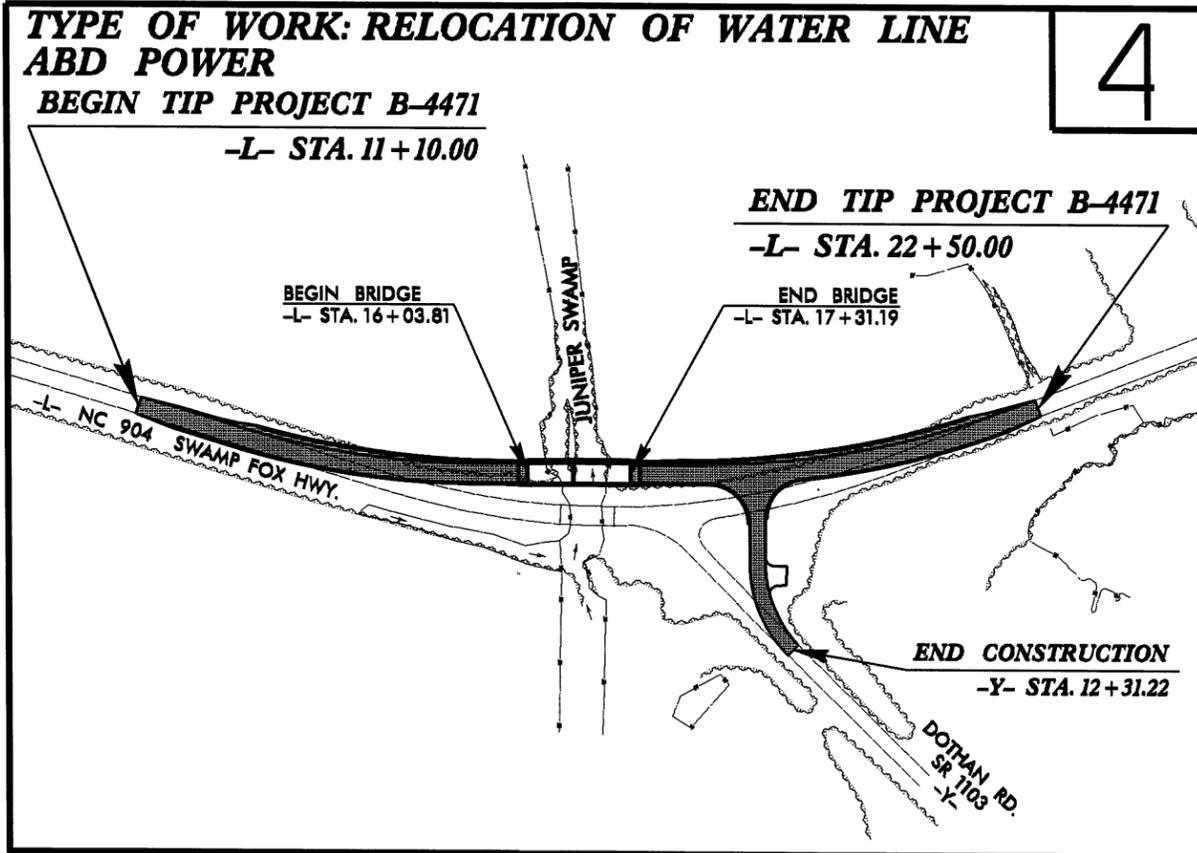
**NEU**  
**UTILITY RELOCATION PLANS**  
**COLUMBUS COUNTY**  
**GRADING, PAVING, DRAINAGE, AND STRUCTURE**

**NEU**  
**UTILITY RELOCATION PLANS**

Utility Permit Drawing  
Sheet 1 of 5



**LOCATION: BRIDGE 44 OVER JUNIPER SWAMP ON NC 904**



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
U-1	TITLE SHEET
U-2	NEU PERMIT PLAN SHEETS
U-3 THRU U-4	PROFILE SHEET(S)

- UTILITY OWNERS ON PROJECT**
- (1) COLUMBUS COUNTY WATER
  - (2) CENTURYLINK
  - (3) BRUNSWICK EMC



PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS**  
**UTILITIES ENGINEERING SECTION**

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

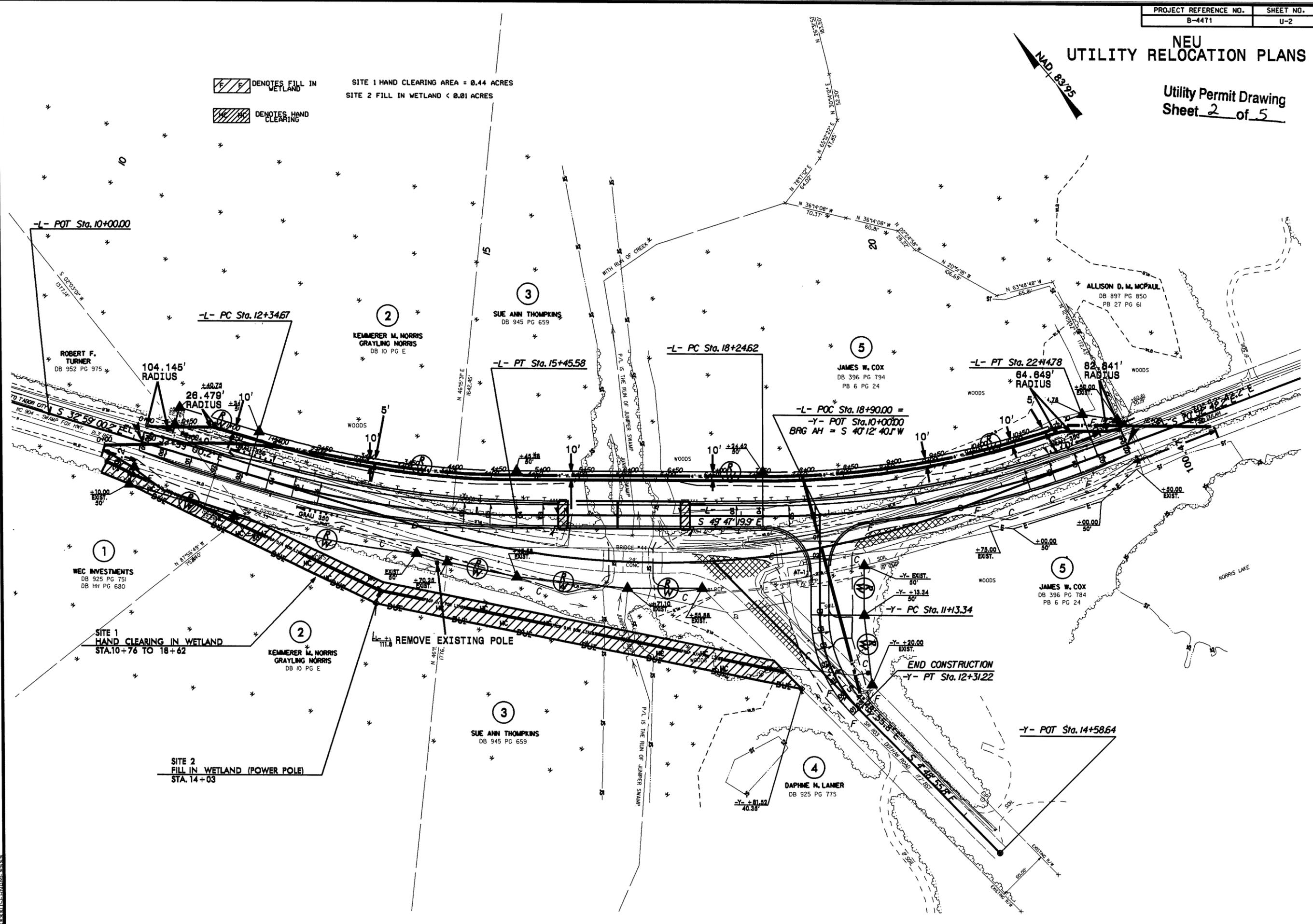
**Roger Worthington, P.E.** UTILITIES SECTION ENGINEER  
**Corey Bousquet, P.E.** UTILITIES SQUAD LEADER PROJECT ENGINEER  
**Kelvin Martin** UTILITIES PROJECT DESIGNER

