STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 26, 2013

Wilmington Regulatory Field Office
US Army Corp. of Engineers
69 Darlington Avenue
Wilmington, NC 28403

ATTN: Brad Shaver
NCDOT Coordinator

N.C. Dept. of Environment & Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

ATTN: Stephen Lane
NCDOT Coordinator

Dear Sirs:

Subject: **Application for Section 404 Nationwide Permit 23, Section 10 Permit, CAMA Major Development Permit, and Section 401 Water Quality Certification** for the proposed widening of US 17-74-76/NC 133 from the NC 133 (River Rd.)/SR 1472 (Village Rd.) interchange to the US 421/NC 133 Interchange, Brunswick County. Federal Aid Project No. NHS-0017(68); TIP No. R-3601. Debit $400.00 from WBS No. 38868.1.1.

Please find enclosed the Pre-Construction Notification (PCN) form, CAMA MP forms, permit drawings, utility drawings, design plans, Concurrence Point 4B and 4C meeting minutes, EEP acceptance letter, USFWS concurrence letter, stormwater management plan, and Jurisdictional Determination for the above referenced project. A Categorical Exclusion (CE) was completed for this project on June 22, 2010 and distributed shortly thereafter. Additional copies are available upon request.

The North Carolina Department of Transportation (NCDOT) proposes to widen US 17/74/76 from the NC 133/SR 1472 interchange to the US 421/NC 133 interchange from four to six lanes. This project involves the replacement of two bridges over the Brunswick River with one bridge carrying both travel directions. Additionally, the northbound bridge over Alligator Creek will be replaced and the southbound structure will be widened. To further alleviate congestion problems, the northbound bridge will also be the start of an additional seventh lane that will continue on US 17 into Wilmington.

There will be 0.46 acre of permanent impacts to riparian wetlands resulting from fill, excavation, and mechanized clearing on this project, of which 0.04 acre are impacts to CAMA wetlands. A total of 182 linear feet of permanent stream impacts are also anticipated.

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

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

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

Temporary work-bridges will be necessary to construct and improve bridges on this project; all will maintain the existing navigational channel height for a minimum 17 ft. width at all times.

The proposed let date for the project is February 18, 2014 with a review date of January 31, 2014. However, the let date may advance as additional funds become available.

Regulatory Approvals

CAMA: NCDOT requests that the proposed work be authorized under a Coastal Area Management Act Major Development Permit. Adjacent riparian landowner return receipts will be forwarded once they become available. Authorization to debit the $400 Permit Application Fee from WBS Element 38868.1.1 is hereby given.

Section 404 Permit: All aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23.

Section 401 Permit: We anticipate 401 General Certification number 3891 will apply to this project. All general conditions of the Water Quality Certifications will be met. NCDOT is providing this application to the NCDWQ for their review and approval.

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

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

Sincerely,

E. L. Lush

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

cc: NCDOT Permit Application Standard Distribution List

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

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

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

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

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

☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization

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

2. Project Information

2a. Name of project:	Widening of US 17-74-76/NC 133 from the NC 133/SR 1472 interchange to the US 421/NC 133 interchange.
2b. County:	Brunswick
2c. Nearest municipality / town:	Leland
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	R-3601

3. Owner Information

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

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

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 34.234449 (DD.DDDDDD)	Longitude: - 77.979593 (-DD.DDDDDD)
1c. Property size:	71 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Brunswick River, Alligator Creek	
2b. Water Quality Classification of nearest receiving water:	SC (Brunswick River); SC, Sw (Alligator Creek)	
2c. River basin:	Cape Fear	
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: At the western end of the project area, near Leland and Belville, land use is mainly commercial in nature; however, much of the project area remains in coastal marsh- and forest-land.		
3b. List the total estimated acreage of all existing wetlands on the property: 129.5 acres (from NRTR study area; the actual project ROW is smaller)		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 3,155 linear feet (from NRTR study area; the actual project ROW is smaller)		
3d. Explain the purpose of the proposed project: To improve traffic operations between the interchanges on the existing facility.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves widening the existing roadway from four lanes to six, with a seventh auxiliary lane in the northbound direction. The project also includes replacing dual bridges over the Brunswick River with one bridge carrying both travel directions and replacing the northbound bridge over Alligator Creek. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☒ Yes	☐ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☒ Preliminary	☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): NCDOT (Amy James)	Agency/Consultant Company: Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. A preliminary JD was received for this project on October 6, 2008. Portions of this project added to the scope at a later date are covered under a JD received by the town of Belville on February 24, 2010.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes	☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes	☒ No
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

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

☒ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

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

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 3 ☒ P ☐ T	Fill	Riverine Swamp Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site 3 ☐ P ☒ T	Excavation	Riverine Swamp Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site 4 ☒ P ☐ T	Fill	Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	0.04 (CAMA) 0.01 (404)
Site 4 ☐ P ☒ T	Excavation	Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	<0.01
Site 5 ☒ P ☐ T	Fill	Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	0.04
Site 5 ☐ P ☒ T	Fill & Excavation	Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	0.02
Site 6 ☐ P ☒ T	Fill & Excavation	Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	0.02
Site 8 ☐ P ☒ T	Fill & Excavation	Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	<0.01
Site 9 ☒ P ☐ T	Fill	Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	<0.01
Site 11 ☒ P ☐ T	Fill	Riverine Swamp Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.16
Site 13 ☒ P ☐ T	Fill & Mechanized Clearing	Riverine Swamp Forest	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.20
				2g. **Total wetland impacts**	0.46*Permanent 0.04 Temporary

2h. Comments:

*Total does not match sum of individual impacts due to rounding.

There will be 0.43 acre of hand clearing on this project. Additionally, there will be 0.04 acre of temporary fill in wetlands for erosion control measures in hand clearing areas. There will also be <0.01 acre (165 sq. ft.) of temporary fill in CAMA wetlands for erosion control measures in hand clearing areas.

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☒ P ☐ T	Fill	SB	☒ PER ☐ INT	☒ Corps ☐ DWQ	3	47
Site 1 ☐ P ☒ T	Fill	SB	☒ PER ☐ INT	☒ Corps ☐ DWQ	3	5
Site 14 ☒ P ☐ T	Fill	SC	☒ PER ☐ INT	☒ Corps ☐ DWQ	3.5	135 (0.02 acre)
Site 14 ☐ P ☒ T	Fill	SC	☒ PER ☐ INT	☒ Corps ☐ DWQ	3.5	6
				3h. **Total stream and tributary impacts**		182 Perm 11 Temp

3i. Comments: Permanent impacts due to bents total 0.03 acre. Temporary impacts due to work bridge bents total 0.13 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 ☐ P ☐ T				
O2 ☐ P ☐ T				
			4f. Total open water impacts	X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

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

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

5g. Comments:

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

6. Buffer Impacts (for DWQ)

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

6a. Project is in which protected basin?			☐ Neuse ☐ Catawba ☐ Tar-Pamlico ☐ Randleman ☐ Other:		
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ P ☐ T			☐ Yes ☐ No		
B2 ☐ P ☐ T			☐ Yes ☐ No		
B3 ☐ P ☐ T			☐ Yes ☐ No		
			6h. **Total buffer impacts**		
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.

Widening towards the median in areas with coastal marsh; elimination of deck drains on bridge nos. 103 and 105 over the Brunswick River and bridge no. 107 over Alligator Creek; no additional surface water to deck drains on existing bridge no. 108 over Alligator Creek; replacing the dual bridges over the Brunswick River with a single bridge, thereby eliminating the need for a temporary detour bridge; 3:1 fill slopes in jurisdictional areas.

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

A primary nursery area in-water work moratorium will be observed from Feb. 15 to Sept. 30 in the Brunswick River and Alligator Creek; the use of 'Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters'; use of hand clearing in wetland areas instead of mechanized clearing; use of temporary work bridges instead of a temporary detour bridge.

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

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

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

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

3c. Comments:

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

4a. Approval letter from in-lieu fee program is attached.	☒ Yes
4b. Stream mitigation requested:	135 linear feet (1:1 mitigation)
4c. If using stream mitigation, stream temperature:	☒ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	0.84 acres
4f. Non-riparian wetland mitigation requested:	0.0 acres
4g. Coastal (tidal) wetland mitigation requested:	0.08 acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

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

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

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

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. A screening ICE (sICE) was completed for this project on October 20, 2009, which determined that a full ICI analysis was not required. The sICE states that "Indirect effects in the form of land use changes as a result of this project are expected to be minimal, as residential and commercial development are likely to continue in the Future Land Use Study Area with or without this project. Therefore, impacts on stormwater runoff and downstream water quality are not expected as a result of this project."		
4. Sewage Disposal (DWQ Requirement)		
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)	
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes ☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes ☐ No
5c. If yes, ind icate the USFWS Field Office you have contacted.	☒ Raleigh ☐ Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NCNHP data, surveys, and correspondence with NCDMF biologists; concurrence for a 'May Affect, Not Likely to Adversely Affect' (MANLAA) determination for West Indian manatee was received from USFWS on September 17, 2008 (see attached). A letter requesting concurrence for a MANLAA determination for the Atlantic and shortnose sturgeons was sent to the National Marine Fisheries Service on February 25, 2013.	
6. Essential Fish Habitat (Corps Requirement)	
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes ☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index	
7. Historic or Prehistoric Cultural Resources (Corps Requirement)	
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes ☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation	
8. Flood Zone Designation (Corps Requirement)	
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☐ Yes ☒ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA	
8c. What source(s) did you use to make the floodplain determination? FEMA Maps	

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Luck Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	4.26.13 Date

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name			Project Name (if applicable)		
North Carolina Department Of Transportation (NCDOT)			R-3601		
Applicant 1: First Name	MI		Last Name		
Gregory			Thorpe		
Applicant 2: First Name	MI		Last Name		
If additional applicants, please attach an additional page(s) with names listed.					
Mailing Address			PO Box	City	State
1548 Mail Service Center				Raleigh	NC
ZIP	Country	Phone No.		FAX No.	
27699 1548	USA	919 - 707 - 6000 ext.		919 - 250 - 4224	
Street Address *(if different from above)*			City	State	ZIP
PDEA--Century Center Building A, 1000 Birch Ridge Dr.			Raleigh	NC	27610- 4328
Email					
gthorpe@ncdot.gov					

2. Agent/Contractor Information

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

<Form continues on back>

3. Project Location

County (can be multiple)	Street Address		State Rd. #
Brunswick	US 17-74-76/NC 133		
Subdivision Name	**City**	**State**	**Zip**
N/A	Leland	NC	-

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
- - ext.	, , , ,
a. In which NC river basin is the project located? Cape Fear	b. Name of body of water nearest to proposed project Brunswick River, Alligator Creek
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. Brunswick River
e. Is proposed work within city limits or planning jurisdiction? ☒Yes ☐No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. Leland and Belville

4. Site Description

a. Total length of shoreline on the tract (ft.)	b. Size of entire tract (sq.ft.)
450 ft. (Brunswick River; approx. 225 ft. on either side); 600 ft. (Alligator Creek; approx. 300 ft. on either side)	3,092,736 sq. ft.
c. Size of individual lot(s) N/A, , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* 5 to 25 ft. ☒NHW or ☐NWL

e. Vegetation on tract
Coastal marsh, maintained/disturbed, mixed hardwood and mixed pine-hardwood forests

f. Man-made features and uses now on tract
Transportation facility, powerline, commercial and residential buildings

g. Identify and describe the existing land uses adjacent to the proposed project site.
Eagle island conservation areas (owned by New Hanover Soil and Water Conservation District and the State), coastal marsh, forest land, and commercial and residential areas.

h. How does local government zone the tract?	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) ☒Yes ☐No ☐NA
Leland zones its portions of the tract R-20 (low density residential), C-2 (commercial business district-regional), and CD (conservation district). Belville zones its part of the tract as CBD (central business district).	

j. Is the proposed activity part of an urban waterfront redevelopment proposal?	☐Yes ☒No
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy.	☒Yes ☐No ☐NA
If yes, by whom?	NCDOT Archeaology Group--see NEPA documentation.
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property?	☐Yes ☒No ☐NA

<Form continues on next page>

m. (i) Are there wetlands on the site?	☒Yes ☐No
(ii) Are there coastal wetlands on the site?	☒Yes ☐No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? *(Attach documentation, if available)*	☒Yes ☐No
n. Describe existing wastewater treatment facilities. None	
o. Describe existing drinking water supply source. None	
p. Describe existing storm water management or treatment systems. None	

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?	☐Commercial ☒Public/Government ☐Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. The purpose of the project is to improve travel time, relieve traffic congestion, and enhance motorist safety between the two interchanges on the existing facility. The use and daily operations of the facility will remain unchanged once the project is complete.	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. Typical highway and bridge construction vehicles and equipment will be used, including, but not limited to, dump trucks, cranes, graders, and bull dozers. Storage and staging areas will be located on uplands. Barges may be used in both the Brunswick River and Alligator Creek to stage equipment during bridge construction.	
d. List all development activities you propose. The project involves widening the existing roadway from four lanes to six, with a seventh auxiliary lane in the northbound direction. The project also includes replacing dual bridges over the Brunswick River with one bridge carrying both travel directions and replacing the northbound bridge over Alligator Creek.	
e. Are the proposed activities maintenance of an existing project, new work, or both?	New Work
f. What is the approximate total disturbed land area resulting from the proposed project?	41 ☐Sq.Ft or ☒Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	☐Yes ☒No ☐NA
h. Describe location and type of existing and proposed discharges to waters of the state. See attached permit drawings.	
i. Will wastewater or stormwater be discharged into a wetland?	☐Yes ☒No ☐NA
If yes, will this discharged water be of the same salinity as the receiving water?	☐Yes ☐No ☒NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal.	☒Yes ☐No ☐NA

<Form continues on back>

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.
b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.
c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.
d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.
e. The appropriate application fee. Check or money order made payable to DENR.
f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Name see attached list Phone No. Address Name Phone No. Address Name Phone No. Address
g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.
h. Signed consultant or agent authorization form, if applicable.
i. Wetland delineation, if necessary.
j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*
k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

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

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

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

Date 4.26.13 Print Name Gregory J. Thayer, PhD

Signature E. P. Luek for

Please indicate application attachments pertaining to your proposed project.

☐DCM MP-2 Excavation and Fill Information

☐DCM MP-3 Upland Development

☐DCM MP-4 Structures Information

☒DCM MP-5 Bridges and Culverts

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Brunswick River

c. Type of bridge (construction material):
54" Prestressed Concrete Girder

d. Water depth at the proposed crossing at NLW or NWL:
40'

e. (i) Will proposed bridge replace an existing bridge? ☒Yes ☐No
If yes,
(ii) Length of existing bridge: 780'
(iii) Width of existing bridge: dual bridges, 42.2' each
(iv) Navigation clearance underneath existing bridge: 4.3'+/-
(v) Will all, or a part of, the existing bridge be removed? (Explain) Existing dual bridges will be completely removed.

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: _____
(iii) Width of existing culvert: _____
(iv) Height of the top of the existing culvert above the NHW or NWL: _____
(v) Will all, or a part of, the existing culvert be removed? (Explain)

g. Length of proposed bridge: 800'

h. Width of proposed bridge: 139'

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☒Yes ☐No
If yes, explain: Increase opening

k. Navigation clearance underneath proposed bridge: 8'

l. Have you contacted the U.S. Coast Guard concerning their approval? ☒Yes ☐No
If yes, explain: The USCG bridge permit application was submitted on 4/19/2013.

m. Will the proposed bridge cross wetlands containing no navigable waters? ☒Yes ☐No
If yes, explain: The bridge spans a small amount of wetlands on either side of the proposed bridge.

n. Height of proposed bridge above wetlands: 4' min.

2. CULVERTS

☒ *This section not applicable*

a. Number of culverts proposed: _____

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☐No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed? (Explain)

_____

_____

_____

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☐No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed? (Explain)

_____

_____

_____

f. Length of proposed culvert: _____

g. Width of proposed culvert: _____

h. Height of the top of the proposed culvert above the NHW or NWL.

_____

i. Depth of culvert to be buried below existing bottom contour.

_____

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

_____

_____

_____

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

_____

_____

_____

3. EXCAVATION and FILL

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☒None

(ii) Describe the purpose of the excavation in these areas:

_____

_____

_____

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: 320'

(iii) Avg. width of area to be excavated: 27'

(iv) Avg. depth of area to be excavated: 3.8'

(v) Amount of material to be excavated in cubic yards: 1223cy; this excavation is to provide a 4' clearance under the proposed bridge for inspection and maintenance purposes. As the proposed bridge is longer than the existing bridge, most of the material will be existing road fill. No excavation will take place below the NHW or in wetlands.

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: TBD by contractor. If material is suitable, it may be used as part of the proposed roadway fill.

(ii) Dimensions of the spoil disposal area: TBD

(iii) Do you claim title to the disposal area? ☐Yes ☐No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☐No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill:

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☒CW 1600 ☐SAV _____ ☐SB _____

☒WL 409 ☐None

(ii) Describe the purpose of the excavation in these areas:

Required fill is due to construction of the bridge abutment slopes.

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: 220' (OAL)

(iii) Avg. width of area to be filled: 30'

(iv) Purpose of fill: Fill required at beginning and end of bridge to construct the bridge abutments and slopes.

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☒Yes ☐No

If yes, explain: Telephone (AT&T, ATMC), cable (Time Warner, ATMC), broadband (Earthlink, MCNC, ATMC), power (Progress Energy), and water and sewer (Brunswick Regional H2Go)

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Use of Standard NCDOT BMP's and erosion control measures

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Typical highway construction vehicles and equipment; barges.

f. Will wetlands be crossed in transporting equipment to project site? ☒Yes ☐No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

Temporary work bridges will be utilized to minimize environmental impacts during bridge construction.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

4-26-13

Date

R-3601

Project Name

NCDOT Gregory J. Thorpe, PhD

Applicant Name

E. L. Lusk for

Applicant Signature

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Alligator Creek, Bridge No. 107

c. Type of bridge (construction material):
36" Prestressed Concrete Girder

d. Water depth at the proposed crossing at NLW or NWL:
15'

e. (i) Will proposed bridge replace an existing bridge? ☒Yes ☐No
If yes,
(ii) Length of existing bridge: 235'
(iii) Width of existing bridge: 40'
(iv) Navigation clearance underneath existing bridge: 2.3'
(v) Will all, or a part of, the existing bridge be removed?
(Explain) All of the existing bridge will be removed.

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: _____
(iii) Width of existing culvert: _____
(iv) Height of the top of the existing culvert above the NHW or NWL: _____
(v) Will all, or a part of, the existing culvert be removed?
(Explain)

g. Length of proposed bridge: 285'

h. Width of proposed bridge: 54.5'

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☒No
If yes, explain:

k. Navigation clearance underneath proposed bridge: 2.3'

l. Have you contacted the U.S. Coast Guard concerning their approval? ☒Yes ☐No
If yes, explain: The USCG Advanced Approval request was submitted on 4/19/2013.

m. Will the proposed bridge cross wetlands containing no navigable waters? ☐Yes ☒No
If yes, explain:

n. Height of proposed bridge above wetlands: n/a

2. CULVERTS

☒ *This section not applicable*

a. Number of culverts proposed: _____

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☐No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed? (Explain)

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☐No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed? (Explain)

f. Length of proposed culvert: _____

g. Width of proposed culvert: _____

h. Height of the top of the proposed culvert above the NHW or NWL. _____

i. Depth of culvert to be buried below existing bottom contour. _____

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

3. EXCAVATION and FILL

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: 119' (OAL)

(iii) Avg. width of area to be excavated: 72'

(iv) Avg. depth of area to be excavated: 2.3' (0.3' below NHW)

(v) Amount of material to be excavated in cubic yards: 95cy; this excavation is to provide a 4' clearance under the proposed bridge for inspection and maintenance purposes. As the proposed bridge will be longer than the existing bridge, most of this material will be existing road fill. The excavation will be to an elevation as low as 1.4 ft. where the high tide elevation is 2.1 ft.

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☒None

(ii) Describe the purpose of the excavation in these areas:

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: TBD by contractor. If material is suitable, it may be used as part of the proposed roadway fill.

(ii) Dimensions of the spoil disposal area: TBD

(iii) Do you claim title to the disposal area? ☐Yes ☐No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☐No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill:

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☒WL 1131sf ☐None

(ii) Describe the purpose of the excavation in these areas:

Required fill is due to construction of the bridge approach and abutment slopes.