# NEU UTILITY RELOCATION PLANS

Utility Permit Drawing  
Sheet 2 of 5

 DENOTES FILL IN WETLAND  
 DENOTES HAND CLEARING

SITE 1 HAND CLEARING AREA = 0.44 ACRES  
SITE 2 FILL IN WETLAND < 0.01 ACRES

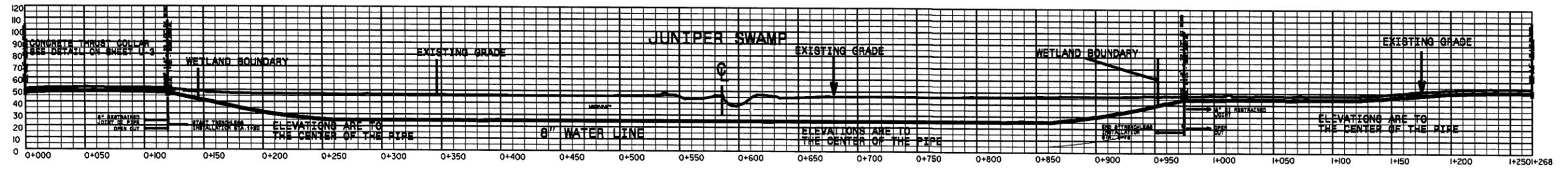


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 311 AUG 2010 08:35 Pr-co\B-4471\_Ut\_U0put.dgn

# NEU UTILITY RELOCATION PLANS

Utility Permit Drawing  
Sheet 3 of 5

## 8" WATER LINE



47.48	48.47	48.54	48.63	48.51	48.26	47.46	43.21	38.96	34.72	31.06	28.22	26.20	24.70	24.60	24.60	24.66	24.67	24.68	24.68	24.59	24.67	24.67	24.68	24.68	24.67	24.68	24.67	24.67	24.65	24.63	24.67	24.67	24.65	24.70	24.67	24.68	24.68	24.67	24.63	24.66	24.63	24.66	24.63	26.44	29.00	32.41	36.57	40.82	43.80	43.80	44.03	44.10	43.97	44.10	44.19	44.27	45.18	46.84	48.31	49.68	50.19	50.44	50.29
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

5/14/99

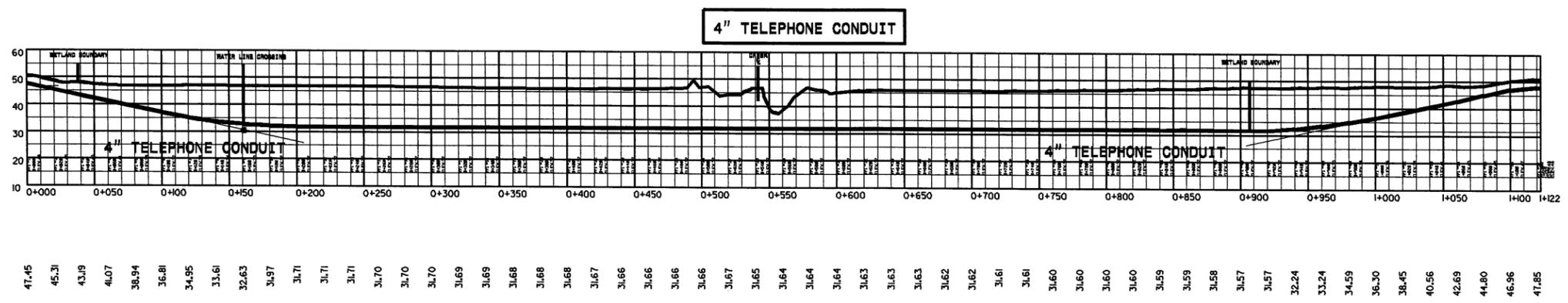
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 11/15/11

5/14/99

PROJECT REFERENCE NO. B-4471	SHEET NO. U-3
---------------------------------	------------------

NEU  
UTILITY RELOCATION PLANS

Utility Permit Drawing  
Sheet 4 of 5



R:\11-25-AUG-2011 8:32 P.M. \B-4471-U-3.dwg  
 11/25/11 8:32 PM  
 11/25/11 8:32 PM



## **B-4471 - UTILITY PERMIT NARRATIVE**

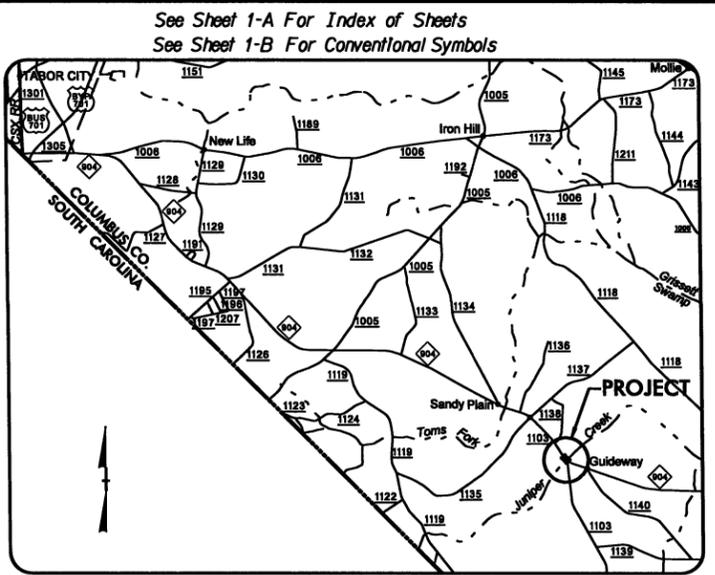
**Columbus County Water:** 8" water line will be replaced via open trench method outside of jurisdictional boundaries and will be relocated to the north. Water line will be directionally bored (trenchless method) under jurisdictional features from -L-Sta. 10+71 to 20+60 with equipment staged outside of wetland boundaries. No impacts to jurisdictional features due to water line relocation are proposed.

**CenturyLink Telephone:** 4" telephone line will be replaced via directional bore (trenchless method) under jurisdictional features from -L-Sta. 11+09 to 22+50 with equipment staged outside of wetland boundaries. Telephone line will be relocated to the north. No impacts to jurisdictional features due to telephone line relocation are proposed.

**Brunswick EMC:** Overhead power line and one (1) pole will be relocated to south, further from the bridge. One pole will be replaced requiring <0.01 acre of permanent fill in wetland. Aerial line will require 0.44 acre of hand clearing (approx. 25" width maximally) within wetland boundary from -L-Sta. 10+78 to 18+44.