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: 50' (OAL)

(iii) Avg. width of area to be filled: 100'

(iv) Purpose of fill: Fill required at beginning and end of bridge to construct the bridge abutments and slopes.

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☐Yes ☒No

If yes, explain: Telephone (AT&T, ATMC), cable (Time Warner, ATMC), broadband (Earthlink, MCNC, ATMC), power (Progress Energy), and water and sewer (Brunswick Regional H2Go)

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Use of Standard NCDOT BMP's and erosion control measures

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Typical highway construction vehicles and equipment; barges.

f. Will wetlands be crossed in transporting equipment to project site? ☒Yes ☐No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

Temporary work bridges will be utilized to minimize environmental impacts during construction of bridge.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

4-26-13

Date

R-3101

Project Name

Gregory J. Thorpe, PhD

Applicant Name

E. L. Lusk for

Applicant Signature

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Alligator Creek, Bridge No. 108

c. Type of bridge (construction material):
36" Prestressed Concrete Girder

d. Water depth at the proposed crossing at NLW or NWL:
14'

e. (i) Will proposed bridge replace an existing bridge? ☒Yes ☒No
If yes,
(ii) Length of existing bridge: 287'
(iii) Width of existing bridge: 34'
(iv) Navigation clearance underneath existing bridge: 1.5'
(v) Will all, or a part of, the existing bridge be removed?
(Explain) The existing rail on the downstream side of the existing bridge will be removed. The bridge will be widened to a total clear bridge width of 51'-6".

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: _____
(iii) Width of existing culvert: _____
(iv) Height of the top of the existing culvert above the NHW or NWL: _____
(v) Will all, or a part of, the existing culvert be removed?
(Explain)

g. Length of proposed bridge: 287'

h. Width of proposed bridge: 54.5'

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☒No
If yes, explain:

k. Navigation clearance underneath proposed bridge: 1.5'

l. Have you contacted the U.S. Coast Guard concerning their approval? ☐Yes ☒No
If yes, explain:

m. Will the proposed bridge cross wetlands containing no navigable waters? ☐Yes ☒No
If yes, explain:

n. Height of proposed bridge above wetlands: n/a

2. CULVERTS

☒ *This section not applicable*

a. Number of culverts proposed: _____

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☐No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed? (Explain)

_____

_____

_____

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☐No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed? (Explain)

_____

_____

_____

f. Length of proposed culvert: _____

g. Width of proposed culvert: _____

h. Height of the top of the proposed culvert above the NHW or NWL.

_____

i. Depth of culvert to be buried below existing bottom contour.

_____

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

_____

_____

_____

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

_____

_____

_____

3. EXCAVATION and FILL

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☒None

(ii) Describe the purpose of the excavation in these areas:

_____

_____

_____

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: _____

(ii) Dimensions of the spoil disposal area: _____

(iii) Do you claim title to the disposal area? ☐Yes ☐No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☐No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☐None

If any boxes are checked, give dimensions if different from (ii) above.

_____

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☐No

If yes, give dimensions if different from (ii) above.

_____

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill: .

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☒WL 358 ☐None

(ii) Describe the purpose of the excavation in these areas:

Required fill is due to construction of the bridge abutment slopes.

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: 30' (OAL)

(iii) Avg. width of area to be filled: 37'

(iv) Purpose of fill: Fill required at beginning and end of bridge to construct the bridge abutments and slopes.

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☒Yes ☐No

If yes, explain: Telephone (AT&T, ATMC), cable (Time Warner, ATMC), broadband (Earthlink, MCNC, ATMC), power (Progress Energy), and water and sewer (Brunswick Regional H2Go)

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Use of Standard NCDOT BMP's and erosion control measures

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Typical highway construction vehicles and equipment; barges.

f. Will wetlands be crossed in transporting equipment to project site? ☒Yes ☐No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

Temporary work bridges will be utilized to minimize environmental impacts during construction of bridge.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

4·26·13

Date

R-3101

Project Name

Gregory J. Thorpe, PhD

Applicant Name

E. L. Luck per

Applicant Signature

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 26, 2013

Urban Smart Growth Belville, LLC
PO Box 2109
Hollywood, CA 90078

To Whom It May Concern:

The North Carolina Department of Transportation is planning to widen US 17-74-76/NC 133 between the NC 133/SR 1472 (Village Rd.) interchange and the US 421/NC 133 interchange in Brunswick County. The proposed project involves the replacement of the dual bridges over the Brunswick River with a single bridge and the replacement (northbound direction) or widening (southbound direction) of the dual bridges over Alligator Creek. This project crosses an Area of Environmental Concern, as defined by the North Carolina Division of Coastal Management (DCM), and must be approved by the DCM under provisions of the Coastal Area Management Act (CAMA). One of the prerequisites to this approval is that adjacent riparian landowners be given an opportunity to comment on the proposal. A vicinity map and site drawings are enclosed for your review.

The attached form is submitted to ensure that you have an opportunity to comment on the proposal. The work planned is depicted in the attached drawing. If you have **no** objections to the proposal, please return the form with your response within 30 days to this office. If you **do** have objections to the project, please forward your comments to:

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

Thank you for your cooperation.

Sincerely,

E. L. Luck

for Gregory J. Thorpe, Ph.D.,
Environmental Management Director, PDEA

Enclosures

cc: Stephen Lane, NCDCM
File R-3601

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

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

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 26, 2013

United States of America Maritime Commission
Maritime Administration
1200 New Jersey Ave. SE
Washington, DC 20590

To Whom It May Concern:

The North Carolina Department of Transportation is planning to widen US 17-74-76/NC 133 between the NC 133/SR 1472 (Village Rd.) interchange and the US 421/NC 133 interchange in Brunswick County. The proposed project involves the replacement of the dual bridges over the Brunswick River with a single bridge and the replacement (northbound direction) or widening (southbound direction) of the dual bridges over Alligator Creek. This project crosses an Area of Environmental Concern, as defined by the North Carolina Division of Coastal Management (DCM), and must be approved by the DCM under provisions of the Coastal Area Management Act (CAMA). One of the prerequisites to this approval is that adjacent riparian landowners be given an opportunity to comment on the proposal. A vicinity map and site drawings are enclosed for your review.

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

Thank you for your cooperation.

Sincerely,

for E. L. Lusk

Gregory J. Thorpe, Ph.D.,
Environmental Management Director, PDEA

Enclosures
cc: Stephen Lane, NCDCM
File R-3601

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 26, 2013

Thomas Cyrill
PO Box 40
Leland, NC 28451

Dear Mr. Cyrill:

The North Carolina Department of Transportation is planning to widen US 17-74-76/NC 133 between the NC 133/SR 1472 (Village Rd.) interchange and the US 421/NC 133 interchange in Brunswick County. The proposed project involves the replacement of the dual bridges over the Brunswick River with a single bridge and the replacement (northbound direction) or widening (southbound direction) of the dual bridges over Alligator Creek. This project crosses an Area of Environmental Concern, as defined by the North Carolina Division of Coastal Management (DCM), and must be approved by the DCM under provisions of the Coastal Area Management Act (CAMA). One of the prerequisites to this approval is that adjacent riparian landowners be given an opportunity to comment on the proposal. A vicinity map and site drawings are enclosed for your review.

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

Thank you for your cooperation.

Sincerely,

for E. L. Lusk

Gregory J. Thorpe, Ph.D.,
Environmental Management Director, PDEA

Enclosures

cc: Stephen Lane, NCDCM
File R-3601

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1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

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RALEIGH, NC 27610

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 26, 2013

New Hanover Soil & Water Conservation District
230 Government Center Dr.
Wilmington, NC 28403

To Whom It May Concern:

The North Carolina Department of Transportation is planning to widen US 17-74-76/NC 133 between the NC 133/SR 1472 (Village Rd.) interchange and the US 421/NC 133 interchange in Brunswick County. The proposed project involves the replacement of the dual bridges over the Brunswick River with a single bridge and the replacement (northbound direction) or widening (southbound direction) of the dual bridges over Alligator Creek. This project crosses an Area of Environmental Concern, as defined by the North Carolina Division of Coastal Management (DCM), and must be approved by the DCM under provisions of the Coastal Area Management Act (CAMA). One of the prerequisites to this approval is that adjacent riparian landowners be given an opportunity to comment on the proposal. A vicinity map and site drawings are enclosed for your review.

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

Thank you for your cooperation.

Sincerely,

E. L. Luck

for Gregory J. Thorpe, Ph.D.,
Environmental Management Director, PDEA

Enclosures

cc: Stephen Lane, NCDCM
File R-3601

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

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RALEIGH, NC 27610

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 30, 2013

NC State Ports Authority
PO Box 9002
Wilmington, NC 28402

To Whom It May Concern:

The North Carolina Department of Transportation is planning to widen US 17-74-76/NC 133 between the NC 133/SR 1472 (Village Rd.) interchange and the US 421/NC 133 interchange in Brunswick County. The proposed project involves the replacement of the dual bridges over the Brunswick River with a single bridge and the replacement (northbound direction) or widening (southbound direction) of the dual bridges over Alligator Creek. This project crosses an Area of Environmental Concern, as defined by the North Carolina Division of Coastal Management (DCM), and must be approved by the DCM under provisions of the Coastal Area Management Act (CAMA). One of the prerequisites to this approval is that adjacent riparian landowners be given an opportunity to comment on the proposal. A vicinity map and site drawings are enclosed for your review.

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

Thank you for your cooperation.

Sincerely,

E. L. Lude

for Gregory J. Thorpe, Ph.D.,
Environmental Management Director, PDEA

Enclosures

cc: Stephen Lane, NCDCM
File R-3601

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WEBSITE: WWW.NCDOT.ORG

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

Ecosystem
PROGRAM

April 23, 2013

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

R-3601, US 17 / 74 / 76 from NC 133 / SR 1472 (Fletcher Road / Village Road), Brunswick County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream, riparian wetland and coastal marsh mitigation for the subject project. Based on the information supplied by you on April 16, 2013, the impacts are located in CU 03030005 of the Cape Fear River basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

Cape Fear 03030005 SOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	135	0.42	0	0.04	0	0

*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on March 12, 2013. EEP commits to implementing sufficient compensatory stream, riparian wetland and coastal marsh mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies 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 919-707-8420.

Sincerely,

James B. Stanfill

James B. Stanfill
EEP Asset Management Supervisor

cc: Mr. Brad Shaver, USACE – Wilmington Regulatory Field Office
Ms. Amy Chapman, Division of Water Quality, Wetlands/401 Unit
Mr. Steve Sollod, Division of Coastal Management
File: R-3601 Revised

9-25

James

RECEIVED
SEP 22 2008
DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

United States Department of the Interior

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

September 17, 2008

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 September 5, 2008 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the proposed widening of US 17-74-76/NC 133 from NC 133/SR 1472 interchange in Leland to the US 421-17-74/NC 133 interchange in Wilmington, Brunswick County (TIP No. R-3601) may affect, but is not likely to adversely affect the federally endangered West Indian manatee (*Trichechus manatus*). 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).

NCDOT has committed to implement the Service's **GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE: Precautionary Measures for Construction Activities in North Carolina Waters**. Based on this commitment and on available information, the Service concurs with your determination that the proposed project may affect, but is not likely to adversely affect the West Indian manatee. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied for this species. 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: Brad Shaver, USACE, Wilmington, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC
John Sullivan, FHWA, Raleigh, NC
David Harris, NCDOT, Raleigh, NC

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **2007 3641** County: **Brunswick/New Hanover** U.S.G.S. Quad: **Winnabow/Wilmington**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner: **NC DOT-PDEA**
Address: **attn: Dr. Gregory Thorpe**
1598 Mail Service Center
Raleigh, NC 27699-1598

Agent: **NC DOT-NEU**
attn: Amy James
1548 Mail Service Center
Raleigh, NC 27699-1548

Property description:
Size (acres) _ Nearest Town **Leland/Wilmington**
Nearest Waterway **Brunswick/Cape Fear River** River Basin **Lower Cape Fear**
USGS HUC **03030005** Coordinates N **34.2342** W **77.9776**
Location description **The project is the proposed widening of US 17-74-76/NC 133/SR 1472 interchange in Leland to the US 421/NC 133 interchange in Brunswick and New Hanover Counties, TIP R-3601.**

Indicate Which of the Following Apply:

A. Preliminary Determination

X Based on preliminary information, there may be wetlands on the above described property. To be considered final, the property owners along the corridor must be notified of their appeals rights as well as the remaining Rapanos forms completed and submitted to this office. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are wetlands on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

_ The wetland on your property have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

_ The wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Washington, NC, at (252) 946-6481 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Brad Shaver** at **910-251-4611**.

C. Basis For Determination

The subject area exhibits wetland criteria as described in the 1987 Corps Delineation Manual and is adjacent to the floodplain of the Brunswick and Cape Fear Rivers.

D. Remarks

The field component of this jurisdictional determination was completed on 7/9/2008 and 9/24/2008.

Corps Regulatory Official: Brad Shaver

Date **10/6/2008** Expiration Date **10/6/2013**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the attached customer Satisfaction Survey or visit http://www.saw.usace.army.mil/WETLANDS/index.html to complete the survey online.

MINUTES OF THE INTERAGENCY "4B" MEETING ON 6/16/11 FOR R-3601, BRUNSWICK CO.

Team Members:
Brad Shaver – USACE (PRESENT)
Gary Jordan – USFWS (PRESENT)
Travis Wilson – NCWRC (PRESENT)
Steve Sollod – NCDCM (PRESENT)
Stephen Lane – NCDCM (PRESENT)
David Wainwright – NCDWQ (PRESENT)
Chris Militscher – EPA (ABSENT)
Ron Lucas – FHWA (PRESENT)
David Harris – REU (ABSENT)
Ron McCollum – Roadway (PRESENT)
Omar Azizi – Structures (PRESENT)
Charles R. Cox – PDEA (PRESENT)
Chris Rivenbark – NEU (PRESENT)
Jackson Provost – Division (PRESENT)

Participants:
Jay Twisdale, NCDOT Hydraulics (PRESENT)
Brook Anderson, NCDOT Hydraulics (PRESENT)
Dustin Creech, NCDOT Hydraulics (PRESENT)
Kristine O'Connor, NCDOT PDEA (PRESENT)
Emily Murray, NCDOT Structures (PRESENT)
Jeffrey L. Teague, NCDOT Roadway (PRESENT)
Mark Staley, NCDOT REU (PRESENT)
Benjetta Johnson, NCDOT TMU (PRESENT)
Steve Kite, NCDOT WZTC (PRESENT)
Elizabeth Lusk, NCDOT NEU (PRESENT)
Amy James, NCDOT NEU (PRESENT)
Mason Herndon, NCDWQ (PRESENT)
KJ Kim, NCDOT Geotech (PRESENT)
Gordon Cashin, NCDOT NEU (PRESENT)
H. Allen Pope, NCDOT Division (PRESENT)
Tom Stoddard, NCDOT STIP (PRESENT)

Jay Twisdale began the meeting with a brief overview of the project. He stated this project consists of constructing a diverging diamond interchange at the intersection of NC133 (SR 1472) and US 17-74-76 and widening US17-74-76 from that interchange to the US421 interchange at the battleship. Jay noted the –L- line was widened to the inside or median of the existing roadway. The project also includes replacing or widening four bridges. Jay went through the plans sheet by sheet, discussing the drainage layout with emphasis on the jurisdictional sites. Specific comments are listed below by plan sheet number:

Sheet 4 & 13: Jay Twisdale stated the project proposes to build a diverging diamond interchange. A portion of the R-3601 project limits slightly overlap the project limits for R-4002. R-4002 is currently under construction and has been revised to end at the northern end of the proposed R-3601 on NC133 /SR1472 (Village Road). The approved permit for that project included the construction of a water quality island and a water quality ditch which will no longer be built under that project due to the new project limits. However, those features will be incorporated into the proposed design of R-3601.

Jay stated that the existing drainage on NC133 in front of the line of businesses along the southern end of the proposed project, allowed runoff from the roadway to go into a storm drain system that runs through the parking lots of those businesses and discharges into a jurisdictional stream. Our proposed design will try to pick up the roadway drainage and carry it under NC133 to outlet into a grassed swale near the intersection of NC133 and the realigned Blackwell Rd. The grassed swale will provide treatment of the runoff prior to it entering any jurisdictional areas. This would be an improvement to the system that exits to a jurisdictional stream at –Y- Sta. 35+00 (LT).

It was asked if there will be impacts to the jurisdictional stream at the beginning of –Y2- (Approx. Sta. –Y2- 13+00). Jay stated the jurisdictional stream begins at the outlet of the existing pipe. There will be some minor impacts to the stream from the construction of this project.

Steve Sollod questioned why the fill slope juts out at the wetlands on –Y2-. Jay explained that the change in topography causes the toe of fill to jut out. As the ground elevation falls, the fill slope goes out further before catching. It was verified that the slopes will be 3:1 in the wetlands. Brad Shaver asked if the realignment of Blackwell Rd. could tie into the –Y- line closer to the interchange to minimize the wetland impacts. Ron McCollum explained that the road had to be realigned because it was too close to the diverging diamond interchange. Also, the Town of Belville has plans to redevelop their downtown area and their proposed entrance to this area ties in directly across from relocated Blackwell Road. This intersection will become a 4-way intersection after their development is complete. Ron stated that ideally we would like to bring Blackwell Rd. into NC133 at a 90 degree angle but they had angled the tie-in as much as possible to minimize the impacts to the wetlands. He said a 15 degree deviation is about the maximum to prevent sight distance problems at the intersection. Ron explained the turnaround bulb on the –Y- line directly across from the Blackwell Rd. tie-in is necessary to allow U-turns until the road on that side is constructed.

Jay stated the existing pipe in the parking lots outlets to the jurisdictional stream at the location of the proposed turnaround bulb. There will be some impacts to the jurisdictional stream due to construction of the turnaround and extension of the storm drain system.

Sheet 5 & 6: Jay Twisdale stated the widening along the –L- line will be on the inside to minimize impacts to the adjacent wetlands. The department is now pursuing the

replacement of Bridges 103 & 105 over the Brunswick River due to scour issues that were discovered during the design process. We are currently proposing to use 100' spans with the roadway crest near the middle of the bridge to minimize spread. We plan to maintain the spread within the proposed bridge shoulders, collect it in 2GIs at each end of the proposed bridges, and discharge it at the toe of fill. Steve Sollod stated that the DCM has a serious issue with the amount of impacts to the CAMA wetlands caused by the fill required to construct the temporary detour. He suggested lengthening the temporary bridge. Jeffrey Teague said the detour bridge was placed as close to the existing roadway as possible and is as long as it can be to avoid the existing roadway embankment. Lengthening the detour bridge would require the detour alignment to be moved further away from the existing roadway, which would result in more impacts. Steve asked if 3:1 slopes were used. Ron McCollum stated that they were used. Steve suggested NCDOT investigate the use of sheet piles to significantly reduce impacts to the CAMA Coastal Wetlands associated with the fill required to construct the detour bridge. Ron stated rip rap or geogrid might allow the use of 2:1 slopes. Using sheet piles was mentioned as another alternative. David Wainwright suggested preparing a cost comparison of the different options. NCDOT agreed to investigate the use of sheet piles to minimize impacts.

Jay mentioned that deck drains would not be required on the proposed bridges. There will be impacts to the wetlands at the pipe outlets where the runoff is collected and discharged at the ends of the bridge. Jay stated that we would try to outlet to 404 wetlands instead of the CAMA wetlands. Jay also stated that we will not use preformed scour holes because we don't construct them in wetlands. We will use standard rip rap outlet protection. Steve asked about the proposed and existing span lengths. Jay replied that the existing spans are approximately 60' and we are looking at 100' spans for the proposed.

Jay stated we would maintain the existing low chord elevation for navigational clearance. He stated that the existing low chord of Bridge 103, which is the lowest of the bridges, would be maintained. Kristine O'Connor stated the Coast Guard could not tell her for sure if we will need a permit. She stated at mean high water there was only about 2-3' of clearance. Someone stated the water depth was approximately 40'.

Brad Shaver asked if the bridge drainage could outlet outside of the wetlands. Jay responded that the wetlands come to the existing toe of fill and we have to take our drainage outlet to the toe of fill. It was asked where the existing bridge deck drainage goes and Jay Twisdale stated it is currently discharged directly into the Brunswick River through deck drains.

Sheet 7: Jay stated that we will be maintaining or replacing and upgrading the existing drainage. The project will widen to the inside with some sliver fills on the outside of the existing embankment. There were no other comments.

Sheet 8: Jay Twisdale's comments were the same as Sheet 7. Since the existing facility does not have any shoulder berm gutter within the limits of the project, and no problems are present, the use of shoulder berm gutter will be limited on this project. Proposed shoulder berm gutter will be primarily off the ends of the bridges. Steve Sollod asked about utilities on the bridges. He mentioned there are currently conduits suspended under the bridge and asked if that would be continued or if a directional bore would be used. No one was in attendance representing the Utilities Unit so that question could not be answered definitively. Jay Twisdale said his speculation would be directional bore.

Sheet 9: Jay Twisdale stated we will maintain dual bridges over Alligator Creek and we plan to retain and widen the west bound bridge (#108). We will be widening to the inside (South) and will cut off the portion of the existing bridge deck that breaks to the south. The proposed widening will break to the south. This approach will result in no surface water being added to the existing deck drains on the north side of the bridge that will be retained. There will not be any deck drains on the new portion of the bridge. The drainage on the new portion of the bridge will be maintained on the shoulder until it is collected at the end of the bridge and discharged to a grassed swale in the median.

Jay stated that the east bound bridge (#107) is functionally obsolete and will be replaced. The shoulders of the proposed bridge are sufficient so that no deck drains will be required on the new bridge. We will capture the water on the bridge deck and bring it to the west end where it will discharge into a swale that will provide treatment of the water prior to it entering the creek.

It was mentioned that a temporary detour structure would not be required for the construction of these bridges because construction could be staged.

Sheet 10: Jay Twisdale stated there is a low-lying area in the median where ponding currently occurs. The proposed project may slightly decrease the storage volume in that area. To make sure the water can get out prior to impacting the roadway embankment, we will either add a cross-line to the outside of the roadway or add a ditch through the old roadway embankment that blocks flow in the median from reaching Alligator Creek. He suggested the most likely option would be to add a ditch through the old roadway embankment.

Sheet 11: Jay Twisdale stated this is the end of construction along the –L- line on this sheet that ties back in to the existing roadway. There were no other comments.

Sheet 12: Jay Twisdale stated we have some minor roadway improvements to add a turn lane in the median for U-turns at the crossover that is directly across from the entry road to the Battleship. There were no other comments.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

March 20, 2013

To:

Brad Shaver
Gary Jordan
Travis Wilson
Steve Sollod
Stephen Lane
Mason Herndon
Chris Militscher
Ron Lucas
Fritz Rohde
Pace Wilber
David Harris
Gary Lovering
Kevin Fischer
Charles R. Cox
Chris Rivenbark
Jackson Provost

From: Paul Atkinson, PE
Project Manager-TIP East

Subject: **Minutes of the Permit Drawing Review "4C" Meeting for R-3601:** US 17-74-76 from NC133/SR 1472 (Village Road) interchange to the US 421/NC133 interchange in Brunswick and New Hanover Counties.

The "4C" Meeting for R-3601 was held on February 14, 2013 from 10:30 AM to 11:30 AM in the NCDOT Structure Design Conference Room at the Century Center Complex in Raleigh, NC. The following were in attendance:

Participants:

Team Members
Brad Shaver, USACE (PRESENT)
Gary Jordan, USFWS (ABSENT)
Travis Wilson, NCWRC (PRESENT)
Steve Sollod, NCDCM (PRESENT)
Stephen Lane, NCDCM (PRESENT)
Mason Herndon, NCDWQ (PRESENT)
Chris Militscher, EPA (PHONE)
Ron Lucas, FHWA (PRESENT)
Fritz Rohde, NMFS PHONE)
Pace Wilber, NMFS (PHONE)

Support Staff
David Harris, NCDOT REU (ABSENT)
Gary Lovering, NCDOT Roadway (PRESENT)
Kevin Fischer, NCDOT Structures (PRESENT)
Charles R. Cox, NCDOT PDEA (ABSENT)
Chris Rivenbark, NCDOT NES (PRESENT)
Jackson Provost, NCDOT Division (PRESENT)
Paul Atkinson, NCDOT Hydraulics (PRESENT)

Other Attendees
Brook Anderson, NCDOT Hydraulics (PRESENT)
Rachel Evans, NCDOT Hydraulics (PRESENT)
Amy James, NCDOT NEU (PRESENT)
Jeff Walston, NCDOT REU (PRESENT)
Cheryl Evans, NCDOT ITS (PRESENT)

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
HYDRAULICS UNIT
1590 MAIL SERVICE CENTER
RALEIGH NC 27699-1590

TELEPHONE: 919-707-6700
FAX: 919-250-4108
WEBSITE: WWW.NCDOT.ORG/DOH/

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC

The 4C meeting began with Paul Atkinson (NCDOT) giving a brief introduction of the project and meeting participants. Paul went through the permit drawings, discussing each permit site by plan sheet. Specific comments are listed below by plan sheet number:

Sheet 4: Paul Atkinson stated that at permit Site 1 there is a replacement of a pipe with impacts shown associated with that. He also stated that the temporary impacts past the end of the rip rap have not been shown and will be added. No other comments on this site.

Sheet 5: Paul Atkinson stated that mechanized clearing impacts have been shown around the rip rap pads that are placed at the proposed pipes at permit Sites 2 and 3. Mason Herndon asked if NCDOT would consider hand clearing instead of mechanized clearing. Steve Sollod stated that NCDCM had a problem with using mechanized clearing at those sites as well as Site 4, plan sheet 6. It was agreed to use hand clearing instead of mechanized clearing at Sites 2, 3, and 4. No other comments on these sites.

Sheet 6 & 7: Paul stated that at Site 5 there is a sliver of fill in the wetland. Mason Herndon questioned fill line and wetland boundary locations and why the pipes extended so far into the wetland. Paul clarified that the existing slope extends closer to the wetland than the proposed fill and the pipe must extend to the bottom of the existing fill. Stephen Lane asked if the clearing was needed for sediment and erosion control. Mason Herndon said it was. Stephen Lane and Mason Herndon both stated their preference for hand clearing at this site. It was agreed to use hand clearing instead of mechanized clearing.

Paul continued the review of Site 5 by moving on to the pipe at the matchline of plansheet 6 and 7. He stated impacts are shown for pipe that will be installed by trenchless construction and will replace an existing pipe that is being filled with flowable material. Mason Herndon asked about the pipe appearing to extend too far into wetland.
Paul reaffirmed that this is due to the proposed fill slope not extending as far as the existing fill slope does. Paul also mentioned temporary excavation and temporary fill in wetland impacts to accommodate the clean out of an existing pipe. Brad Shaver asked if there could be a legend to differentiate between temporary and permanent excavation. Paul stated that the temporary impacts are noted on the summary sheet. No other comments were made on that site.

Paul stated that Site 6 consisted of temporary excavation and temporary fill in the wetland to accommodate the clean out of an existing pipe. No other comments were made on this site.

Paul stated that Site 7 consisted of a sliver of mechanized clearing at the edge of the fill slope. Mason Herndon requested that this be changed to hand clearing. Paul agreed that since the fill slope was not entering the wetland that he was not opposed to this. No other comments were made on this site.

Sheet 8: Paul stated that at Site 8 mechanized clearing is called for to install the rip rap pad at the outlet of the trenchless construction pipe. It was agreed that this could be changed to hand clearing. Paul stated that this site also consists of temporary excavation and temporary fill in the wetland to accommodate the clean out of an existing pipe. No other comments were made on this site.

Paul stated that at Site 9 mechanized clearing is called for to install the rip rap pad at the outlet of the trenchless construction pipe. Mason Herndon asked if that could be changed to hand clearing. Paul agreed to hand clearing at this site. No other comments were made on this site.

Paul stated that the impacts at Site 10 are for the plugging and fill of an existing pipe. Mason Herndon stated that this shouldn't require mechanized clearing. Paul agreed to hand clearing at this site. No other comments were made on this site.

Sheet 9 & 10: Paul stated that at Site 11 there are associated wetland impacts at the bridge abutments of the proposed bridge. There are several temporary work bridges associated with the construction of the proposed bridge. Stephen Lane

brought up his concern that the temporary work bridges over Alligator Creek will cut off navigation for access points upstream of the bridges and be a big permit problem. Stephen Lane questioned if there can be an opening in the temporary bridge, a span removed from the center, or if the temporary bridges can be constructed to maintain existing vertical clearance. Kevin Fischer mentioned that these bridges required drilled shafts due to the depth of muck/mud. Jackson mentioned the possibility of constructing the bridges using top down construction and drilled shafts in order to eliminate the work bridge on the outside. There was discussion about the 404 impacts due to drilled shafts. Paul stated that the temporary and permanent impacts due to drilled shafts are listed on the permit impact summary sheet. Paul clarified that in order to avoid permit issues the temporary work bridges could be raised to maintain existing navigational clearance or leave an open span to allow for navigation. All were in agreement.

Mason Herndon questioned the use of mechanized clearing at the toe of fill at this site. He requested the use of hand clearing. Paul and Jackson Provost agreed to hand clearing at this site. No other comments were made on this site.

Paul asked if hand clearing should be called for at Site 12 as well. The group agreed that hand clearing should be used. No other comments were made on this site.

Sheet 13: Paul stated that at Site 13 there is permanent fill in wetland due to realignment of Old Blackwell Road and mechanized clearing will be required. Mason Herndon questioned if this site would be suitable for hand clearing. Jackson Provost stated that there is more vegetation in this area which will require mechanized clearing. The group agreed on this. No other comments were made on this site.

Paul stated that at Site 14 surface water impacts were due to widening of the road over an existing stream. The widening is due to the addition of a turnaround at this location. Paul also mentioned the existing storm drain system, capturing parking lot stormwater, is being extended to outlet where it is currently going. Brad Shaver said he had spoken with Amy James and they had discussed that this site should be reviewed before the permit application to determine if it warrants 2:1 mitigation. Brad also commented that at 4B it was mentioned that we would try to capture the stormwater and run it across to the new location of Blackwell Road. Brook Anderson stated that roadway stormwater drainage from the right side of the -Y- alignment and some from the left side of the -Y- alignment is collected in a system on the right side of the -Y- alignment. The system outlets into a grassed lined ditch at the intersection of -Y- (NC 133) and Blackwell Road and receives some treatment prior to draining into the wetlands. Due to the elevations of the existing parking lot storm drain system, that stormwater could not be redirected to the other side of the -Y- alignment. Mason Herndon asked if the stream was classified perennial or intermittent. Amy James said she would look into that and let him know. Paul mentioned that this is another site where temporary stream impacts should be included just beyond the end of the pipes and stated they would be added to the permit drawings. No more comments were made on this site.

Paul stated that at Site 15 there is a sliver of mechanized clearing just beyond the fill slope and that can be changed to hand clearing. It was agreed to use hand clearing instead of mechanized clearing. No other comments were made on this site.

Wetland Permit Impact Summary Sheet: Paul reviewed the quantities on the summary sheet. These quantities will change since most of the mechanized clearing will be changed to hand clearing per the comments at this meeting. Steve Sollod expressed his concern for the amount of CAMA permanent fill in wetlands associated with Site 4. He asked if this could be reduced in anyway. Paul stated that the CAMA impacts are at the bridge abutment and the fill slopes have been pulled in as much as possible. Mason Herndon asked what types of utility impacts are expected. Brook and Paul stated that they do not have that information. Jackson Provost stated that utility conflicts have been greatly reduced by eliminating the onsite detour that was required before deciding to construct a single bridge over the Brunswick River but that there might be some boring under the Brunswick River.

Paul asked if there were any other comments or questions. Travis Wilson said that after the constructability review meeting back in May 2012 it was discussed that there was a need for further discussion with WRC, DMF, and NOAA relating to Section 7 issues, specifically in-water work and the moratorium. Fritz said he had discussed with Amy James to

contact NMFS relating to this. Amy James said that she had been in contact and will be sending shortly the recently received revised plans. Fritz mentioned that the moratorium window has not changed since there are two species of sturgeon in this river. Jackson Provost said that during the constructability review there was a question about if the casings are installed outside the moratorium can work be performed in the casings during the moratorium window. Travis Wilson stated that WRC are receptive to that, while Fritz reminded that it could be viewed differently by the Section 7 representatives. Someone stated that the request should be clear on any work that the contractor would like to perform during the moratorium, such as extracting piles or work inside the casings. There may need to be a future meeting to further discuss the moratoriums and construction issues with the applicable parties.

It was asked when let was scheduled, Jackson Provost stated that it is set for February 2014.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R-3601 **County(ies):** Brunswick New Hanover

General Project Information

Project No.:	R-3601	**Project Type:**	Roadway Widening	**Date:**	3/29/2012
NCDOT Contact:	John W. Twisdale, Jr., PE	**Contractor / Designer:**	Brook Anderson, PE		
Address:	NCDOT Hydraulics 1590 Mail Service Center Raleigh, NC 27610	**Address:**	NCDOT Hydraulics 1590 Mail Service Center Raleigh, NC 27610		
Phone:	919-707-6754	**Phone:**	919-707-6706		
Email:	jtwisdale@ncdot.gov	**Email:**	beanderson@ncdot.gov		
City/Town:	Belville and Leland	**County(ies):**	Brunswick	New Hanover	
River Basin(s):	Cape Fear	**CAMA County?**	Yes	Yes	
Primary Receiving Water:	Brunswick River	**NCDWQ Stream Index No.:**	18-77		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	Class SC			
	Supplemental:	None			
Other Stream Classification:	None				
303(d) Impairments:	dissolved oxygen (DO)	pH			
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	8,850 ft	**Surrounding Land Use:**	rural, tidally influenced coastal

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	ac.	ac.
Typical Cross Section Description:	6 lane divided highway, 12 ft paved shoulders rt/lt, 10ft paved shoulders median; grassed median, varying width	4 lane divided highway, approximately 10 ft paved shoulders rt/lt, 3 ft paved shoulders median;grassed median variying width
Average Daily Traffic (veh/hr/day):	Design/Future: ADT 2013=78,321; ADT 2035=107,000	Existing: ADT 2009=63,000

General Project Narrative:

Minimizing use of shoulder berm gutter and maintaining grass shoulder sheet flow along the causeway to the maximum extent practical. Eliminating deck drains on Bridge No. 103 and 105 over the Brunswick River and Bridge No. 107 over Alligator Creek. No additional surface water to deck drains on existing Bridge No. 108 over Alligator Creek. On Using 3:1 side slopes to minimize wetland impacts. Using grassed ditches, shoulders, and slopes to aid in treatment of runoff.

References

NCDOT Highway Stormwater Program

(Version 1.2; Released September 2011)

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

Project/TIP No.: R-3601 **County(ies):** Brunswick New Hanover

Other Stormwater Control Measures

Sheet No.	Station	SCM Type	Drainage Area (ac)	Required / Minimum Treatment		Design Treatment	All Design Criteria Met?
4	-Y- 18+40 RT -Y- 20+00 RT	water quality island					

Additional Comments

A water quality island is a best management practice used to treat roadway runoff. It is used in combination with curb cuts and paved flumes. The island is a grassed treatment (infiltration) zone created between the proposed sidewalk and natural ground at the slope stake line. The island will have a minimum 2 foot base and will have 3:1 side slopes. The island, in combination with the curb cuts and paved flumes, is to treat the first flush of the roadway runoff. Additional runoff will continue along the gutterline and will be collected in the proposed drainage system.

* Equalizer Pipes to be noted as a minimization of impacts.

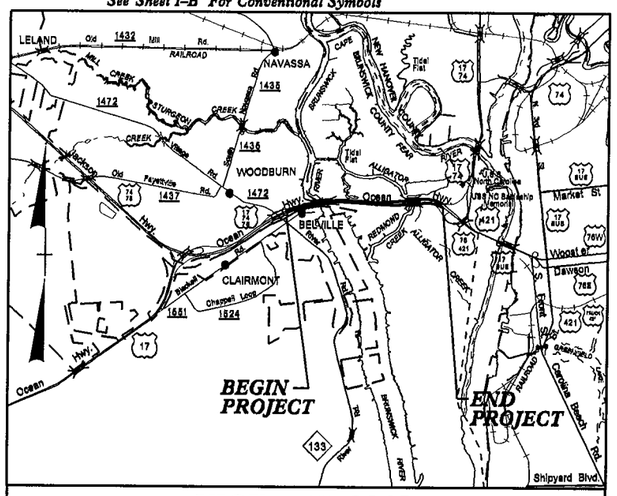
05/08/99

TIP PROJECT: R-3601

CONTRACT:

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

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ENGLISH

BRUNSWICK AND NEW HANOVER COUNTIES

NAD 83/95

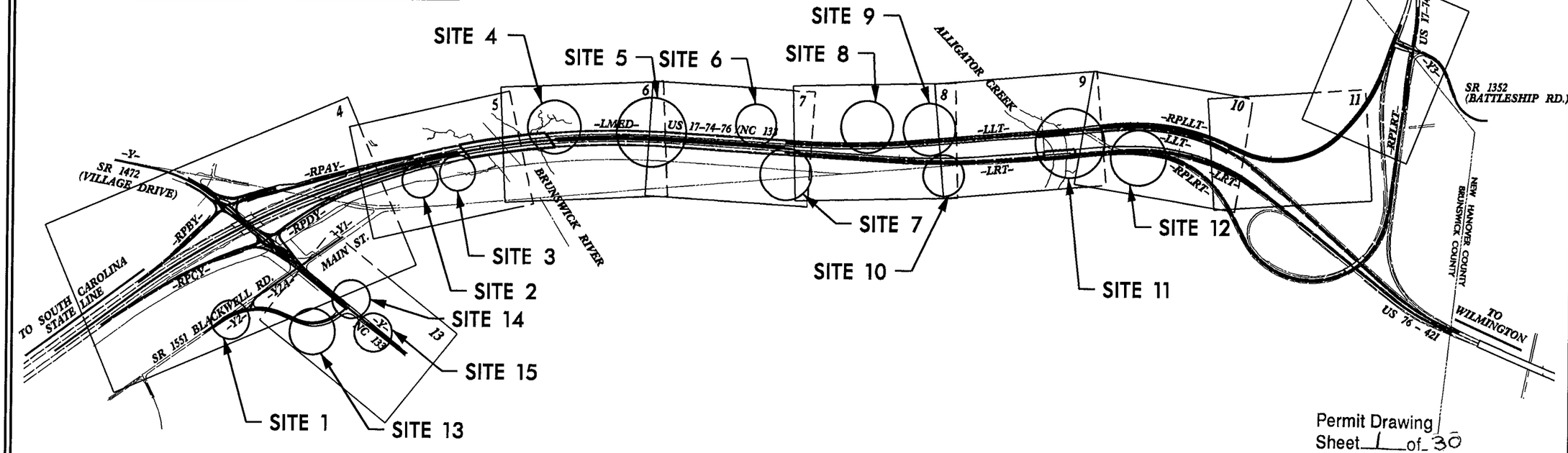
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3601	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38868.1.1	NHS-0017(68)	P.E.
38868.2.1	NHS-0017(68)	R/W & UTIL.

***LOCATION:** US 17-74-76 FROM NC 133 / SR 1472 INTERCHANGE TO THE US 421 /NC 133 INTERCHANGE*

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

WETLAND/SURFACE WATER PERMIT DWG.



Permit Drawing
Sheet 1 of 30

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF LELAND AND BELVILLE.

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

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2013 = 78,321 VPD
ADT 2035 = 107,000 VPD
DHV = 11 %
D = 55 %
* T = 6 %
V = 60 MPH
*(TTST 3% + DUALS 3%)

FUNC. CLASS. = FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3601 = 1.471 MILES
LENGTH STRUCTURE TIP PROJECT R-3601 = 0.205 MILES
TOTAL LENGTH TIP PROJECT R-3601 = 1.676 MILES

(EASTBOUND LANES WERE USED FOR LENGTH OF PROJECT CALCULATION.)