09/08/99

**TIP PROJECT: B-4471**

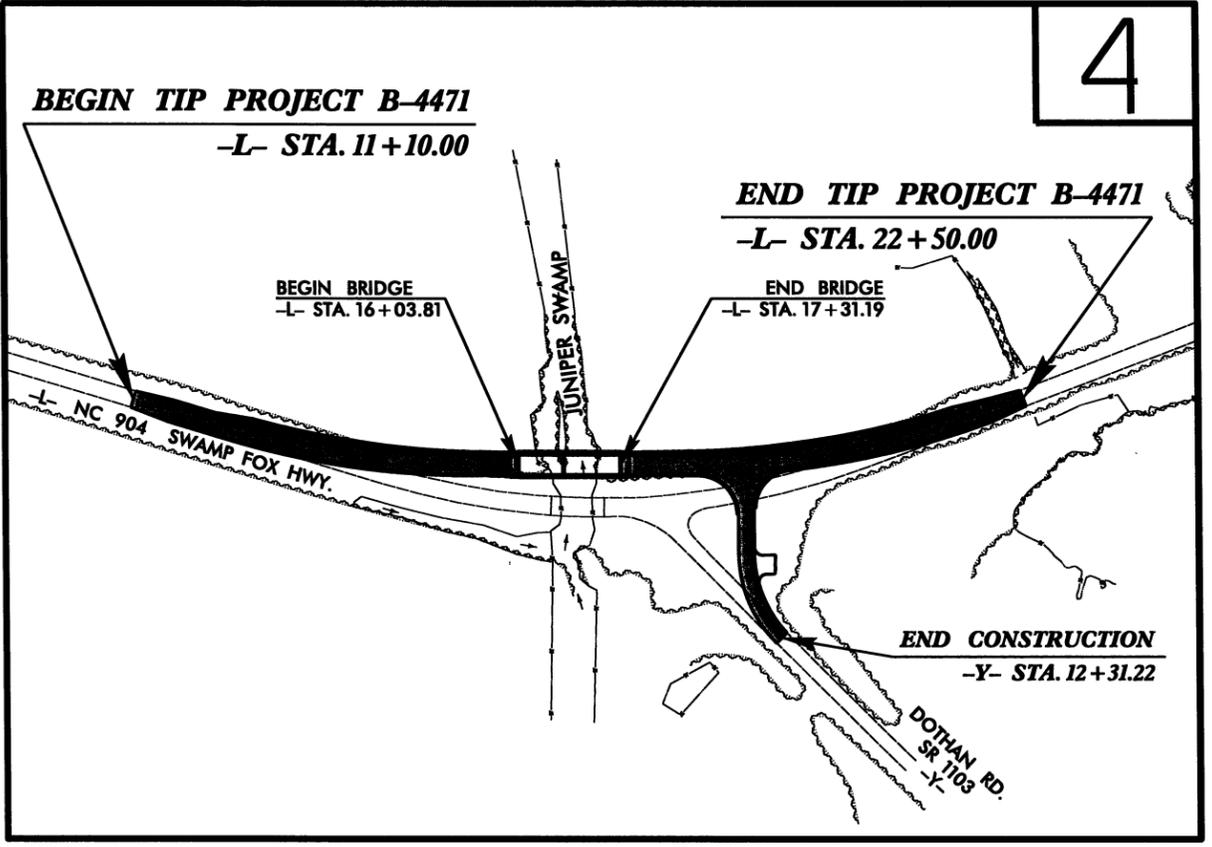


VICINITY MAP

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**COLUMBUS COUNTY**

**LOCATION: BRIDGE NO. 44 OVER JUNIPER SWAMP ON NC 904**  
**TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE**

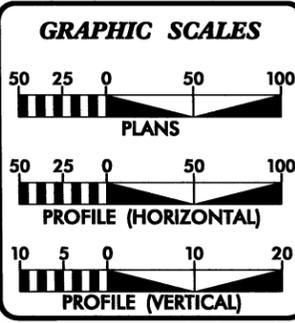
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4471	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33720.1.1	BRSTP-0904(4)	PE	
33720.2.1	BRSTP-0904(4)	RW & UTILITY	



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

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**CONTRACT:**



**DESIGN DATA**

ADT 2012 = 2700
ADT 2032 = 4256
DHV = 14 %
D = 65 %
T = 5 % *
**V = 60 MPH
* TTST 2% DUAL 3%
FUNC. CLASS = RURAL COLLECTOR
REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4471	= 0.192 MILES
LENGTH STRUCTURE TIP PROJECT B-4471	= 0.024 MILES
TOTAL LENGTH TIP PROJECT B-4471	= 0.216 MILES

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

2006 STANDARD SPECIFICATIONS

<b>RIGHT OF WAY DATE:</b> JULY 15, 2011	<b>GARY LOVERING, PE</b> PROJECT ENGINEER
<b>LETTING DATE:</b> JULY 17, 2012	<b>RICK DECOLA, PE</b> PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

P.E.  
STATE HIGHWAY DESIGN ENGINEER

15-JUL-2011 4:06  
R:\Roadway\Proj\01\B4471\rdy\_tsh.dgn  
\$\$\$\$\$USERNAME\$\$\$\$

01/29/11

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	-o-o-o-
Proposed Chain Link Fence	-□-□-□-
Proposed Barbed Wire Fence	-◇-◇-◇-
Existing Wetland Boundary	-w-w-w-
Proposed Wetland Boundary	-w-w-w-
Existing Endangered Animal Boundary	-e-a-e-
Existing Endangered Plant Boundary	-e-p-e-

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or UG 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	△
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	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Wheel Chair 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	-----
UG Power Cable Hand Hole	-----
H-Frame Pole	-----
Recorded UG Power Line	-----
Designated UG Power Line (S.U.E.*)	-----

### TELEPHONE:

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

### WATER:

Water Manhole	-----
Water Meter	-----
Water Valve	-----
Water Hydrant	-----
Recorded UG Water Line	-----
Designated UG Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

### TV:

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

### GAS:

Gas Valve	-----
Gas Meter	-----
Recorded UG Gas Line	-----
Designated UG Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

### SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
UG Sanitary Sewer Line	-----
Above Ground 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 UG Line	-----
UG Tank; Water, Gas, Oil	-----
A/G Tank; Water, Gas, Oil	-----
UG Test Hole (S.U.E.*)	-----
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

6/2/99

# SURVEY CONTROL SHEET B-4471

PROJECT REFERENCE NO.	SHEET NO.
B-4471	I-C
Location and Surveys	



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
B44712	B4471-2	122669.8165	2069785.1583	53.81	OUTSIDE PROJECT LIMITS	
BL5	B4471 BL-5	122151.9916	2070129.9785	51.87	10+68.34	15.18 RT
BL6	B4471 BL-6	121549.4505	2070565.2237	52.39	17+96.91	100.23 RT
BL7	B4471 BL-7	121388.4968	2071020.2202	52.97	22+54.07	15.58 RT
BL8	B4471 BL-8	121247.4266	2071427.9699	59.84	OUTSIDE PROJECT LIMITS	

BY POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
BY6	B4471 BL-6	121549.4505	2070565.2237	52.39	10+90.14	60.86 RT
BY9	B4471 BY-9	121150.6872	2070601.0620	56.34	14+63.08	11.69 RT

.....  
 BM6 ELEVATION = 51.85  
 N 121463 E 2070528  
 Y STATION 11+62.00 67 RIGHT  
 R/R SPIKE IN 24" POPLAR  
 .....

NCDOT GPS STATION (B4471-0)  
 LOCALIZED PROJECT COORDINATES  
 N=2369.600  
 E=2069373.3842  
 ELEV=64.1'

NCDOT GPS STATION (B4471-2)  
 LOCALIZED PROJECT COORDINATES  
 N=22669.085  
 E=2069785.1583  
 ELEV=53.0'

BEGIN TIP PROJECT B-4471  
 STA. 11+10.00 -L-

END TIP PROJECT B-4471  
 STA. 22+50.00 -L-

NCDOT BASELINE STATION (B4471 BL-8)  
 LOCALIZED PROJECT COORDINATES  
 N=22471.4266  
 E=2071427.9699  
 ELEV=59.84'

NCDOT BASELINE STATION (B4471 BL-5)  
 LOCALIZED PROJECT COORDINATES  
 N=2254.996  
 E=207029.9705  
 ELEV=51.07'

NCDOT BASELINE STATION (B4471 BL-6)  
 LOCALIZED PROJECT COORDINATES  
 N=2249.4505  
 E=2070565.2237  
 ELEV=52.39'

NCDOT BASELINE STATION (B4471 BL-7)  
 LOCALIZED PROJECT COORDINATES  
 N=2308.4968  
 E=2071020.2202  
 ELEV=52.97'

NCDOT BASELINE STATION (B4471 BY-9)  
 LOCALIZED PROJECT COORDINATES  
 N=2250.6872  
 E=2070601.0620  
 ELEV=56.34'

BM#6

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GUIDE RMS"  
 WITH NAD 83/95 STATE PLANE GRID COORDINATES OF  
 NORTHING: 114971.0102(ft) EASTING: 2090733.1971(ft)  
 ELEVATION: 60.56(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000724  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GUIDE RMS" TO -L- STATION 11+10.00 IS  
 N 70°49'13.71" W 21776.6230'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

### NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B4471\_LS\_CONTROL\_080828.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.

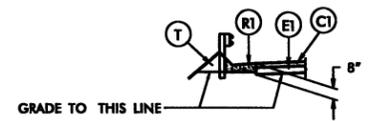
NOTE: DRAWING NOT TO SCALE

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 B4471-1a-1c.dgn

6/2/09

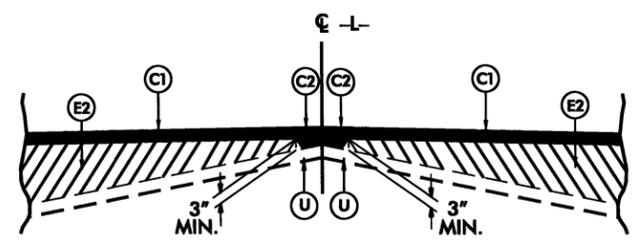
PAVEMENT SCHEDULE FINAL DESIGN	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 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 5 1/2" IN DEPTH.
R1	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

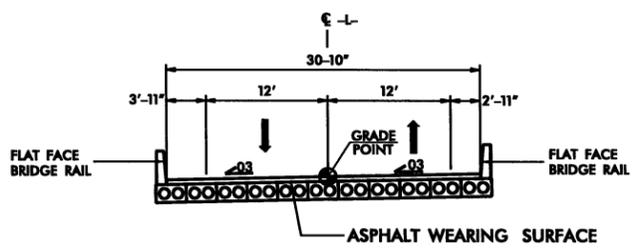


**DETAIL SHOWING SHOULDER BERM GUTTER ON TOP OF SUBGRADE**

-L- STA. 12+60.06 TO -L- STA. 15+92.81 (BEGIN APPROACH SLAB) LT.  
 -L- STA. 17+42.19 (END APPROACH SLAB) TO -L- STA. 21+62.44 LT.  
 -L- STA. 15+88.81 TO -L- STA. 15+92.81 (BEGIN APPROACH SLAB) RT.  
 -L- STA. 17+42.19 (END APPROACH SLAB) TO -L- STA. 17+46.19 RT.

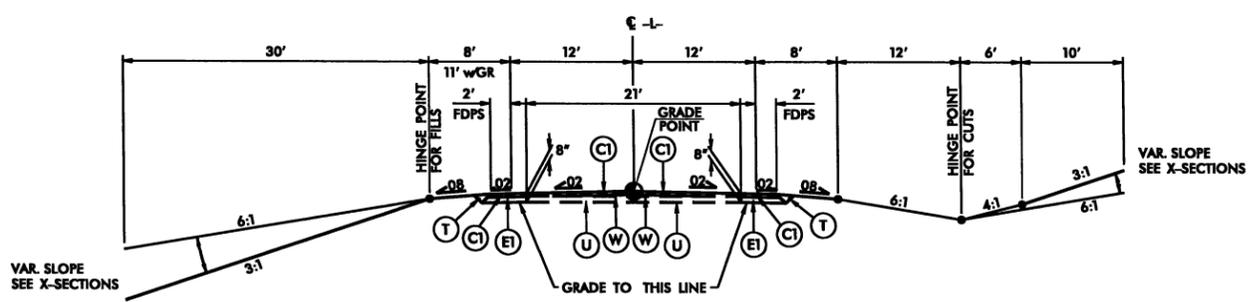


**WEDGING DETAIL**



**TYPICAL SECTION ON STRUCTURE**

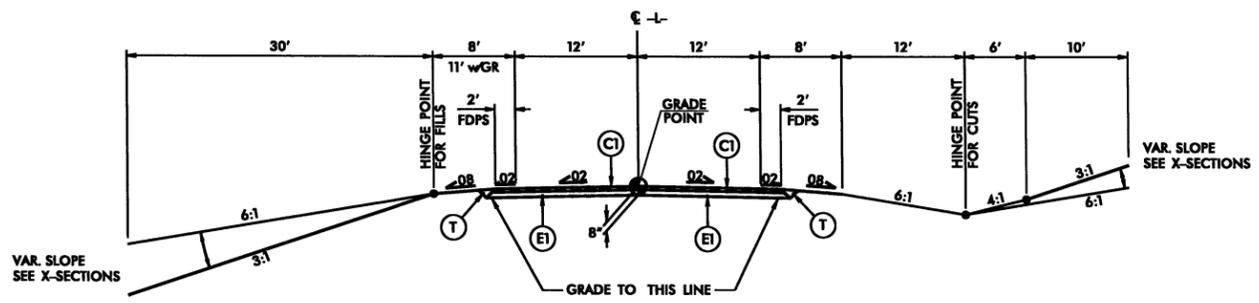
-L- STA. 16+03.81 (BEGIN BRIDGE)  
 TO -L- STA. 17+31.19 (END BRIDGE)



**TYPICAL SECTION NO. 1**

**USE TYPICAL SECTION NO. 1**

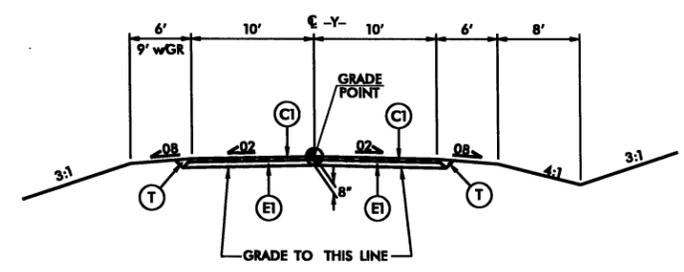
-L- STA. 11+10.00 TO -L- STA. 14+69.00  
 -L- STA. 19+71.00 TO -L- STA. 22+50.00



**TYPICAL SECTION NO. 2**

**USE TYPICAL SECTION NO. 2**

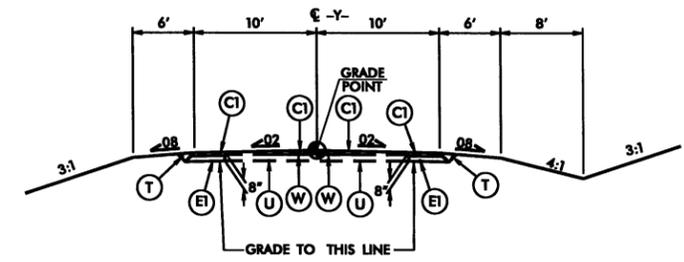
-L- STA. 14+69.00 TO -L- STA. 16+03.81 (BEGIN BRIDGE)  
 -L- STA. 17+31.19 (END BRIDGE) TO -L- STA. 19+71.00



**TYPICAL SECTION NO. 3**

**USE TYPICAL SECTION NO. 3**

-Y- STA. 10+12.02 TO -Y- STA. 11+75.00



**TYPICAL SECTION NO. 4**

**USE TYPICAL SECTION NO. 4**

-Y- STA. 11+75.00 TO -Y- STA. 12+31.22

PROJECT REFERENCE NO.	SHEET NO.
B-4471	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