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 28, 2013

LETTING DATE: FEBRUARY 18, 2014

GARY LOVERING, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

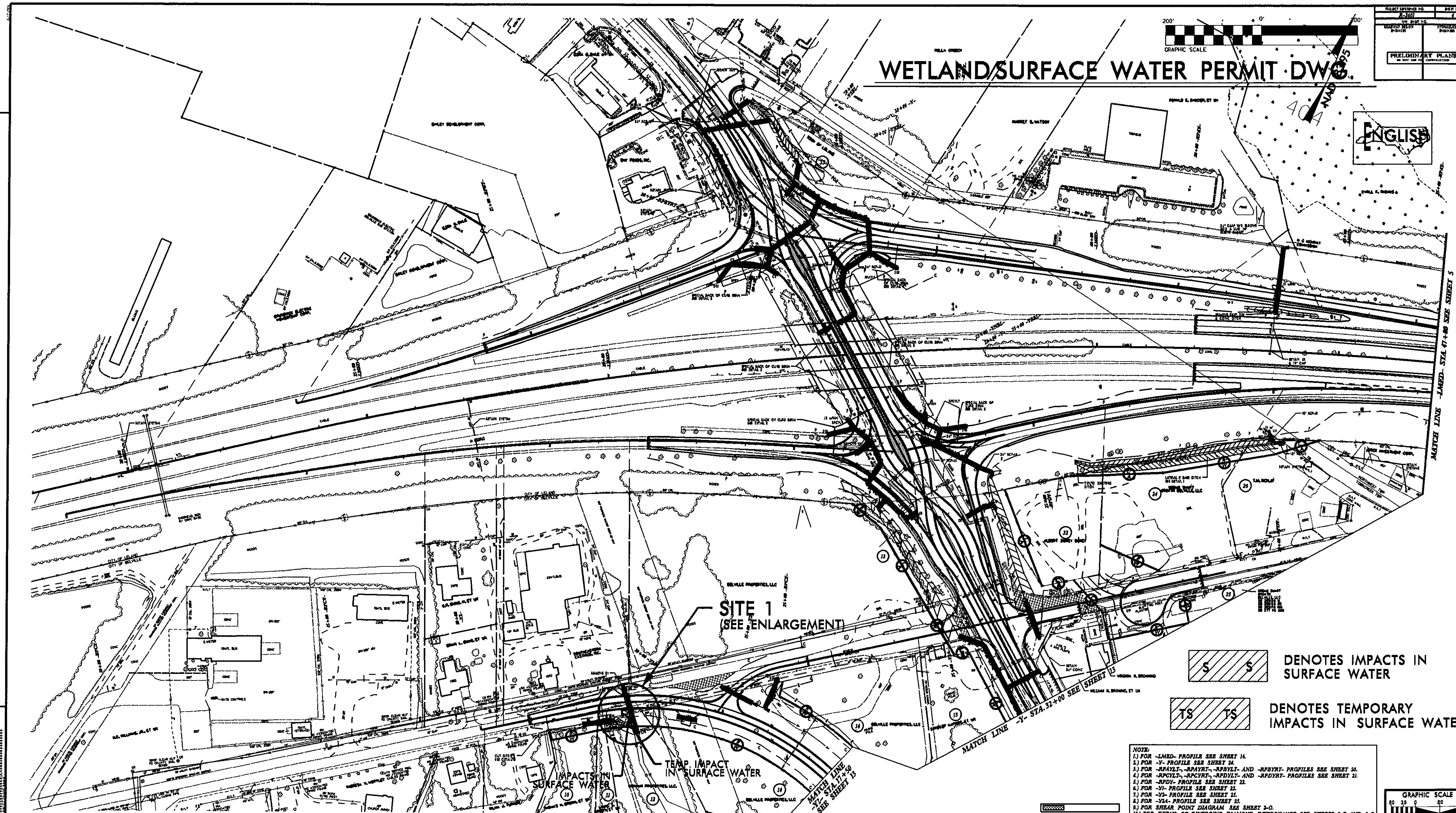
SIGNATURE: P.E.

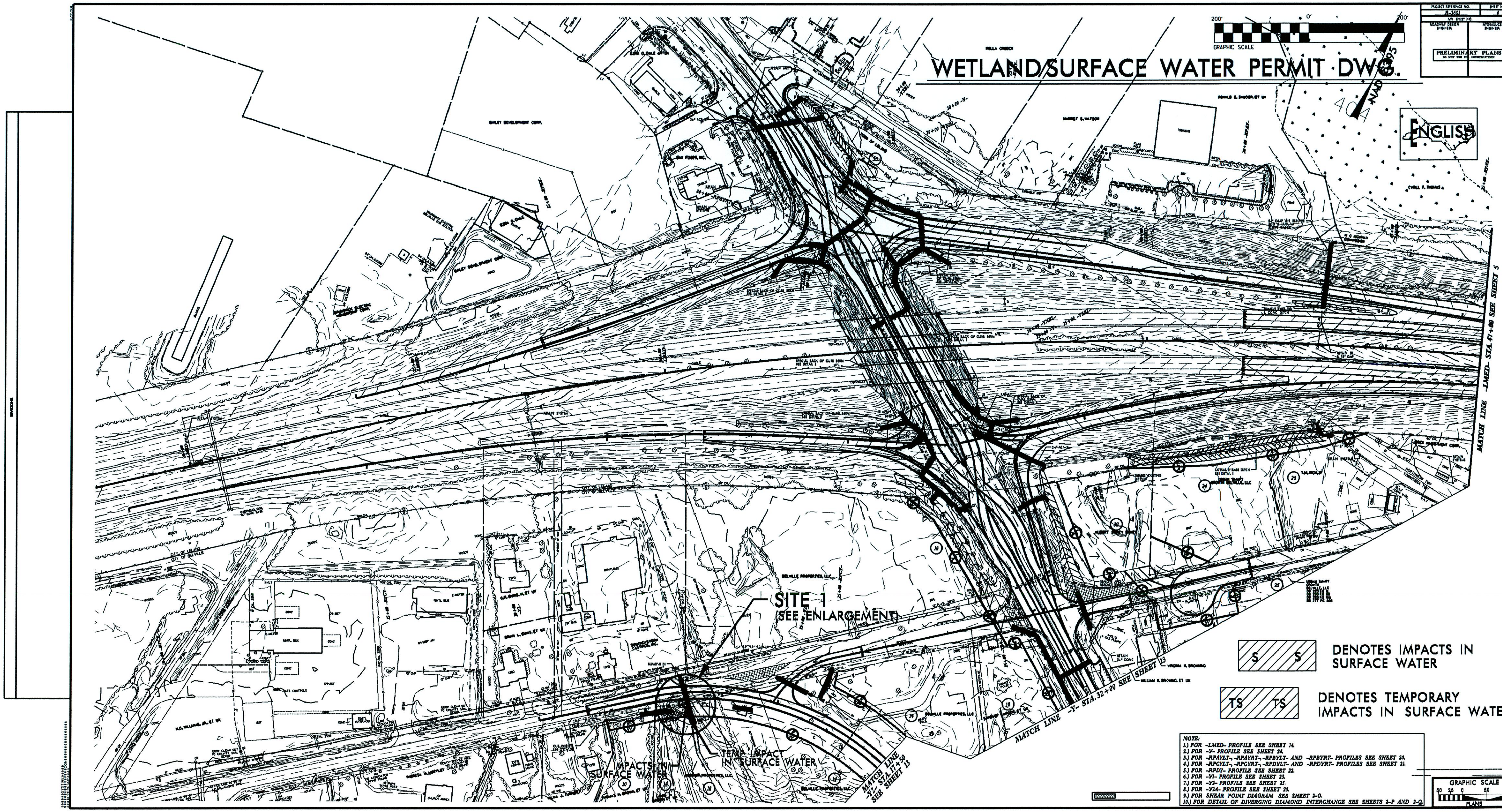
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

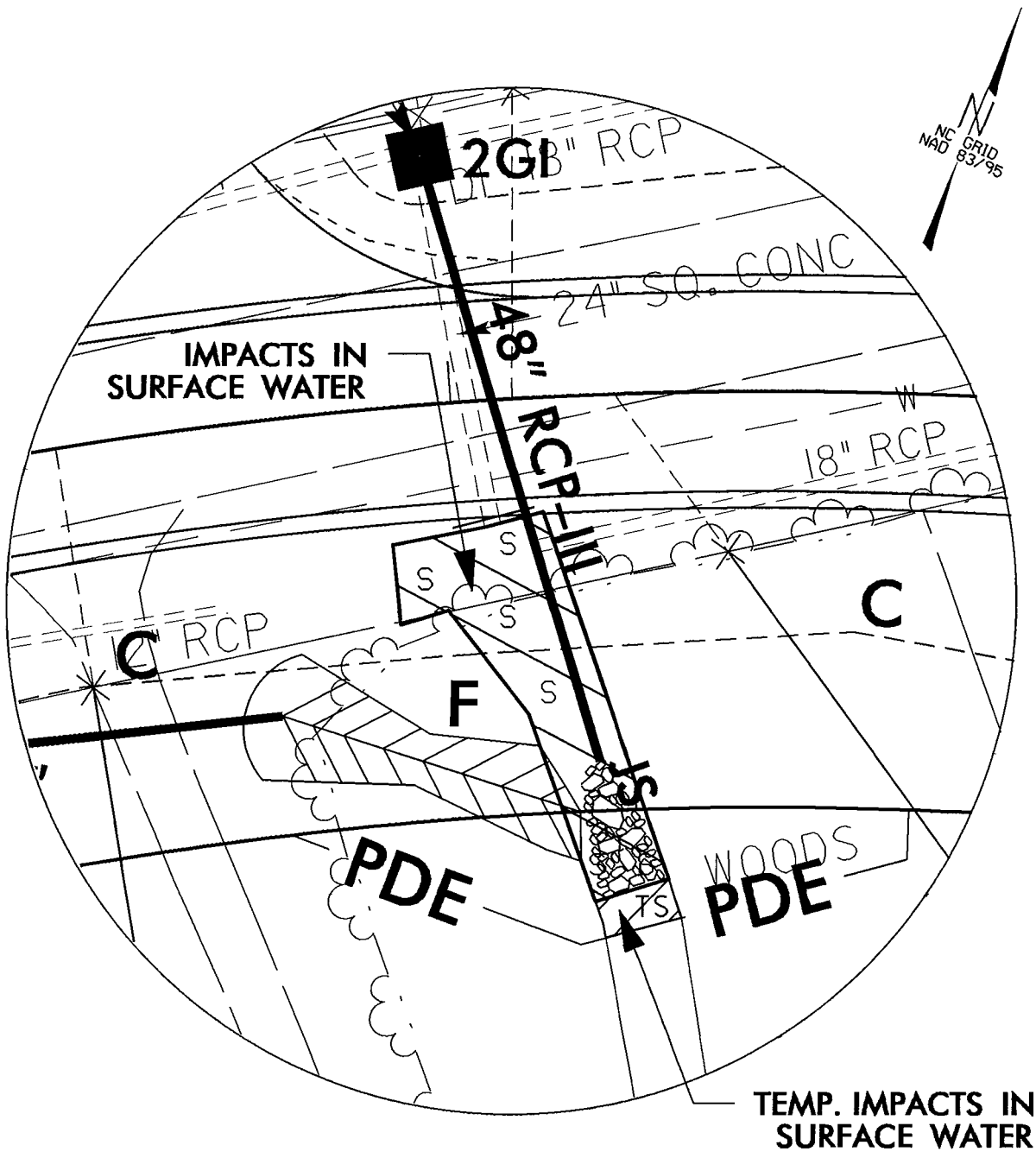
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION


WETLAND/SURFACE WATER PERMIT DWG.
GRAPHIC SCALE
PRELIMINARY PLANS
ENGLISH
SITE 1
(SEE ENLARGEMENT)
IMPACTS IN SURFACE WATER
TEMP. IMPACT IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
MATCH LINE -Y- STA. 32+00 SEE SHEET 13
MATCH LINE -LMED- STA. 47+00 SEE SHEET 5
BELVILLE PROPERTIES, LLC
NOTE:
1.) FOR -LMED- PROFILE SEE SHEET 14.
2.) FOR -Y- PROFILE SEE SHEET 24.
3.) FOR -RPAYLT-, -RPAYRT-, -RPBYLT- AND -RPBYRT- PROFILES SEE SHEET 20.
4.) FOR -RPCYLT-, -RPCYRT-, -RPDYLT- AND -RPDYRT- PROFILES SEE SHEET 21.
5.) FOR -RPDY- PROFILE SEE SHEET 22.
6.) FOR -Y1- PROFILE SEE SHEET 25.
7.) FOR -Y2- PROFILE SEE SHEET 25.
8.) FOR -Y1A- PROFILE SEE SHEET 25.
9.) FOR SHEAR POINT DIAGRAM SEE SHEET 3-O.
10.) FOR DETAIL OF DIVERGING DIAMOND INTERCHANGE SEE SHEETS 3-P AND 3-Q.



Permit Drawing
Sheet 3 of 30



SITE 1 ENLARGEMENT

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

20' 0' 20'

GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK AND

NEW HANOVER COUNTY

PROJECT: 38868.1.1 (R-3601)

US 17 -74-76 FROM

NC 133 / SR 1472 INTERCHANGE TO

THE US 421 / NC 133 INTERCHANGE

SHEET 4 OF 30 04 / 23 / 12

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

100' 0' 100'
GRAPHIC SCALE
NAD 83/95
MATCH LINE -LMED- STA. 47+00 SEE SHEET 4
MATCH LINE -LMED- STA. 60+50 SEE SHEET 6
CYRILL F. THOMAS, ET UX
FILL WITH FLOWABLE MATERIAL
CAMA
TIDAL
WOODS
TEMP. WORK BRIDGE (STAGE III)
TEMP. WORK BRIDGE (STAGE I)
TEMP. WORK BRIDGE (STAGE II)
BEG. SHOULDER BERM GUTTER -LMED- 54+53 (LT)
ANGLE VANE 2GI
REMOVE 2GI
CONVERT JB TO 2GI (SEE SHEET 2-R)
REMOVE EXISTING 2GI
HAND CLEARING
Q10=4.3 CFS
V10=1.2 FPS
Q10=16.3 CFS
V10=2.0 FPS
24" RCP-III (SEE SHEET 2-S)
TEMP. EXCAVATION IN WETLAND
FILL IN WETLAND
SITE 2
SITE 3
WATER LEVEL ELEV=1.29' 4/28/2009 1:30 PM
CITY OF LELAND
CITY OF BELVILLE
BRICK INVESTMENT CORP.
ODELL EVANS, JR., ET UX
URBAN SMART GROWTH BELVILLE, LLC
TOWN OF BELVILLE
404
NORTHWEST TWP
TOWNCREEK TWP
EXISTING R/W (VARIES)
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND

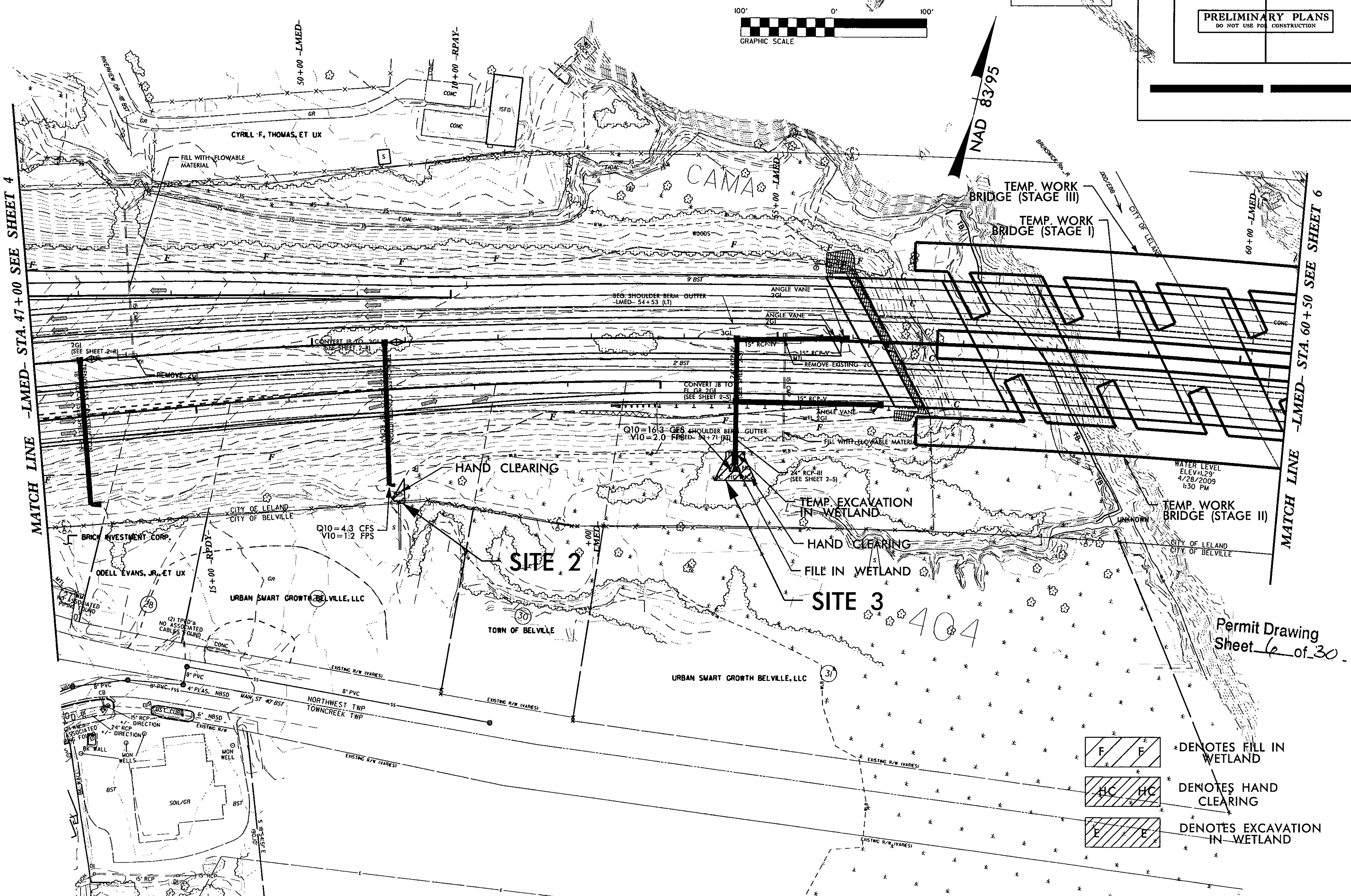
Permit Drawing
Sheet 5 of 30

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH



Permit Drawing Sheet 6 of 30

8/17/99

REVISIONS

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

100' 0' 100'
GRAPHIC SCALE

NAD 83/95

8/17/99
REVISIONS

-LMED- STA. 60+50 SEE SHEET 5

-LMED- STA. 74+00 SEE SHEET 7

65+00 -LMED-

70+80 -LMED-

SITE 4

SITE 5

TEMP. WORK BRIDGE (STAGE III)

FILL IN WETLAND

HAND CLEARING

TEMP. EXCAVATION IN WETLAND

Q10=14.4 CFS
V10=1.5 FPS

END SHOULDER BERM GUTTER -LMED- 66+10 (LT)

404 NEW HANOVER SOIL & WATER CONSERV DIST

CAMA

HAND CLEARING

FILL IN WETLAND

TEMP FILL IN WETLAND

SEE SITE 5 ENLARGEMENT

FILL IN WETLAND

HAND CLEARING

EXISTING R/W

WOODS

BURY 1.0'

15" RCP-V

45° RCP-IV

ANGLE VANE 2GI

3GI

24" RCP-V

18" RCP-V

FL-GR. 2GI

48" SMP

36" CP-V TRENCHLESS CONSTRUCTION

2GI-0

END SHOULDER BERM GUTTER -LMED- 66+10 (RT)

UNKNOWN

TEMP. WORK BRIDGE (STAGE II)

TEMP. WORK BRIDGE (STAGE I)

FLOOD/EBB

TB

Q10=7.1 CFS ±
V10=1.8 FPS
UNKNOWN

HAND CLEARING

FILL IN WETLAND

CAMA

404

BRUNSWICK RIVER

EXISTING ICW (TYPICAL)