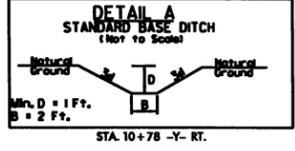
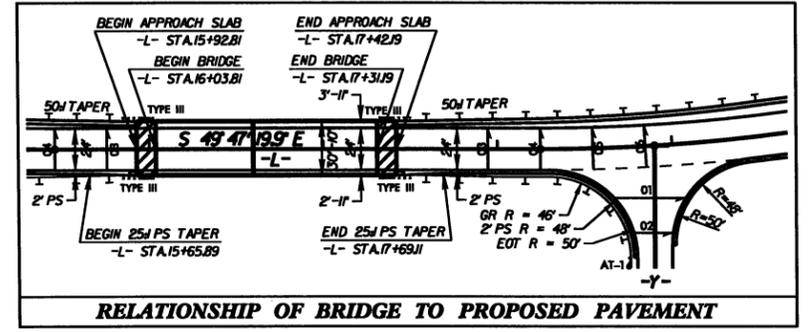
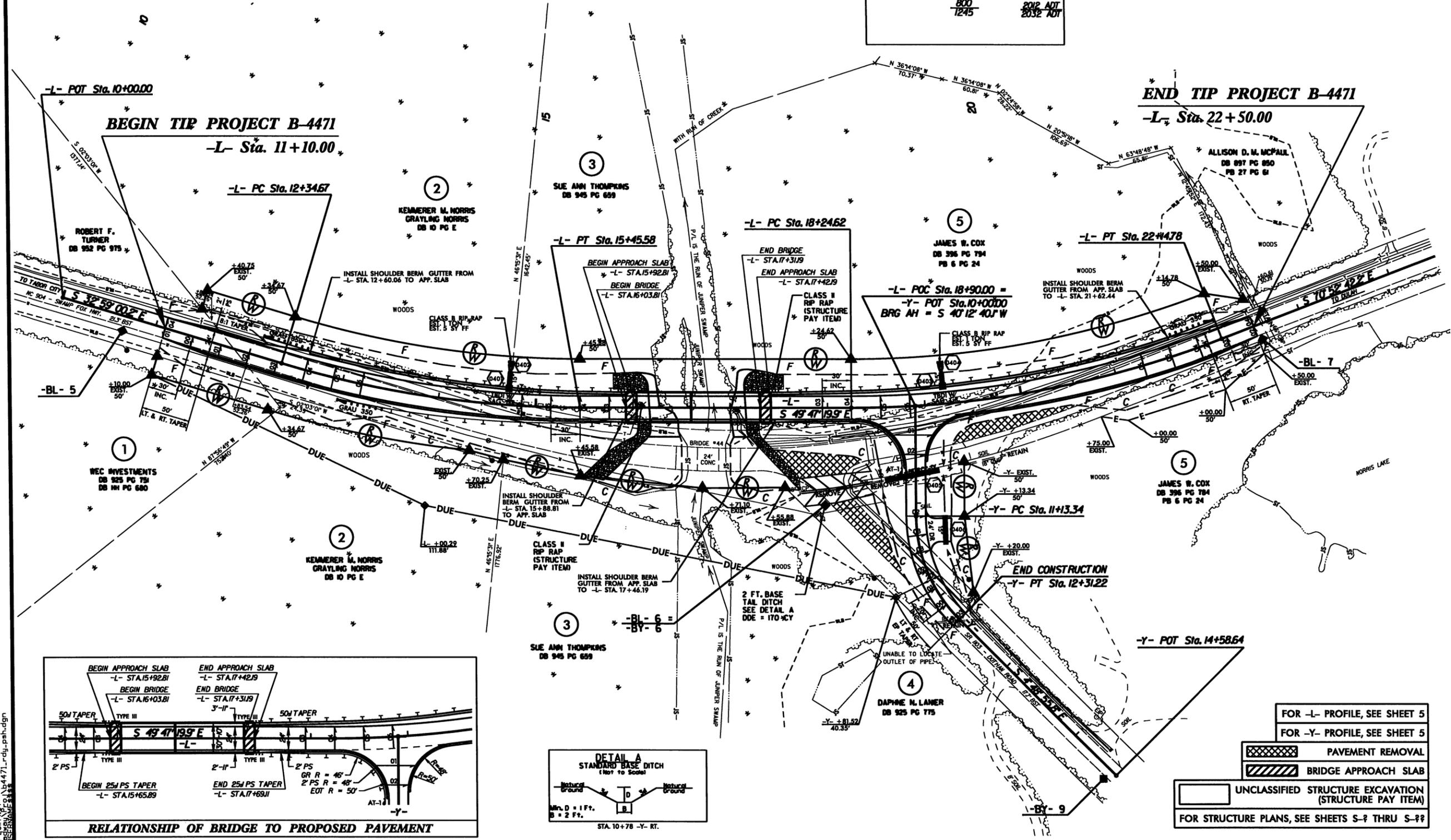
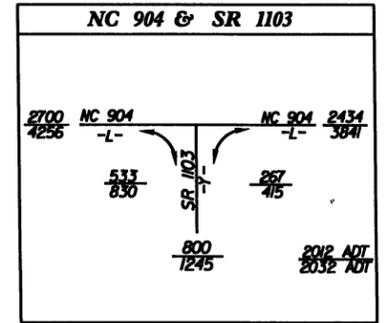
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 \*\*\*REVISIONS\*\*\*



8/17/99

PROJECT REFERENCE NO. <b>B-4471</b>	SHEET NO. <b>4</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

-L- CURVE DATA		-Y- CURVE DATA
PI Sta 13+91.25	PI Sta 20+21.93	PI Sta 11+75.51
Δ = 16° 48' 19.7" (LT)	Δ = 27° 05' 22.3" (LT)	Δ = 45° 01' 35.9" (LT)
D = 5' 24' 18.9"	D = 5' 24' 18.9"	D = 38' 11' 49.9"
L = 310.91'	L = 390.17'	L = 117.88'
T = 156.58'	T = 197.32'	T = 62.17'
R = 1060.00'	R = 1060.00'	R = 150.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

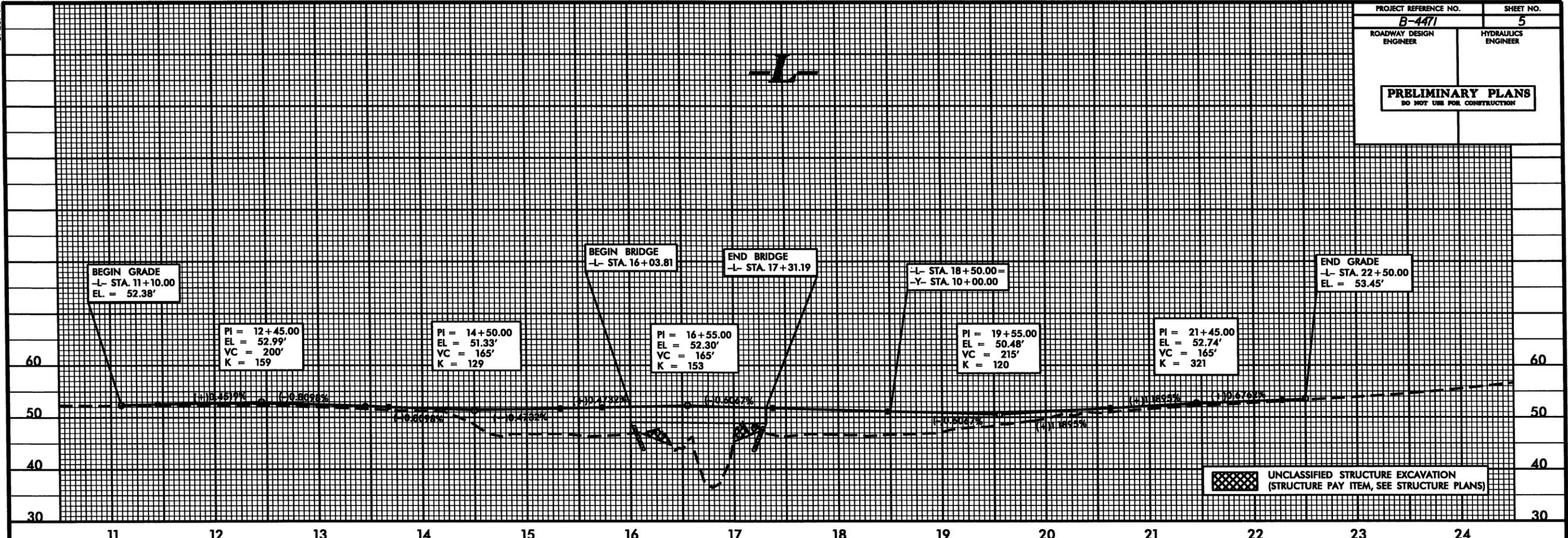


FOR -L- PROFILE, SEE SHEET 5
FOR -Y- PROFILE, SEE SHEET 5
PAVEMENT REMOVAL
BRIDGE APPROACH SLAB
UNCLASSIFIED STRUCTURE EXCAVATION (STRUCTURE PAY ITEM)
FOR STRUCTURE PLANS, SEE SHEETS S-? THRU S-??

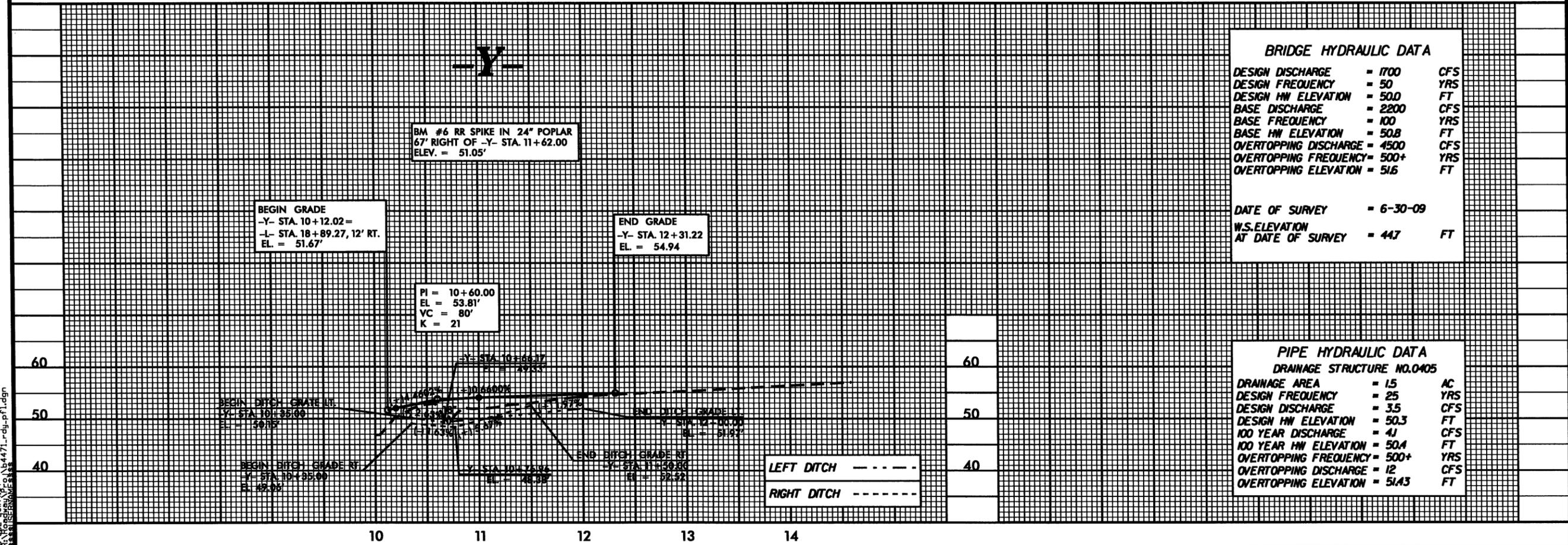
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5/28/95

PROJECT REFERENCE NO. <b>B-4471</b>	SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



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



**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 1700	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 50.0	FT
BASE DISCHARGE	= 2200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 50.8	FT
OVERTOPPING DISCHARGE	= 4500	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 51.6	FT
DATE OF SURVEY	= 6-30-09	
W.S. ELEVATION AT DATE OF SURVEY	= 44.7	FT

**PIPE HYDRAULIC DATA**  
DRAINAGE STRUCTURE NO. 0405

DRAINAGE AREA	= 15	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 3.5	CFS
DESIGN HW ELEVATION	= 50.3	FT
100 YEAR DISCHARGE	= 4J	CFS
100 YEAR HW ELEVATION	= 50.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 12	CFS
OVERTOPPING ELEVATION	= 51.43	FT

LEFT DITCH - - - - -  
RIGHT DITCH - - - - -

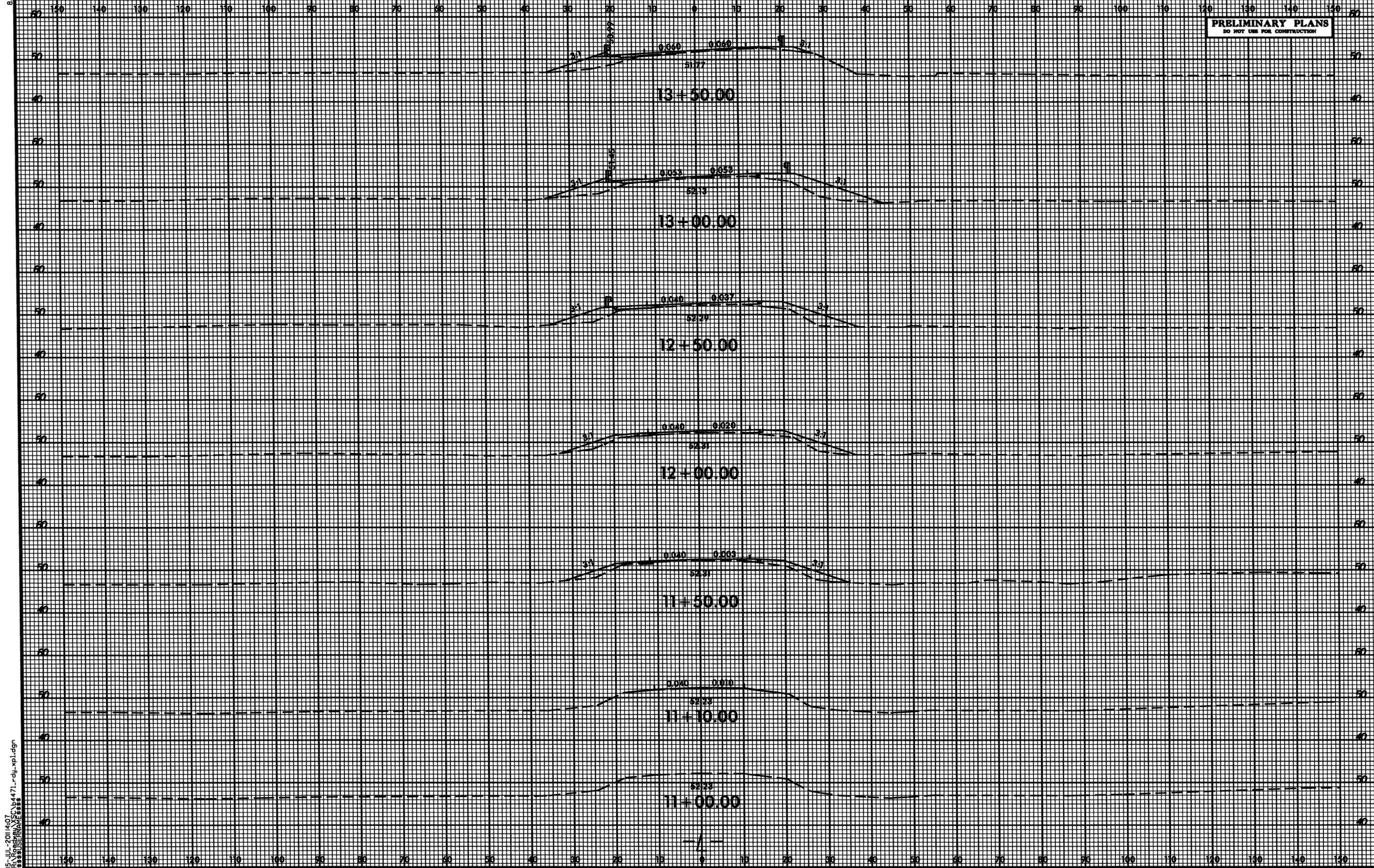
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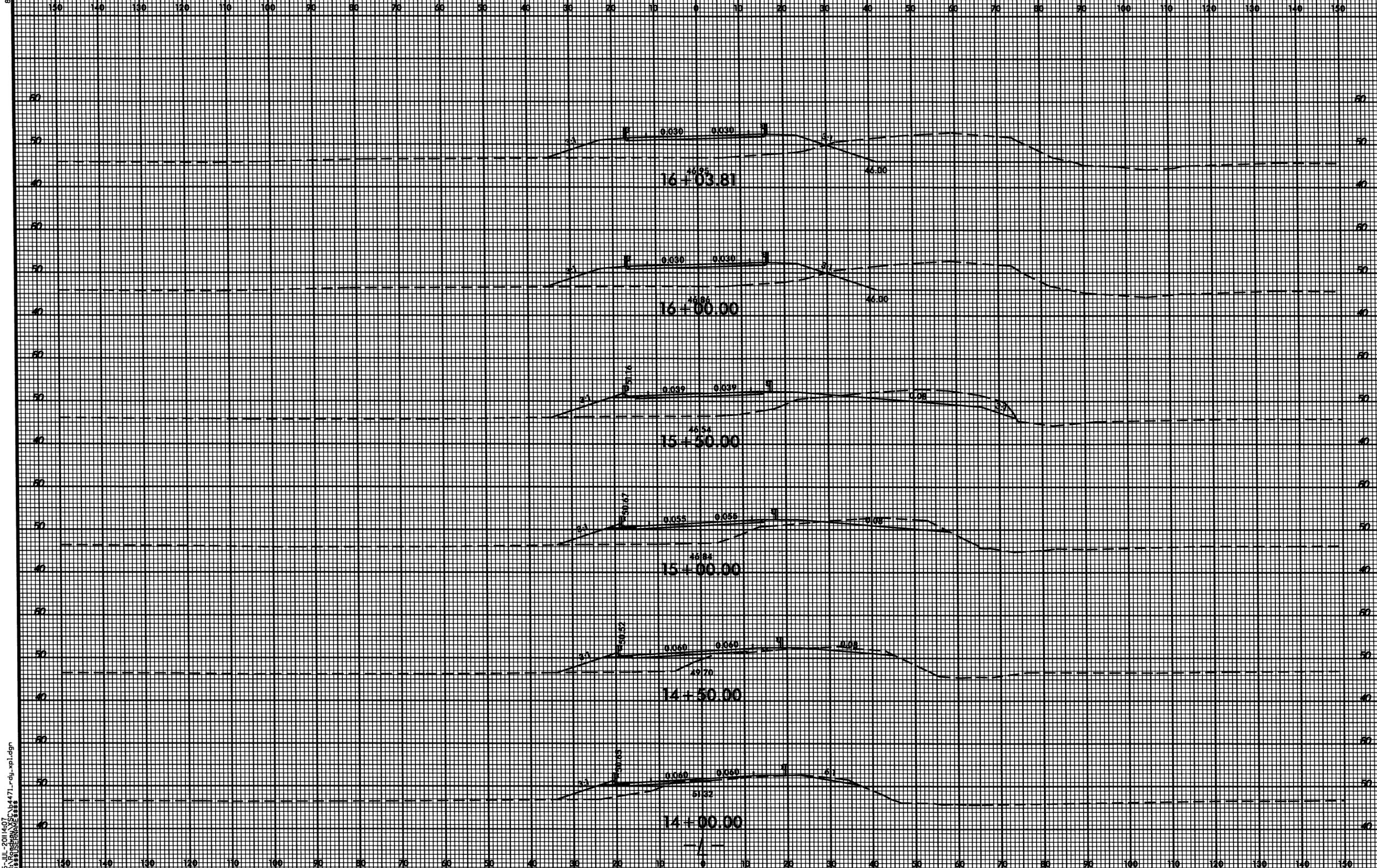