NORTHWEST TWP
TOWNCREEK TWP

MATCH LINE

MATCH LINE

T T DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

E E DENOTES EXCAVATION IN WETLAND

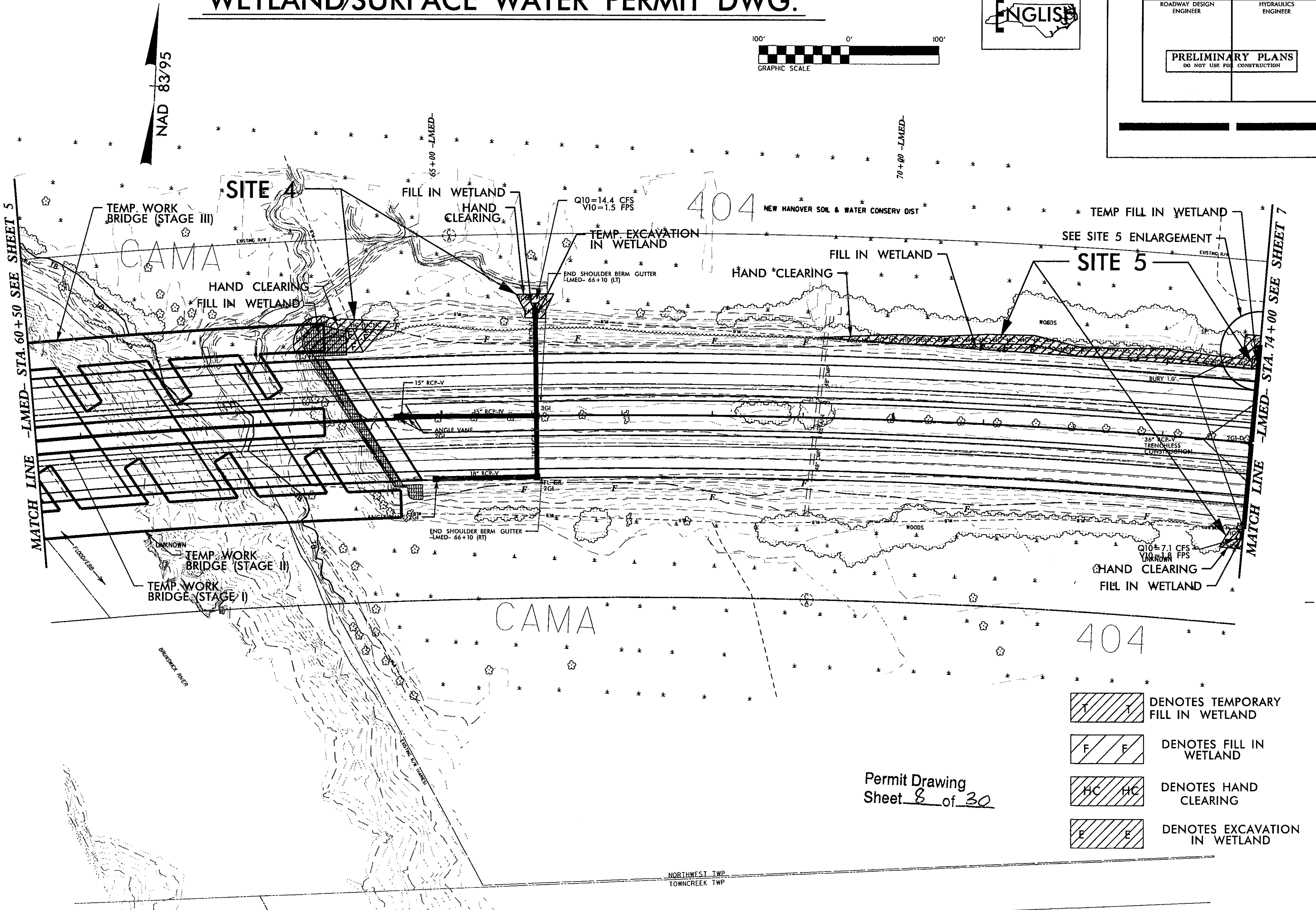
Permit Drawing
Sheet 7 of 30

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH



Permit Drawing
Sheet 8 of 30

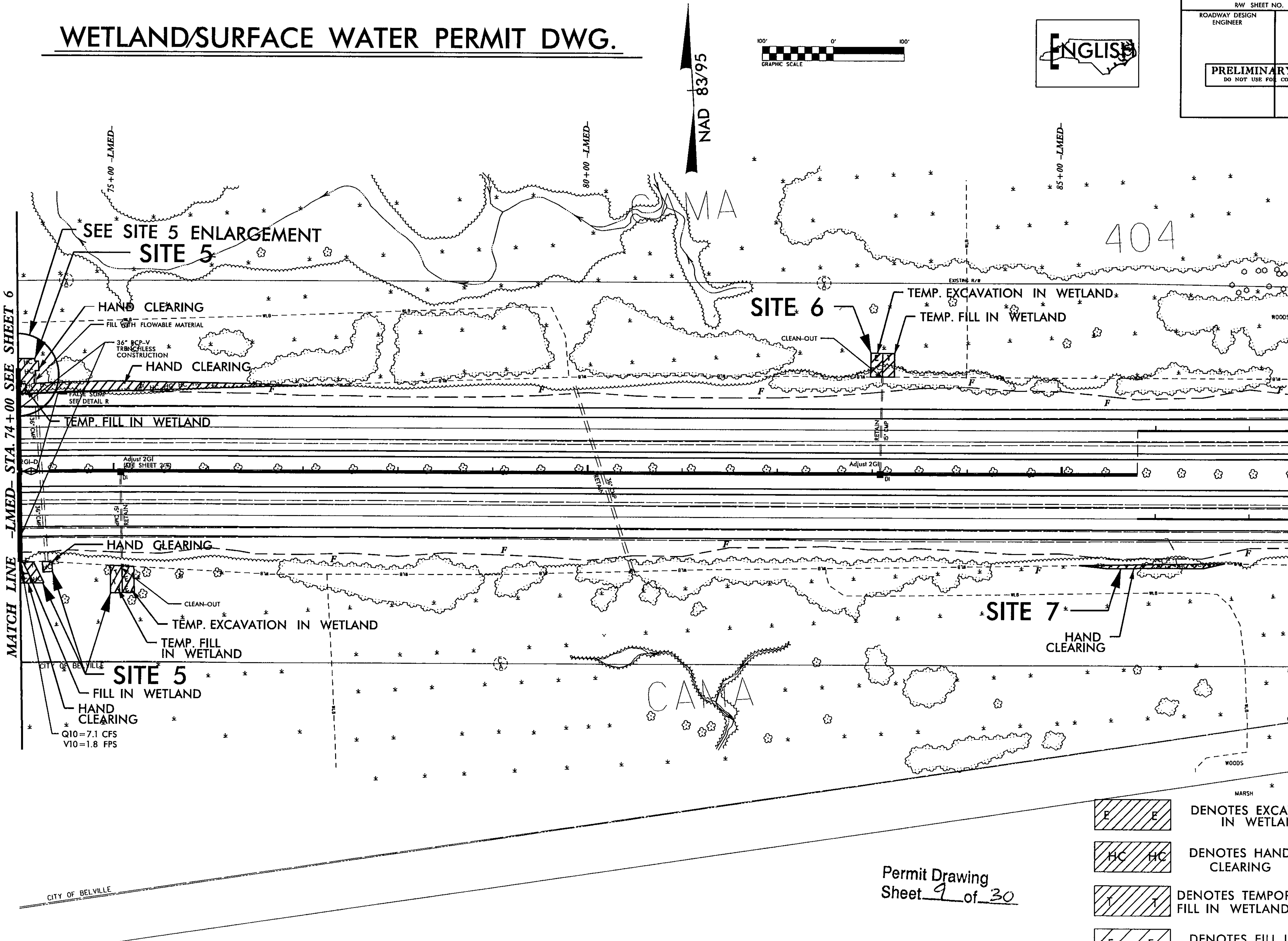
REVISIONS

8/17/99

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



E E	DENOTES EXCAVATION IN WETLAND
HC HC	DENOTES HAND CLEARING
T T	DENOTES TEMPORARY FILL IN WETLAND
F F	DENOTES FILL IN WETLAND

Permit Drawing
Sheet 9 of 30

REVISIONS

8/17/99

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

8/17/99

REVISIONS

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

100' 0' 100'
GRAPHIC SCALE

ENGLISH

MATCH LINE -LMED- STA. 74+00 SEE SHEET 6

75+00 -LMED-

80+00 -LMED-

85+00 -LMED-

MATCH LINE -LLT- STA. 87+50 SEE SHEET 8

SEE SITE 5 ENLARGEMENT

SITE 5

HAND CLEARING

FILL WITH FLOWABLE MATERIAL

36" RCP-V TRENCHLESS CONSTRUCTION

HAND CLEARING

FLUME SUMP SEE DETAIL R

TEMP. FILL IN WETLAND

SITE 6

TEMP. EXCAVATION IN WETLAND

TEMP. FILL IN WETLAND

CLEAN-OUT

EXISTING R/W

WOODS

RETAIN 15' EMP

Adjust 2GI (SEE SHEET 2-5)

2GI-D

36" CMP

15" CMP

HAND CLEARING

CLEAN-OUT

TEMP. EXCAVATION IN WETLAND

TEMP. FILL IN WETLAND

SITE 5

FILL IN WETLAND

HAND CLEARING

Q10=7.1 CFS
V10=1.8 FPS

SITE 7

HAND CLEARING

CITY OF BELVILLE

WOODS

MARSH

CITY OF BELVILLE

E E DENOTES EXCAVATION IN WETLAND

HC HC DENOTES HAND CLEARING

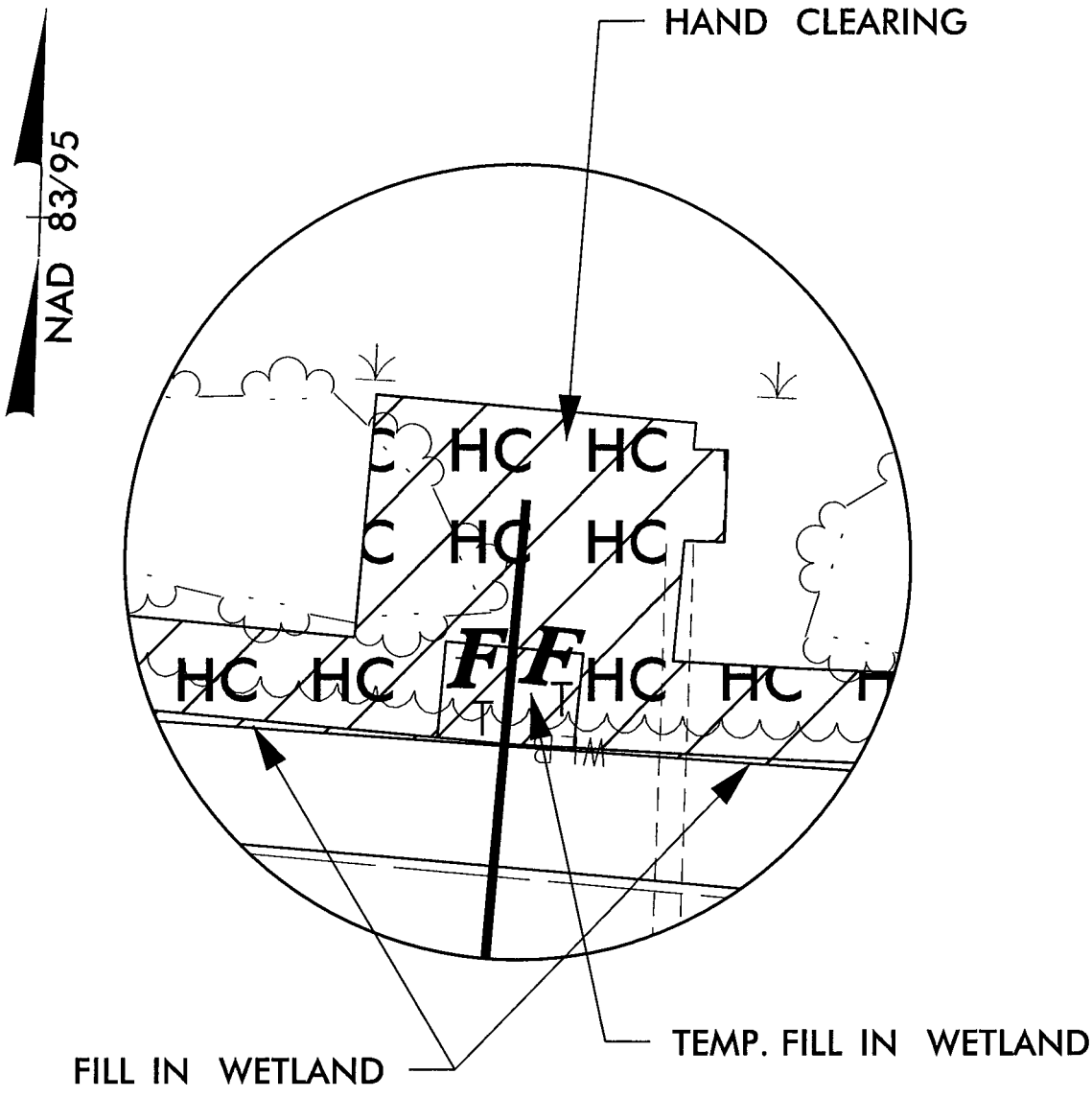
T T DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

Permit Drawing
Sheet 10 of 30

CAMA

404



SITE 5 ENLARGEMENT

T T DENOTES TEMPORARY FILL IN WETLAND

HC HC DENOTES HAND CLEARING

F F DENOTES FILL IN WETLAND

20' 0' 20'

GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK AND
NEW HANOVER COUNTY
PROJECT: 38868.1.1 (R-3601)
US 17 -74-76 FROM
NC 133 / SR 1472 INTERCHANGE TO
THE US 421 / NC 133 INTERCHANGE

SHEET 11 OF 30 04 / 25 / 12

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3601	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WETLAND/SURFACE WATER PERMIT DWG.

100' 0' 100'
GRAPHIC SCALE

ENGLISH

NAD 83/95

MATCH LINE -LLT- STA. 87+50 SEE SHEET 7

MATCH LINE -LLT- STA. 101+00 SEE SHEET 9

-LLT- 90+00

-LLT- 95+00

-LLT- 100+00

NEW HANOVER SOIL & WATER CONSERV DIST

404

CAMA

SITE 8

TEMP. FILL IN WETLAND

CLEAN-OUT

HAND CLEARING

TEMP. EXCAVATION IN WETLAND

Q10=7.2 CFS
V10=0.8 FPS

-LLT- SC Sta. 87+80.63

CL B RIP RAP

WOODS

MARSH

SITE 9

Q10=17.4 CFS
V10=1.1 FPS

FILL IN WETLAND

HAND CLEARING

-LLT- CS Sta. 97+09.52

-LLT- ST Sta. 99+09.52

CL B RIP RAP

15" CAAP

REMOVE 24" +/-
COLLAR AND EXTEND

+/- DIRECTION END NOT LOCATED IN SURVEY

-LLT-

-LRT-

-LRT- TS Sta. 94+84.09

-LRT- SC Sta. 96+84.09

REMOVE DI

FILL WITH FLOWABLE MATERIAL

HAND CLEARING

SITE 10

NORTHWEST TWP
TOWNCREEK TWP

UNKNOWN

Y OF BELVILLE

F F DENOTES FILL IN WETLAND

T T DENOTES TEMPORARY FILL IN WETLAND

HC HC DENOTES HAND CLEARING

E E DENOTES EXCAVATION IN WETLAND

Permit Drawing
Sheet 12 of 30

NOTES:
1.) FOR -LLT- PROFILE SEE SHEET 16.
2.) FOR -LRT- PROFILE SEE SHEET 18.

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

GRAPHIC SCALE 100' 0' 100'

NAD 83/95

REVISIONS 8/17/99

MATCH LINE -LLT- STA. 87+50 SEE SHEET 7

MATCH LINE -LLT- STA. 101+00 SEE SHEET 9

-LLT- 90+00

-LLT- 95+00

-LLT- 100+00

NEW HANOVER SOIL & WATER CONSERV DIST

CAMA

404

SITE 8

TEMP. FILL IN WETLAND

CLEAN-OUT

HAND CLEARING

TEMP. EXCAVATION IN WETLAND

Q10=7.2 CFS
V10=0.8 FPS

-LLT- SC Sta. 87+80.63

-LLT- CS Sta. 97+09.52

-LLT- ST Sta. 99+09.52

SITE 9

Q10=17.4 CFS
V10=1.1 FPS

FILL IN WETLAND

HAND CLEARING

CL B RIP RAP

15" CMP

REMOVE 24" CMP, COLLAR AND EXTEND

REMOVE DI

FILL WITH FLOWABLE MATERIAL

-LLT-

-LRT-

-LRT- TS Sta. 94+84.09

-LRT- SC Sta. 96+84.09

WOODS

MARSH

UNKNOWN

NORTHWEST TWP
TOWNCREEK TWP

Y OF BELVILLE

HAND CLEARING

SITE 10

F F DENOTES FILL IN WETLAND

T T DENOTES TEMPORARY FILL IN WETLAND

HC HC DENOTES HAND CLEARING

E E DENOTES EXCAVATION IN WETLAND

Permit Drawing
Sheet 13 of 30

NOTES:
1.) FOR -LLT- PROFILE SEE SHEET 16.
2.) FOR -LRT- PROFILE SEE SHEET 18.

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

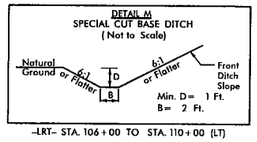
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

100' 0' 100'
GRAPHIC SCALE

ENGLISH

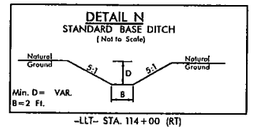
NAD 83/95

DETAIL M
SPECIAL CUT BASE DITCH
(Not to Scale)



-LRT- STA. 106+00 TO STA. 110+00 (LT)

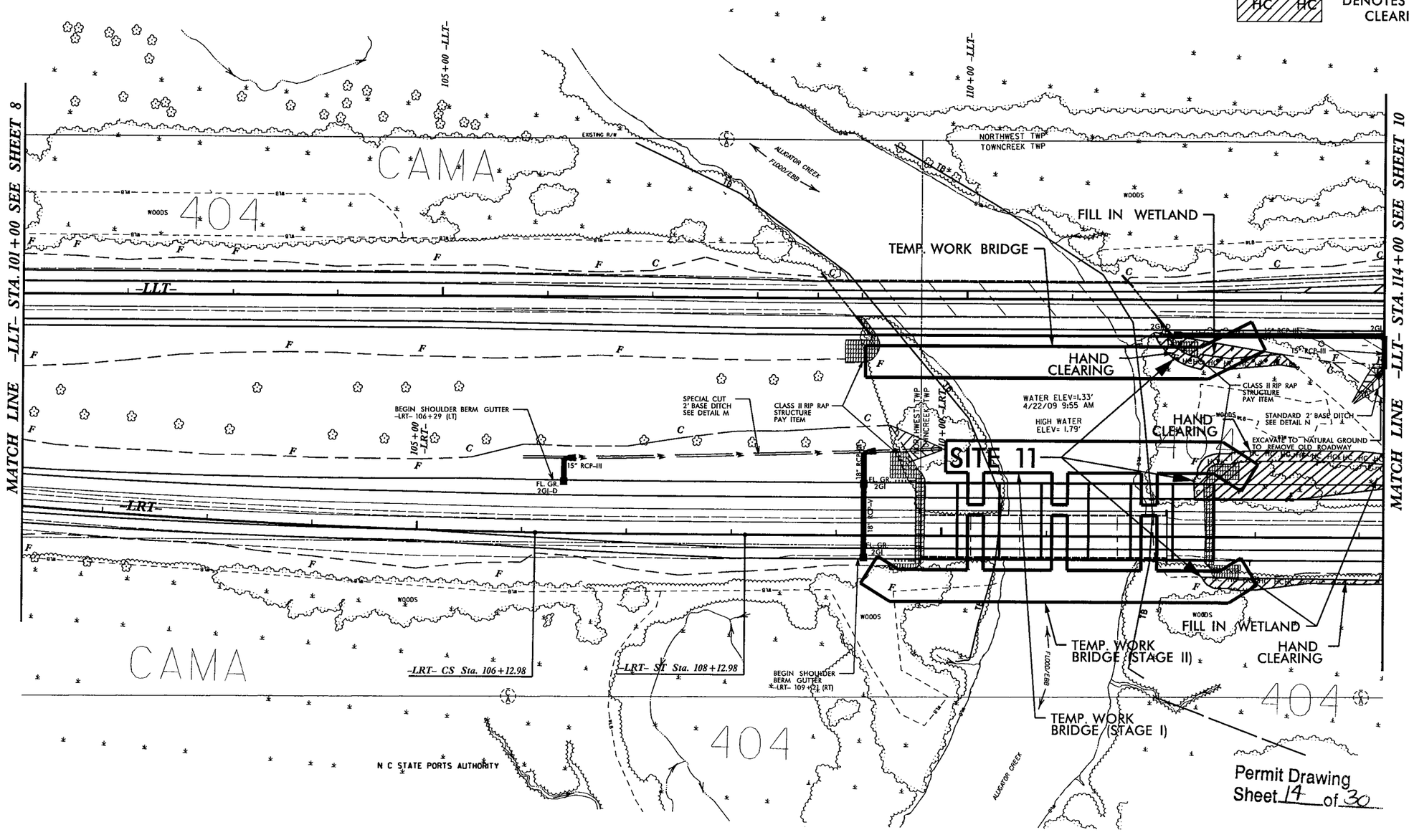
DETAIL N
STANDARD BASE DITCH
(Not to Scale)



-LLT- STA. 114+00 (RT)

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING



Permit Drawing Sheet 14 of 30

REVISIONS

8/17/99

WETLAND/SURFACE WATER PERMIT DWG.