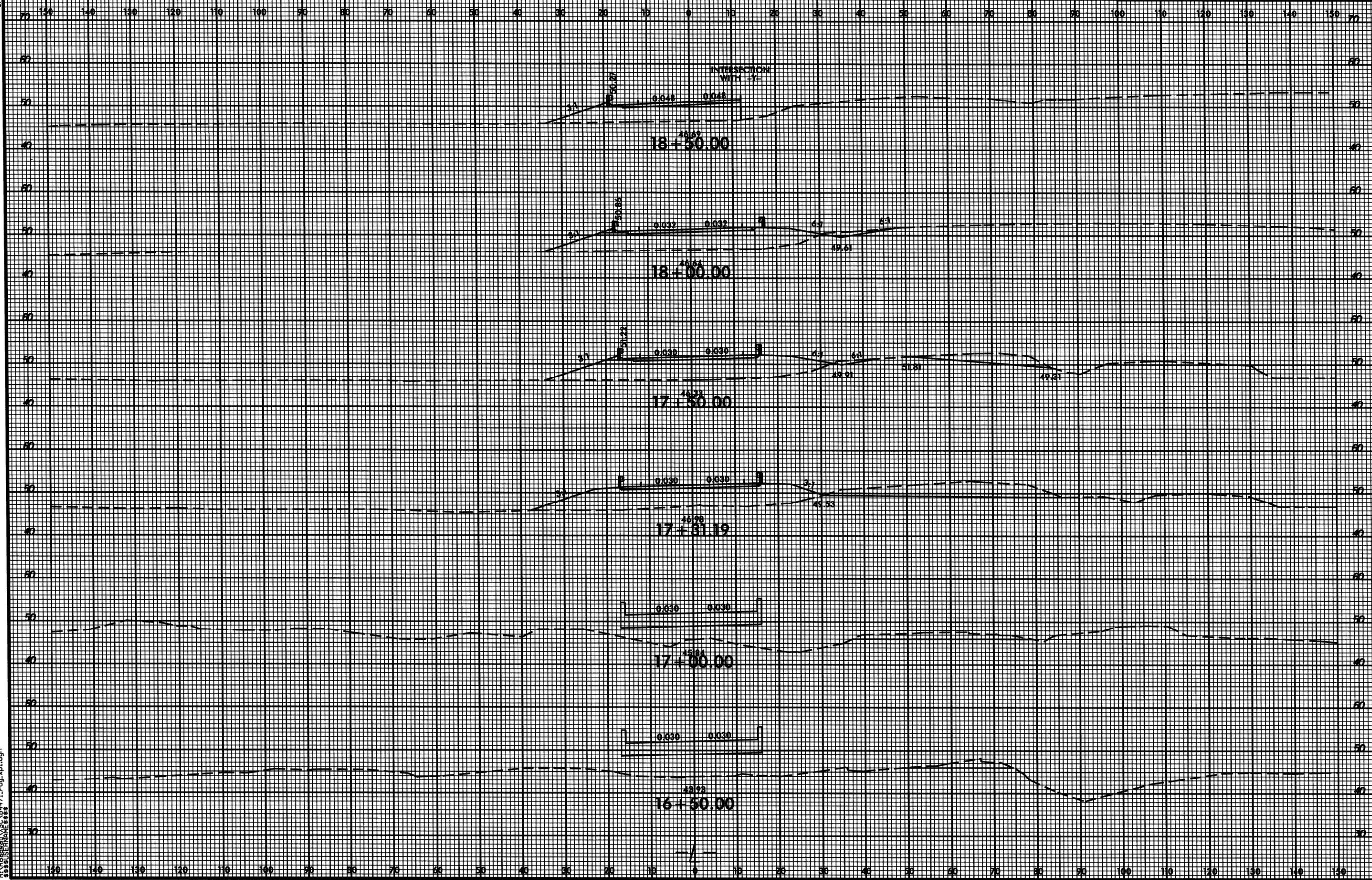
PROJ. REFERENCE NO.	SHEET NO.
B-4471	X-1

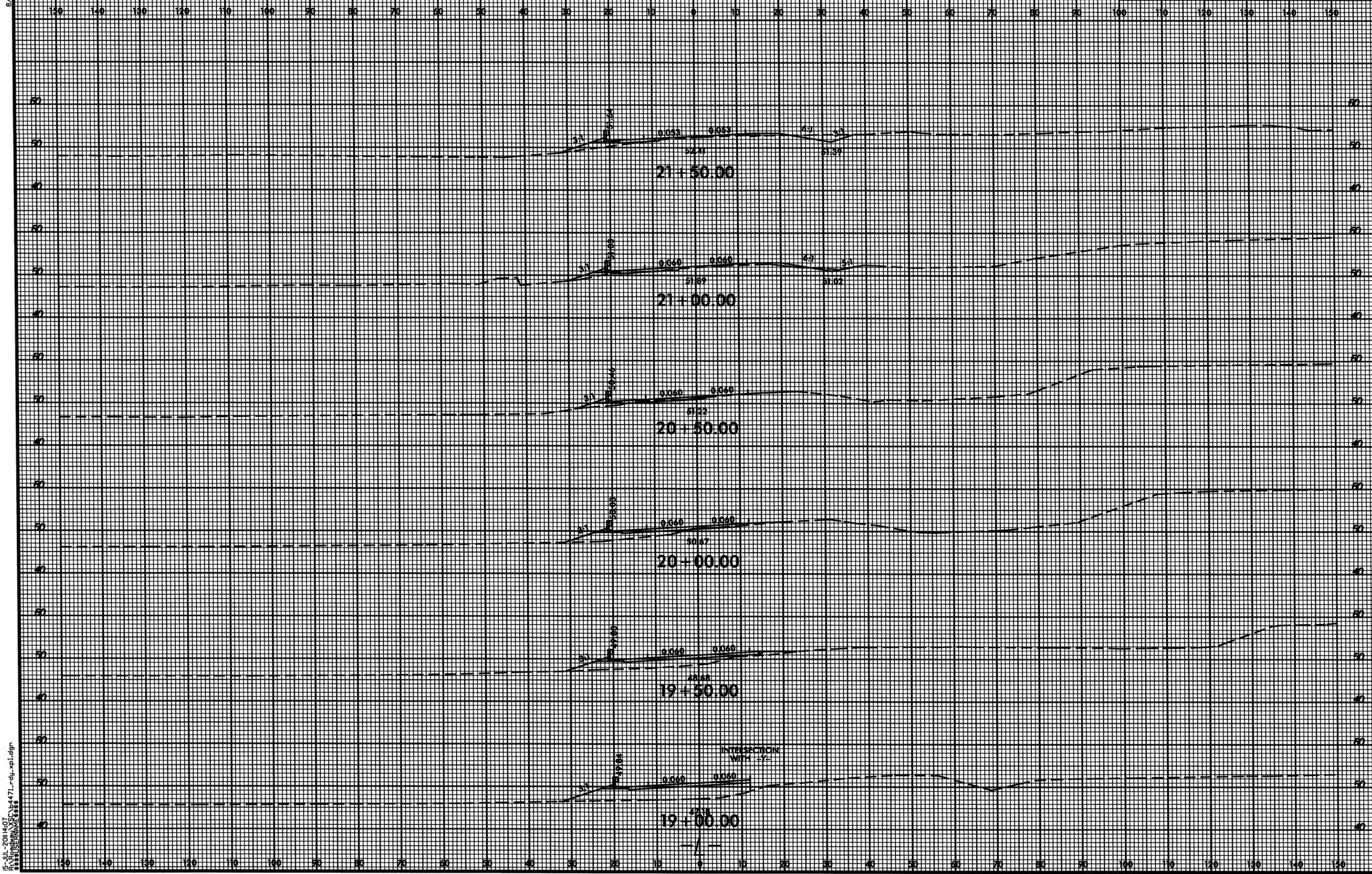
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