GRAPHIC SCALE 100' 0' 100'

ENGLISH

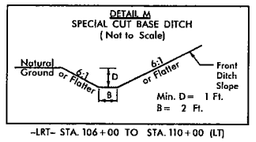
NAD 83/95

PROJECT REFERENCE NO.	SHEET NO.
R-3601	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

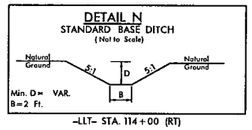
REVISIONS 8/17/99

DETAIL M
SPECIAL CUT BASE DITCH
(Not to Scale)



–LRT– STA. 106+00 TO STA. 110+00 (LT)

DETAIL N
STANDARD BASE DITCH
(Not to Scale)



–LLT– STA. 114+00 (RT)

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

MATCH LINE –LLT– STA. 101+00 SEE SHEET 8

MATCH LINE –LLT– STA. 114+00 SEE SHEET 10

105+00 –LLT–

110+00 –LLT–

EXISTING R/W

ALLIGATOR CREEK

FLOOD/EBB

NORTHWEST TWP
TOWNCREEK TWP

WOODS

404

CAMA

FILL IN WETLAND

TEMP. WORK BRIDGE

HAND CLEARING

SITE 11

WATER ELEV=1.33'
4/22/09 9:55 AM
HIGH WATER ELEV= 1.79'

CLASS II RIP RAP STRUCTURE PAY ITEM

STANDARD 2' BASE DITCH SEE DETAIL N

EXCAVATE TO NATURAL GROUND TO REMOVE OLD ROADWAY

BEGIN SHOULDER BERM GUTTER –LRT– 106+29 (LT)

SPECIAL CUT 2' BASE DITCH SEE DETAIL M

15" RCP-III

FL. GR. 2GI-D

18" RCP-III

FL. GR. 2GI

–LRT– CS Sta. 106+12.98

–LRT– ST Sta. 108+12.98

BEGIN SHOULDER BERM GUTTER –LRT– 109+21 (RT)

TEMP. WORK BRIDGE (STAGE II)

TEMP. WORK BRIDGE (STAGE I)

N C STATE PORTS AUTHORITY

Permit Drawing
Sheet 15 of 30

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	10

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

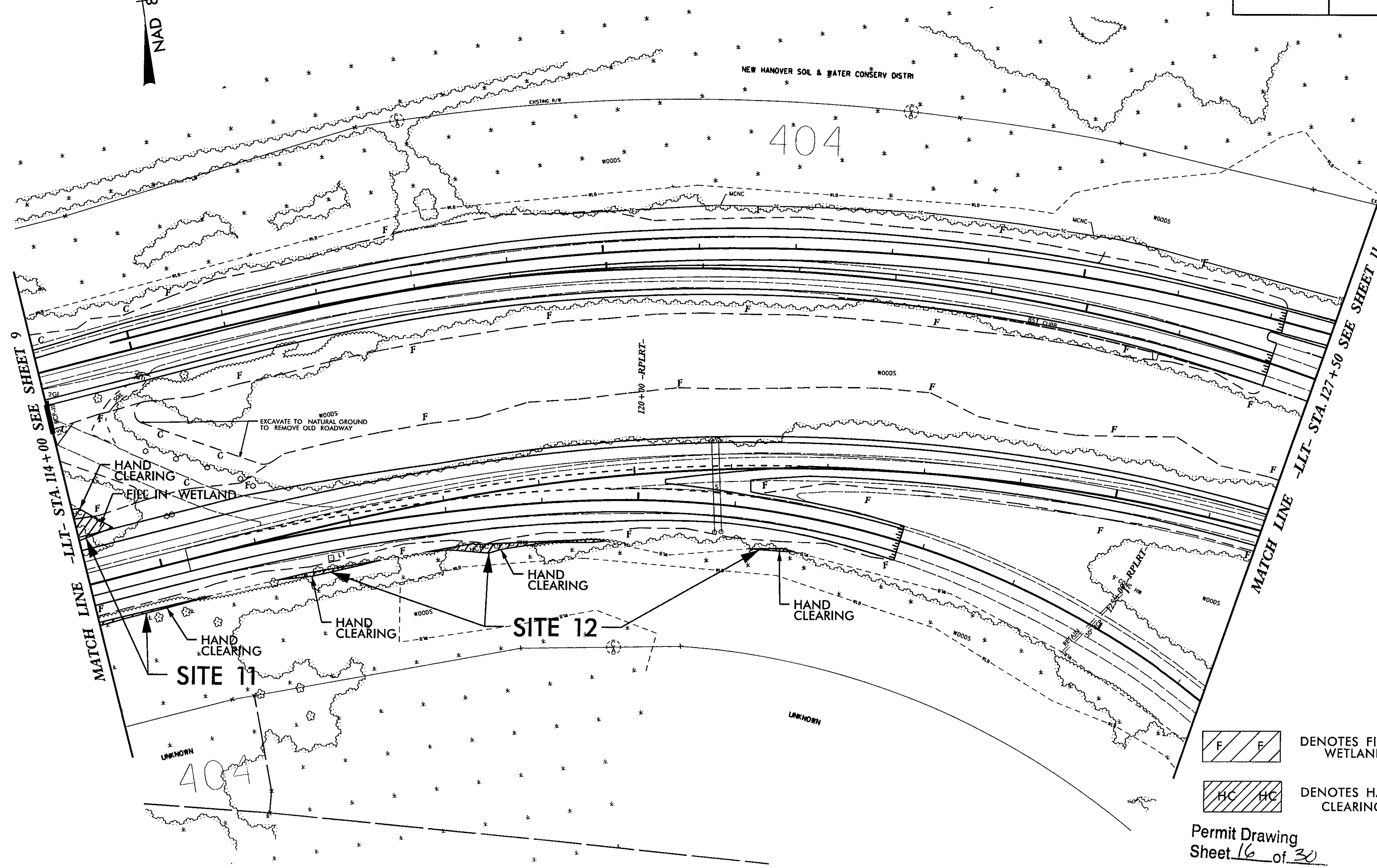
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

GRAPHIC SCALE 100' 0' 100'

NAD 83/95



DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

Permit Drawing
Sheet 16 of 30

REVISIONS

8/17/99

8/17/99

REVISIONS

WETLAND/SURFACE WATER PERMIT DWG.

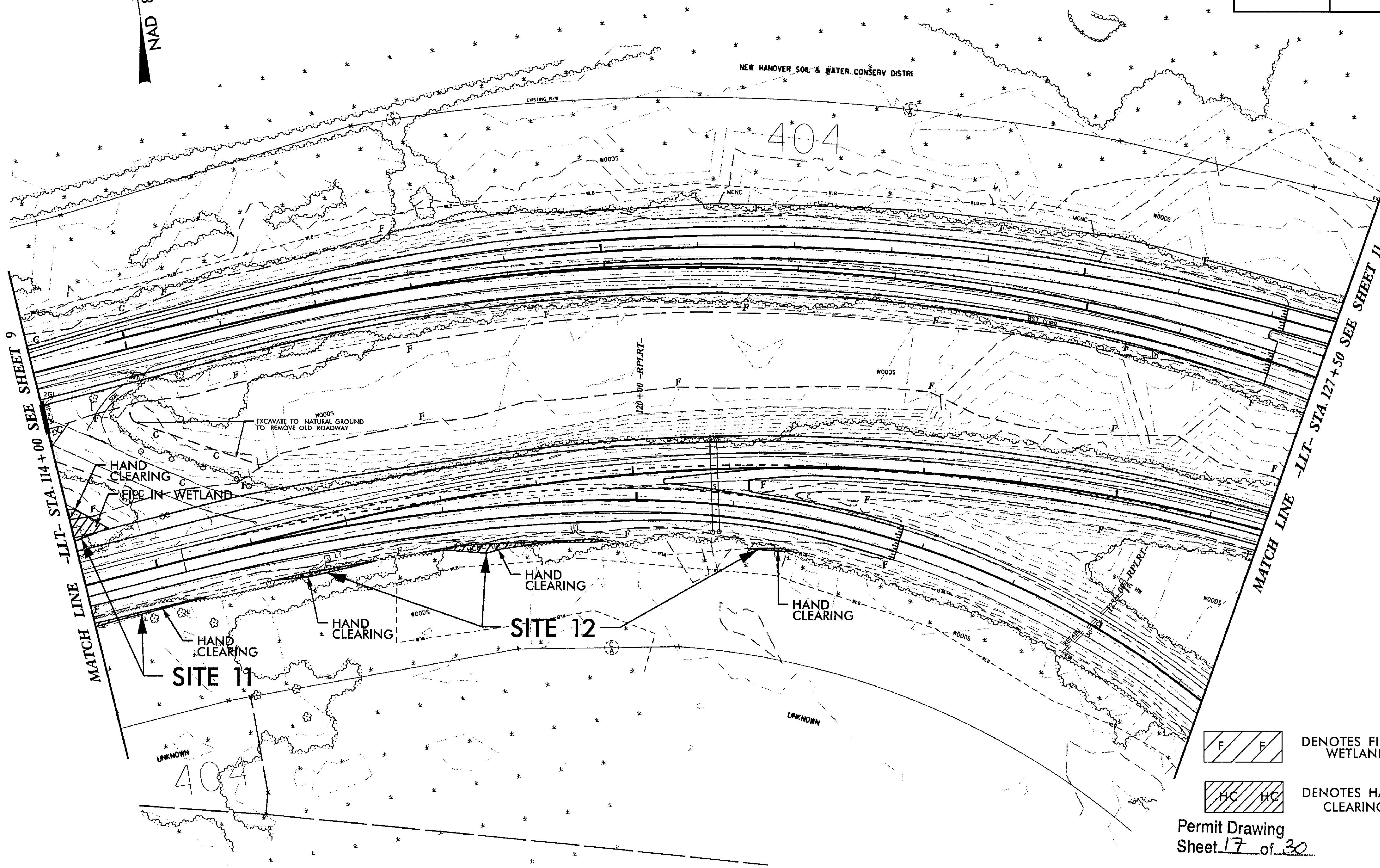
NAD 83/95

100' 0' 100'
GRAPHIC SCALE

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3601	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



F F	DENOTES FILL IN WETLAND
HC HC	DENOTES HAND CLEARING

Permit Drawing
Sheet 17 of 30

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

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALE 100' 0' 100'

NAD 83/95

ENGLISH

REVISIONS 8/17/99

MATCH LINE -Y- STA. 32+00 SEE SHEET 4

MATCH LINE -Y2- STA. 17+50 SEE SHEET 4

SITE 14

SITE 15

SITE 13

URBAN SMART GROWTH BELVILLE, LLC

VIRGINIA H. BROWNING

WILLIAM H. BROWNING, ET UX

MICHELLE L. BROWNING

SANDEEP KAPOOR, ET UX

BELVILLE PROPERTIES, LLC

UCHMAN PROPERTIES, LLC.

THOMAS HALL

FLAMINGO PROPERTIES, LLC

NORTH CAROLINA STATE HWY COMM

100' PROGRESS ENERGY RIGHT-OF-WAY

IMPACT IN SURFACE WATER

TEMP. IMPACT IN SURFACE WATER

REMOVE 10'+/- EXISTING 30" CMP

REMOVE 30" CMP

15" CMP-LW 2 ELBOWS ROD & LUGS W/ SLEEVE GASKET

REMOVE 18" RCP

HAND CLEARING

MECHANIZED CLEARING

FILL IN WETLAND

Q10=24.3 cfs
V10=0.5 FPS

CLASS B RIP RAP
EST. 4 TONS
EST. GEOTEXTILE 14 S.Y.

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

Permit Drawing
Sheet 18 of 30

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
R-3601	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

MATCH LINE -Y- STA. 32+00 SEE SHEET 4

MATCH LINE -Y2- STA. 17+50 SEE SHEET 4

GRAPHIC SCALE 100' 0' 100'

ENGLISH

NAD 83/95

SITE 14

SITE 15

SITE 13

IMPACT IN SURFACE WATER

TEMP. IMPACT IN SURFACE WATER

IMPACT IN SURFACE WATER

REMOVE 10"+/- EXISTING 30" CMP

REMOVE 30" CMP

HAND CLEARING

MECHANIZED CLEARING

FILL IN WETLAND

Q10 = 24.3 CFS
V10 = 0.5 FPS

REMOVE 18" RCP

CLASS B RIP RAP
EST. 4 TONS
EST. GEOTEXTILE 14 S.Y.

URBAN SMART GROWTH BELVILLE, LLC

VIRGINIA H. BROWNING

WILLIAM H. BROWNING, ET UX

MICHELLE L. BROWNING

SANDEEP KAPOOR, ET UX

BELVILLE PROPERTIES, LLC

LICHMAN PROPERTIES, LLC.

THOMAS HALL

FLAMINGO PROPERTIES, LLC

NORTH CAROLINA STATE HWY COMM

WOODS

EXISTING R/W

100 YR PROGRESS ENERGY RIGHT-OF-WAY

F / F DENOTES FILL IN WETLAND

HC / HC DENOTES HAND CLEARING

S / S DENOTES IMPACTS IN SURFACE WATER

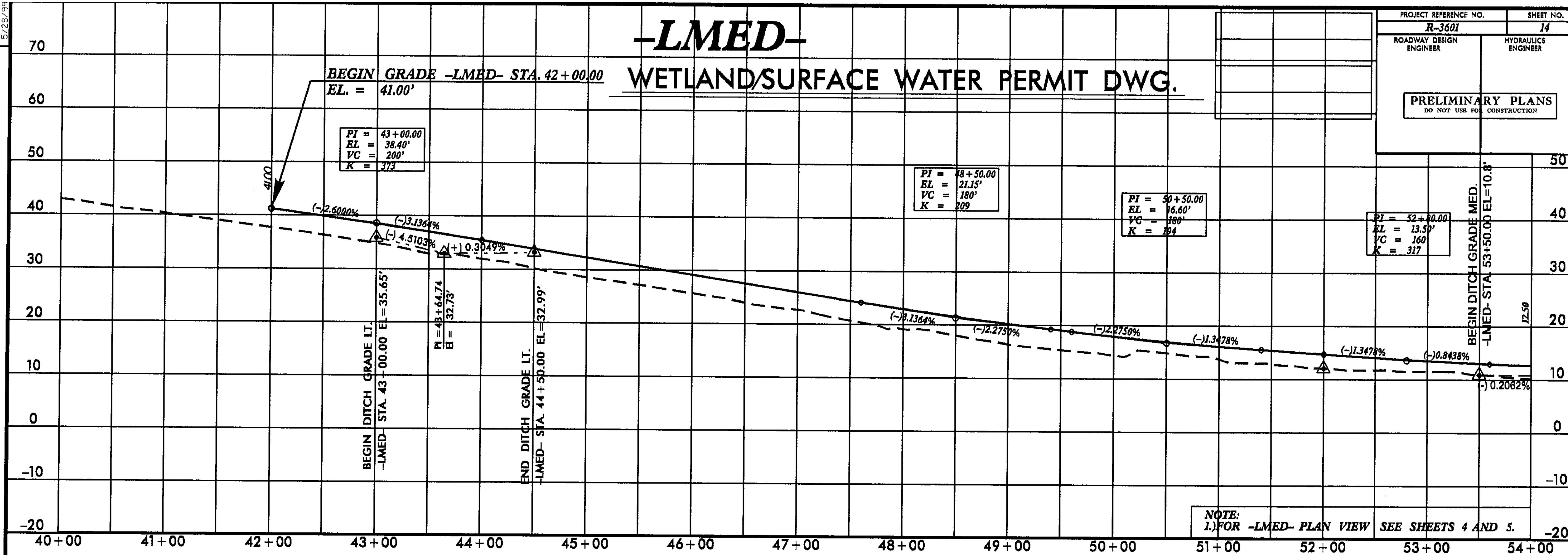
Permit Drawing
Sheet 19 of 30

PROJECT REFERENCE NO.	SHEET NO.
R-3601	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-LMED-

WETLAND/SURFACE WATER PERMIT DWG.

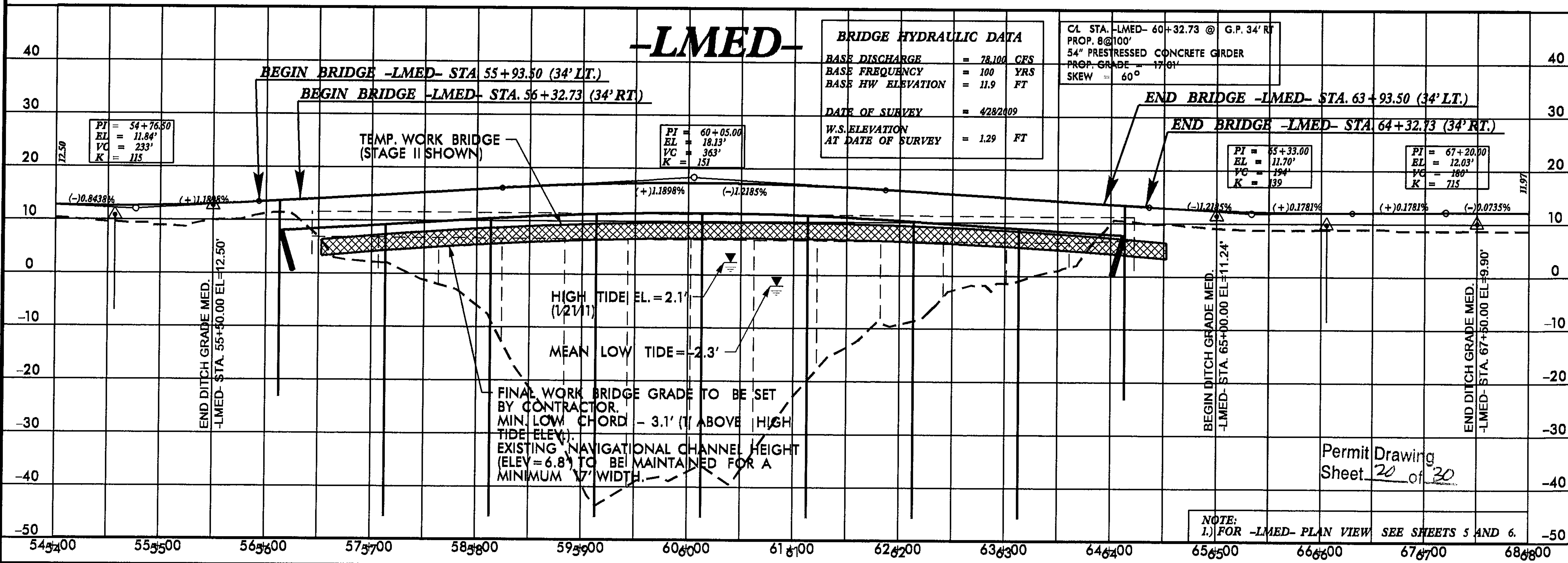


NOTE:
1.) FOR -LMED- PLAN VIEW SEE SHEETS 4 AND 5.

-LMED-

BRIDGE HYDRAULIC DATA			
BASE DISCHARGE	=	78,100	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	11.9	FT
DATE OF SURVEY	=	4/28/2009	
W.S. ELEVATION AT DATE OF SURVEY	=	1.29	FT

C/L STA. -LMED- 60+32.73 @ G.P. 34' RT
PROP. 8@100'
54" PRESTRESSED CONCRETE GIRDER
PROP. GRADE = 17.01'
SKEW = 60°



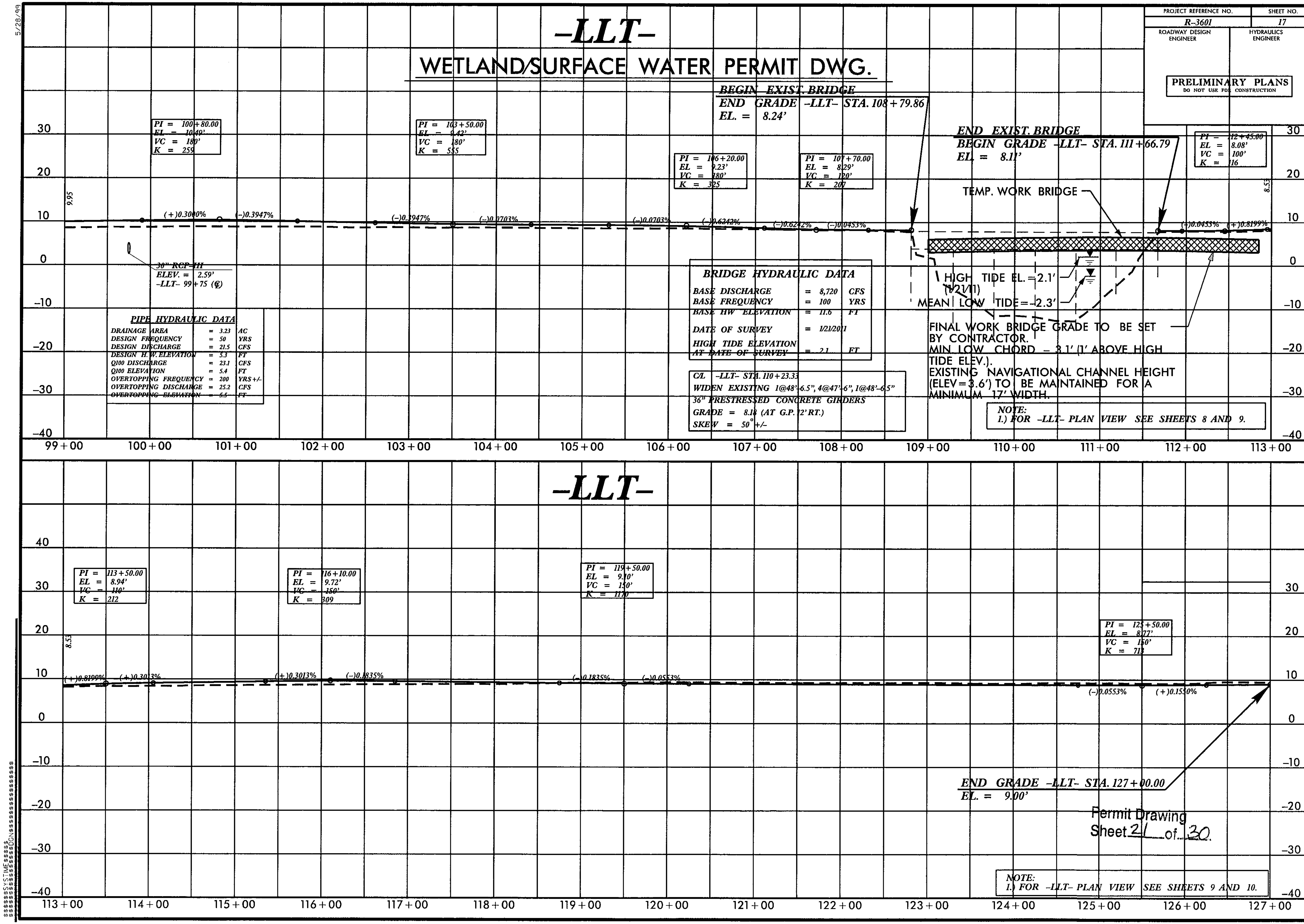
NOTE:
1.) FOR -LMED- PLAN VIEW SEE SHEETS 5 AND 6.

Permit Drawing
Sheet 20 of 30

REVISIONS

5/28/99

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


5/28/99
-LLT-
WETLAND/SURFACE WATER PERMIT DWG.
PROJECT REFERENCE NO. R-3601
SHEET NO. 17
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
BEGIN EXIST. BRIDGE
END GRADE -LLT- STA. 108+79.86
EL. = 8.24'
END EXIST. BRIDGE
BEGIN GRADE -LLT- STA. 111+66.79
EL. = 8.11'
PI = 100+80.00
EL = 10.49'
VC = 180'
K = 259
PI = 103+50.00
EL = 9.42'
VC = 180'
K = 555
PI = 106+20.00
EL = 9.23'
VC = 180'
K = 325
PI = 107+70.00
EL = 8.29'
VC = 120'
K = 207
PI = 112+45.00
EL = 8.08'
VC = 100'
K = 116
9.95
8.53
(+)0.3000%
(-)0.3947%
(-)0.3947%
(-)0.0703%
(-)0.0703%
(-)0.6242%
(-)0.6242%
(-)0.0453%
(+)0.0453%
(+)0.8199%
TEMP. WORK BRIDGE
30" RCP-III
ELEV. = 2.59'
-LLT- 99+75 (CL)
HIGH TIDE EL. = 2.1' (1/21/11)
MEAN LOW TIDE = -2.3'
FINAL WORK BRIDGE GRADE TO BE SET BY CONTRACTOR.
MIN LOW CHORD – 3.1' (1' ABOVE HIGH TIDE ELEV.).
EXISTING NAVIGATIONAL CHANNEL HEIGHT (ELEV=3.6') TO BE MAINTAINED FOR A MINIMUM 17' WIDTH.
PIPE HYDRAULIC DATA
DRAINAGE AREA = 3.23 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 21.5 CFS
DESIGN H.W. ELEVATION = 5.3 FT
Q100 DISCHARGE = 23.1 CFS
Q100 ELEVATION = 5.4 FT
OVERTOPPING FREQUENCY = 200 YRS+/-
OVERTOPPING DISCHARGE = 25.2 CFS
OVERTOPPING ELEVATION = 5.5 FT
BRIDGE HYDRAULIC DATA
BASE DISCHARGE = 8,720 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 11.6 FT
DATE OF SURVEY = 1/21/2011
HIGH TIDE ELEVATION AT DATE OF SURVEY = 2.1 FT
C/L -LLT- STA. 110+23.33
WIDEN EXISTING 1@48'-6.5", 4@47'-6", 1@48'-6.5"
36" PRESTRESSED CONCRETE GIRDERS
GRADE = 8.18 (AT G.P. 12' RT.)
SKEW = 50° +/-
NOTE:
1.) FOR -LLT- PLAN VIEW SEE SHEETS 8 AND 9.
30
20
10
0
-10
-20
-30
-40
99+00
100+00
101+00
102+00
103+00
104+00
105+00
106+00
107+00
108+00
109+00
110+00
111+00
112+00
113+00
-LLT-
PI = 113+50.00
EL = 8.94'
VC = 110'
K = 212
PI = 116+10.00
EL = 9.72'
VC = 150'
K = 309
PI = 119+50.00
EL = 9.10'
VC = 150'
K = 1170
PI = 125+50.00
EL = 8.77'
VC = 150'
K = 713
8.53
(+)0.8199%
(+)0.3013%
(+)0.3013%
(-)0.1835%
(-)0.1835%
(-)0.0553%
(-)0.0553%
(+)0.1550%
END GRADE -LLT- STA. 127+00.00
EL. = 9.00'
Permit Drawing
Sheet 21 of 30
NOTE:
1.) FOR -LLT- PLAN VIEW SEE SHEETS 9 AND 10.
40
30
20
10
0
-10
-20
-30
-40
113+00
114+00
115+00
116+00
117+00
118+00
119+00
120+00
121+00
122+00
123+00
124+00
125+00
126+00
127+00
$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$

5/28/99

–LRT–

DITCH LEGEND
RIGHT DITCH - - - - - -
MEDIAN DITCH — — —
LEFT DITCH — · — · —

PROJECT REFERENCE NO.	SHEET NO.
R–3601	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE –LRT– STA. 85+80.63
EL. = 10.55'

PI = 89+50.00
EL = 9.50'
VC = 200'
K = 326

PI = 92+00.00
EL = 10.35'
VC = 340'
K = 554

PI = 96+50.00
EL = 9.00'
VC = 150'
K = 923

(–)0.3000% (+)0.3141% (+)0.3141% (–)0.3000% (–)0.3000% (–)0.1375%

8.66

WETLAND/SURFACE WATER PERMIT DWG.

NOTE:
1.) FOR –LRT– PLAN VIEW SEE SHEETS 7 AND 8.

85+00 86+00 87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00

40 30 20 10 0 –10 –20 –40 –50

–LRT–

CL STA. –LRT– 111+17.50
PROP. 3@40',1@45',3@40'
36" PRESTRESSED CONC. GIRDER
PROP. GRADE = 9.70' (@ G.P. 12' LT)
SKEW = 90°

END BRIDGE –LRT– STA. 112+60.00
EL. = 10.09'

BEGIN BRIDGE –LRT– STA. 109+75.00
EL. = 9.28'

PI = 100+50.00
EL = 8.45'
VC = 200'
K = 941

PI = 104+50.00
EL = 8.75'
VC = 200'
K = 667

PI = 106+50.00
EL = 8.30'
VC = 150'
K = 296

PI = 112+75.00
EL = 10.17'
VC = 100'
K = 147

8.66

(–)0.1375% (–)0.1375% (+)0.0750% (+)0.0750% (–)0.2250% (+)0.2250% (+)0.3000% (–)0.2000% (+)0.3000% (+)0.3000% (–)0.3790%

10.06

BEGIN DITCH (LT.) STA. 106+00 ELEV. 8.55

END DITCH (LT.) STA. 109+00 ELEV. 9.75

TEMP. WORK BRIDGE (STAGE II SHOWN)

HIGH TIDE EL. = 2.1' (1/21/11)

MEAN LOW TIDE = –2.3'

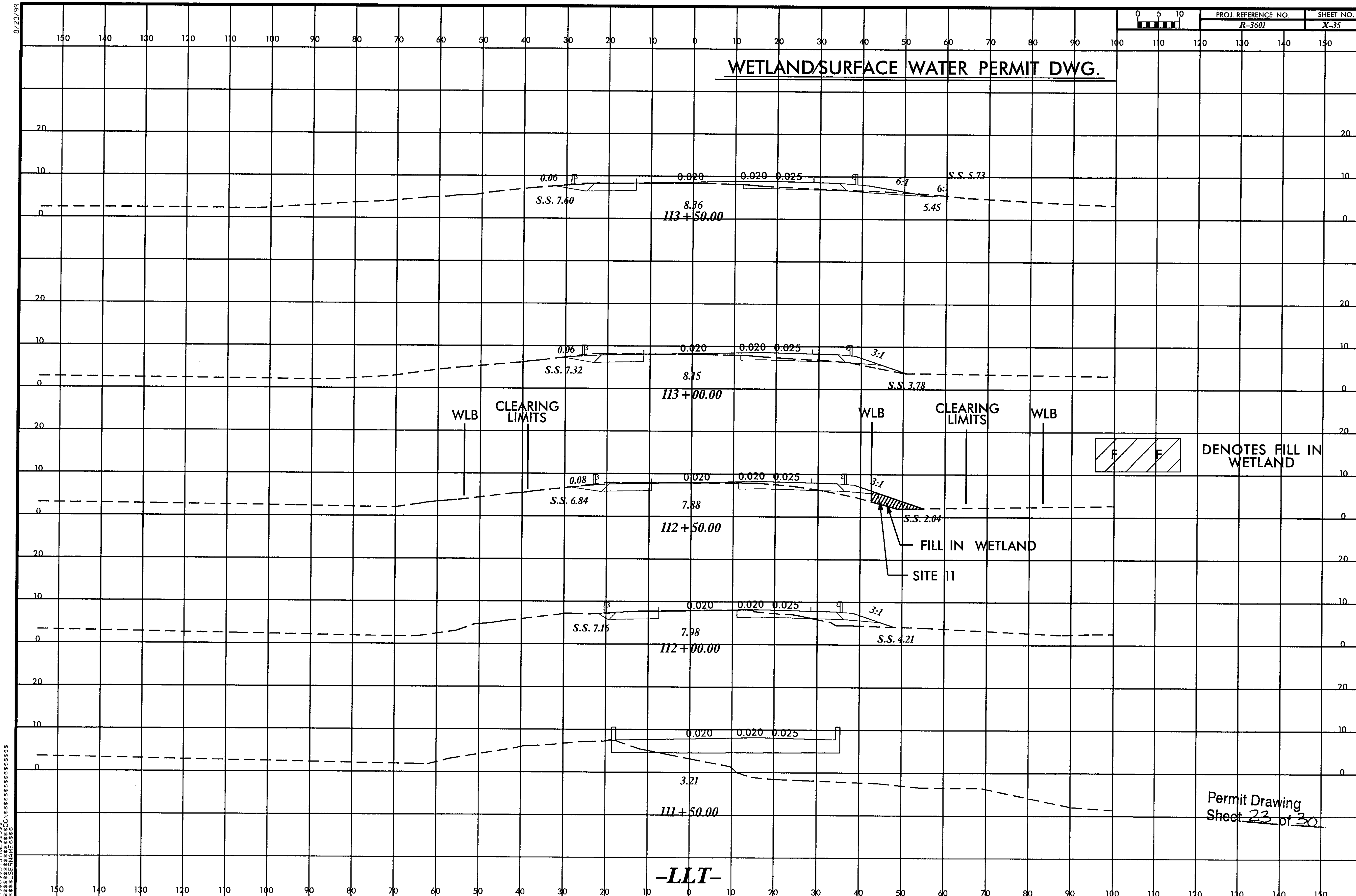
FINAL WORK BRIDGE GRADE TO BE SET BY CONTRACTOR.
MIN. LOW CHORD – 3.1' (1' ABOVE HIGH TIDE ELEV.)
EXISTING NAVIGATIONAL CHANNEL HEIGHT (ELEV = 4.5') TO BE MAINTAINED FOR A MINIMUM 17' WIDTH.

NOTE:
1.) FOR –LRT– PLAN VIEW SEE SHEETS 8 AND 9.

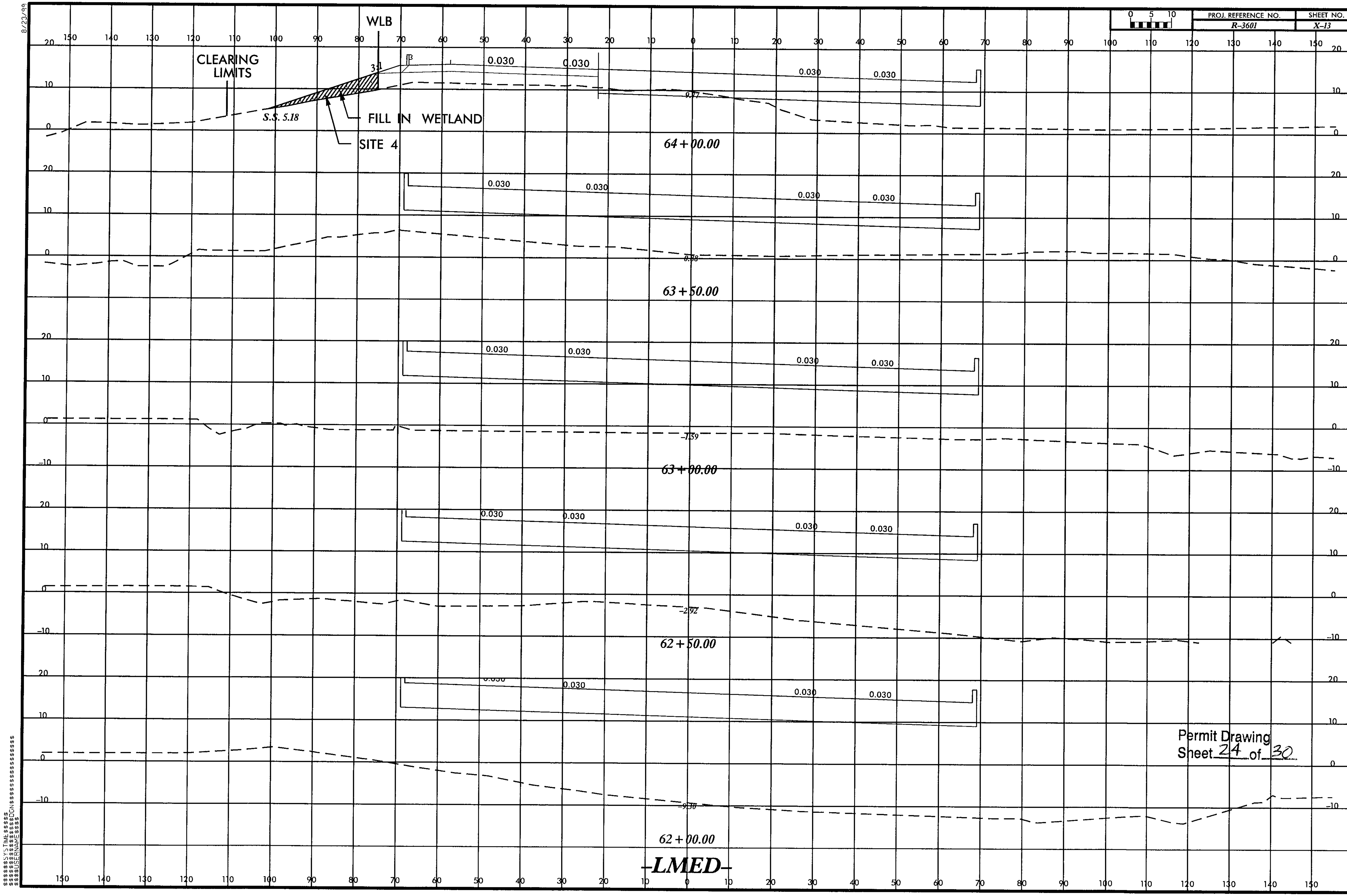
99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00