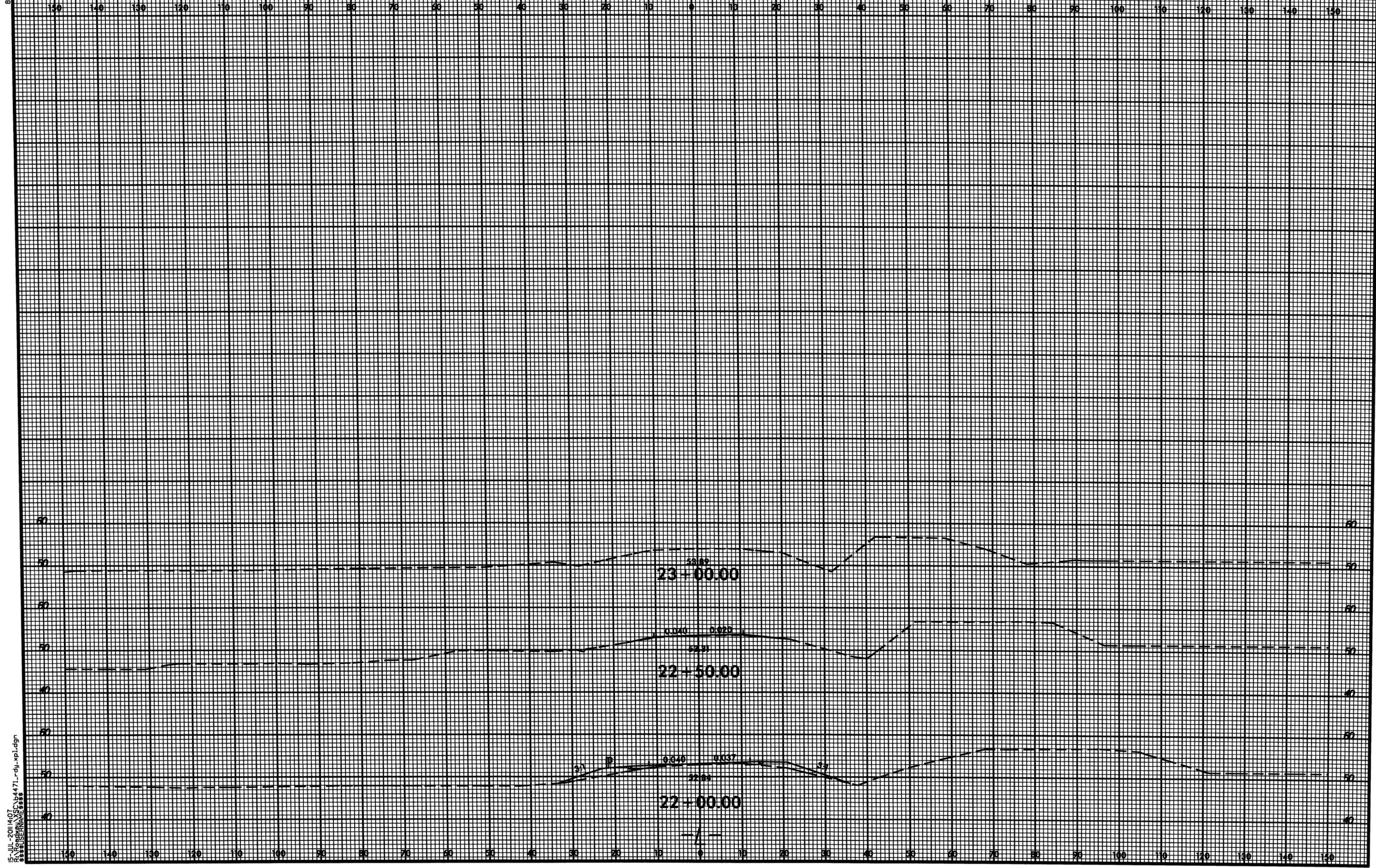
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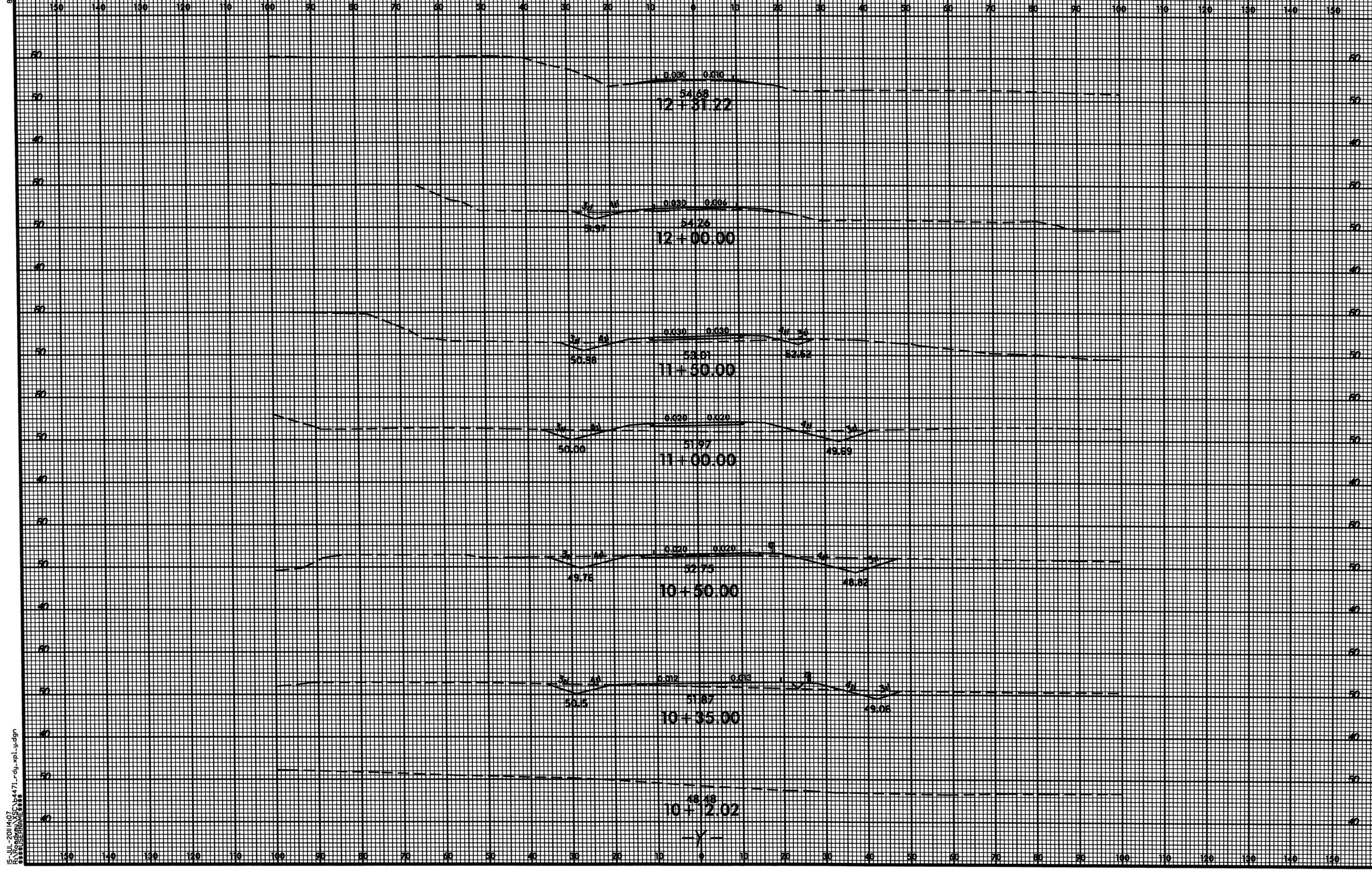


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