40 30 20 10 0 –10 –20 –30 –40

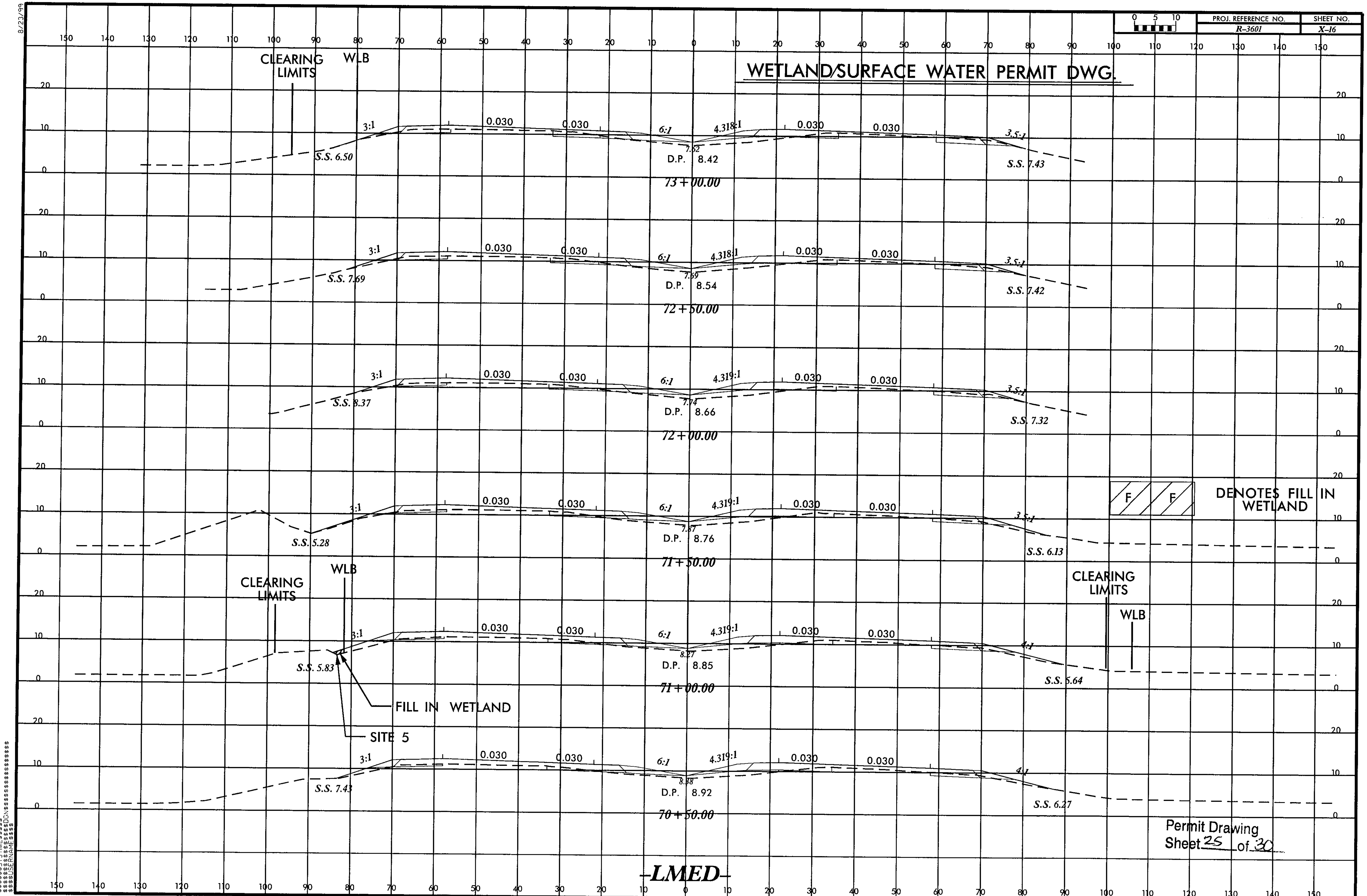
Permit Drawing
Sheet 22 of 30



PROJ. REFERENCE NO.
R-3601
SHEET NO.
X-35
0 5 10
WETLAND/SURFACE WATER PERMIT DWG.
0.06
S.S. 7.60
0.020
0.020 0.025
6:1
6:1
S.S. 5.73
5.45
8.36
113+50.00
0.06
S.S. 7.32
0.020
0.020 0.025
3:1
S.S. 3.78
8.15
113+00.00
WLB
CLEARING LIMITS
WLB
CLEARING LIMITS
WLB
DENOTES FILL IN WETLAND
F
F
0.08
S.S. 6.84
0.020
0.020 0.025
3:1
S.S. 2.04
7.88
112+50.00
FILL IN WETLAND
SITE 11
S.S. 7.16
0.020
0.020 0.025
3:1
S.S. 4.21
7.98
112+00.00
0.020
0.020 0.025
3.21
111+50.00
Permit Drawing Sheet 23 of 30
-LLT-
8/23/99



PROJ. REFERENCE NO.
R-3601
SHEET NO.
X-13
WLB
CLEARING LIMITS
3:1
S.S. 5.18
FILL IN WETLAND
SITE 4
64+00.00
63+50.00
63+00.00
62+50.00
62+00.00
-LMED-
Permit Drawing
Sheet 24 of 30



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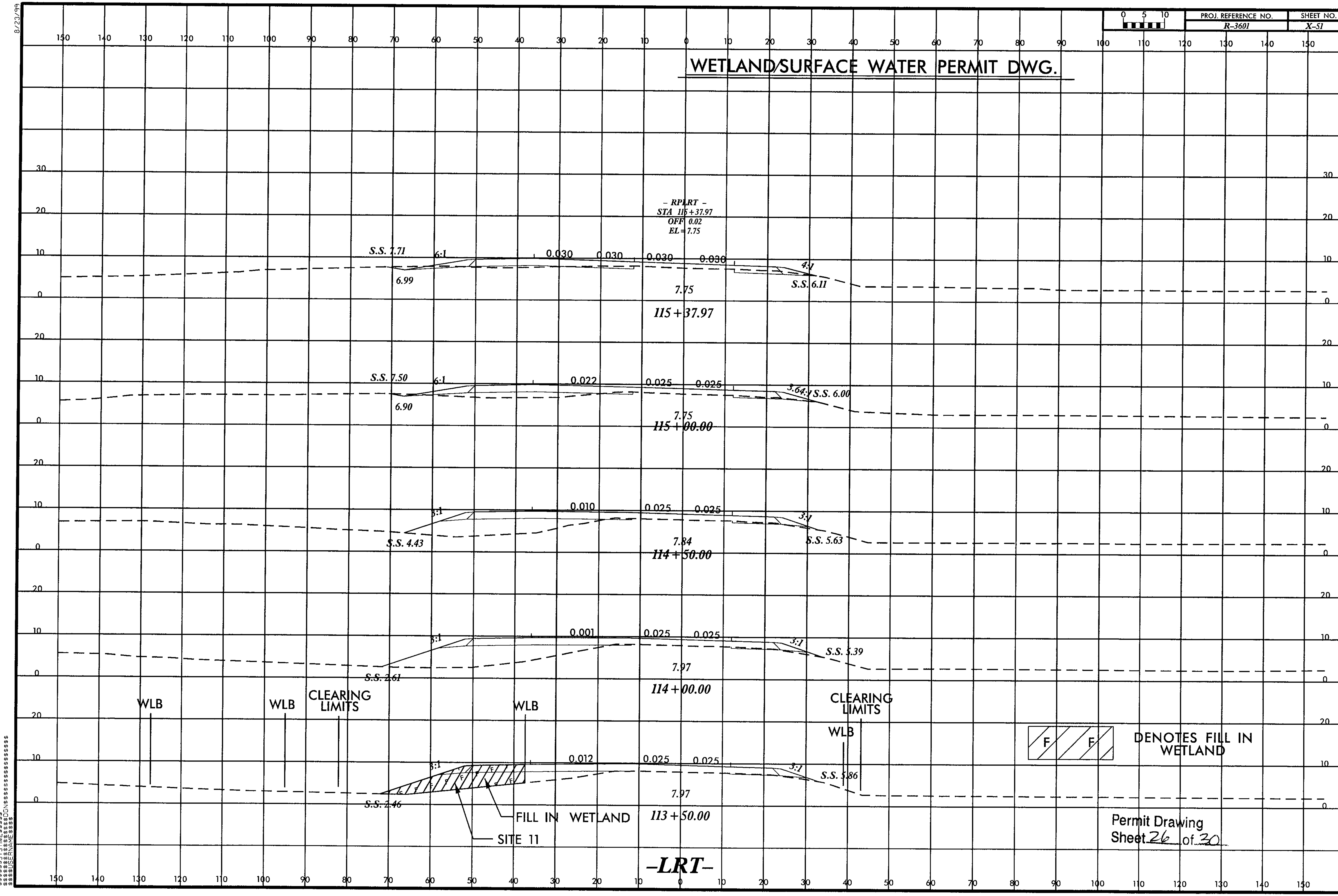
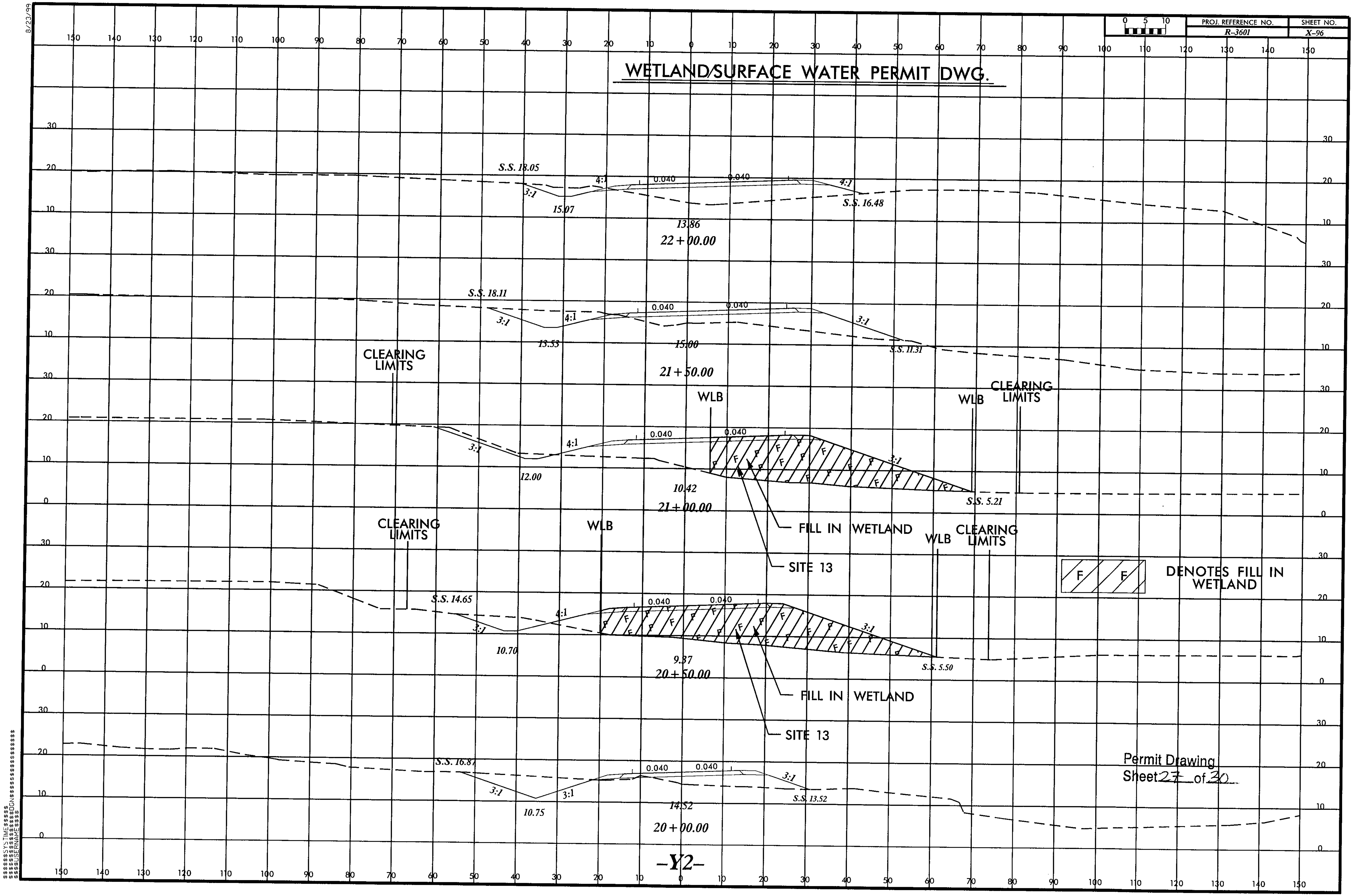
R-3601
SHEET NO.
X-16
WETLAND/SURFACE WATER PERMIT DWG.
CLEARING LIMITS
WLB
3:1
0.030
0.030
6:1
4.318:1
0.030
0.030
3.5:1
S.S. 6.50
7.52
D.P. 8.42
S.S. 7.43
73+00.00
S.S. 7.69
7.69
D.P. 8.54
S.S. 7.42
72+50.00
4.319:1
S.S. 8.37
7.74
D.P. 8.66
S.S. 7.32
72+00.00
DENOTES FILL IN WETLAND
S.S. 5.28
7.87
D.P. 8.76
S.S. 6.13
71+50.00
4:1
S.S. 5.83
8.27
D.P. 8.85
S.S. 5.64
71+00.00
FILL IN WETLAND
SITE 5
S.S. 7.43
8.38
D.P. 8.92
S.S. 6.27
70+50.00
Permit Drawing
Sheet 25 of 30
-LMED-
8/23/99



8/23/99
PROJ. REFERENCE NO.
R-3601
SHEET NO.
X-51
WETLAND/SURFACE WATER PERMIT DWG.
- RPLRT -
STA 115+37.97
OFF 0.02
EL = 7.75
S.S. 7.71
6.99
6:1
0.030
0.030
0.030
0.030
4:1
S.S. 6.11
7.75
115+37.97
S.S. 7.50
6.90
6:1
0.022
0.025
0.025
3.64:1
S.S. 6.00
7.75
115+00.00
3:1
0.010
0.025
0.025
3:1
S.S. 4.43
S.S. 5.63
7.84
114+50.00
3:1
0.001
0.025
0.025
3:1
S.S. 5.39
S.S. 2.61
7.97
114+00.00
WLB
WLB
CLEARING LIMITS
WLB
CLEARING LIMITS
WLB
3:1
0.012
0.025
0.025
3:1
S.S. 5.86
S.S. 2.46
7.97
FILL IN WETLAND
113+50.00
SITE 11
DENOTES FILL IN WETLAND
Permit Drawing
Sheet 26 of 30
-LRT-


PROJ. REFERENCE NO.
R-3601
SHEET NO.
X-96
0 5 10
WETLAND/SURFACE WATER PERMIT DWG.
S.S. 18.05
4:1
0.040
0.040
4:1
3:1
15.07
S.S. 16.48
13.86
22+00.00
S.S. 18.11
0.040
0.040
3:1
4:1
3:1
13.53
15.00
S.S. 11.31
21+50.00
CLEARING LIMITS
WLB
WLB
CLEARING LIMITS
0.040
0.040
4:1
3:1
3:1
12.00
10.42
S.S. 5.21
21+00.00
FILL IN WETLAND
SITE 13
CLEARING LIMITS
WLB
WLB
CLEARING LIMITS
DENOTES FILL IN WETLAND
S.S. 14.65
0.040
0.040
4:1
3:1
3:1
10.70
9.37
S.S. 5.50
20+50.00
FILL IN WETLAND
SITE 13
S.S. 16.87
0.040
0.040
3:1
3:1
3:1
10.75
14.52
S.S. 13.52
20+00.00
Permit Drawing
Sheet 27 of 30
-Y2-
8/23/99
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
14	Belville Properties LLC.	6131 Oleander Dr., Wilmington, NC 28402
21	Michelle L. Browning	1121 Millstream Ct., Leland, NC 28451
25	Urban Smart Growth Belville, LLC.	P. O. Box 2109, Hollywood, CA
12	Uchman Properties LLC.	

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK AND

NEW HANOVER COUNTIES

PROJECT: 38868.1.1 (R-3601)

US 17-74-76 FROM NC 133 / SR 1472

INTERCHANGE TO THE

US 421 / NC 133 INTERCHANGE

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: CAMA Permanent Fill In Wetlands (ac)	404 Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-Y2- STA 13+05	48" RCP							0.01	<0.01	47	5	
2	-LMED- STA 50+77	18" RCP						<0.01					
3	-LMED- STA 54+56	24" RCP		<0.01		<0.01**		0.02					
	-LMED- STA 55+07	FLOWABLE FILL											
4	-LMED- STA 63+40 TO	BRIDGE	0.04	0.01				0.03					
	-LMED- STA 64+46												
4	-LMED- STA 66+05	24" RCP		<0.01		<0.01**		0.02					
5	-LMED- STA 69+14 TO	ROADWAY/36" RCP		0.04	<0.01			0.19					
	-LMED- STA 74+26	36" CMP FLOWABLE FILL											
5	-LMED- STA 75+10	PIPE CLEANOUT			0.01*	0.01*							
6	-LMED- STA 83+10	PIPE CLEANOUT			0.01*	0.01*							
7	-LRT- STA 85+80 TO	ROADWAY						0.01					
	-LRT- STA 86+75												
***SUBTOTALS THIS SHEET:			0.04	0.05	0.02	0.02	0.00	0.27	0.01	<0.01	47	5	0

NOTES:

(See Notes on Sheet 2)

N.C.D.O.T.
DIVISION OF HIGHWAYS
BRUNSWICK AND NEW HANOVER COUNTY
PROJECT: 38868.1.1 (R-3601)
US 17-74-76 FROM NC 133/SR 1472
INTERCHANGE TO THE
US 421/NC 133 INTERCHANGE
SHEET OF (01/08/2012)

ATN Revised 3/31/05

Permit Drawing
Sheet 29 of 30

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: CAMA Permanent Fill In Wetlands (ac)	404 Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
8	-LLT- STA 91+99	18" RCP						<0.01					
8	-LLT- STA 94+10	PIPE CLEANOUT			<0.01*	<0.01*							
9	-LLT- STA 98+95 TO	15" CAAP & 30" RCP		<0.01				0.02					
	-LLT- STA 99+99												
10	-LRT- STA 101+08	FLOWABLE FILL						<0.01					
11	-LLT- STA 111+77 TO	BRIDGE/ROADWAY		0.02				0.03					
	-LLT- STA 113+16												
11	-LRT- STA 112+39 TO	BRIDGE/ROADWAY		0.14				0.08					
	-LRT- STA 115+42												
12	-RPLRT- STA 116+15 TO	ROADWAY						0.02					
	-RPLRT- STA 121+70												
13	-Y2- STA 20+65	ROADWAY/36" CAAP		0.16			0.04						
14	-Y- STA 34+96 TO	ROADWAY/STORM DRAIN							0.02	<0.01	135		
	-Y- STA 36+45												
15	-Y- STA 38+27	ROADWAY						<0.01					
***TOTAL THIS SHEET:				0.33	<0.01	<0.01	0.04	0.16	0.02	<0.01	135	6	
***SUBTOTALS SHEET 1:			0.04	0.05	0.02	0.02	0.00	0.27	0.01	<0.01	47	5	
***TOTALS:			**0.04**	**0.38**	**0.02**	**0.02**	**0.04**	**0.43**	**0.04**	**<0.01**	**182**	**11**	**0**

NOTES:

*** Temporary Fill and Temp. Excavation due to pipe cleanout. Temp. mats will be used for equipment to excavate a hole to capture cleaned out silt and then remove silt after flushout. Natural ground will be restored after flushout.**

**** Temporary Excavation for pipe installation. Natural ground will be restored after installation.**

***** Totals may not match sum of individual impacts due to rounding.**

Permanent impacts due to bents in water or wetlands: 0.03 acres.

Temporary impacts due to temporary work bridge bents in water or wetlands: 0.13 acres.

0.04 acres of Temporary Fill In Wetlands in the Hand Clearing areas for erosions control measures.

<0.01 acres (approx. 165ft^2) of Temporary Fill in CAMA wetlands in the Hand Clearing areas for erosions control measures.

ATN Revised 3/31/05

N.C.D.O.T.
DIVISION OF HIGHWAYS
BRUNSWICK AND NEW HANOVER COUNTY
PROJECT: 38868.1.1 (R-3601)
US 17-74-76 FROM NC 133/SR 1472
INTERCHANGE TO THE
US 421/NC 133 INTERCHANGE
SHEET OF (01/08/2012)

Permit Drawing
Sheet 30 of 30

R-3601 NEU Utility Relocations Narrative

AT&T : AT&T has underground conduits located within the project limits. AT&T will adjust the existing underground conduits as need it for the construction of the proposed drainage. AT&T will relocate the existing conduit at Brunswick River bridge due to the conflict with construction of the proposed bridge. AT&T will directionally bore new lines under the Brunswick River from sta. 53+00 to 66+00 Lt–LMED- . The bore will be 20 ft below the river bed (see plans sheet 2, 4 & 5). AT&T lines will remain in the existing conduits attached to the outside of the westbound Alligator Creek bridge. NO Impact.

AT&T- Shannon Coston (910-341-1623) and Chris Bentz w/ Telics (910-619-5500)

Time Warner Cable (TWC) : TWC has underground lines located within the project limits. TWC will be joint-use in the AT&T bore under the Brunswick River from Sta. 53+00 to 66+00 Lt – LMED- as shown see plan sheets 2, 4 & 5) due to the conflict with construction of the bridge. TWC will direct bury a new fiber optic cable beside existing fiber and coax cables to the left of – LMED- line and outside wetland areas from sta. 66+00 Lt to the left of -LLT- line sta. 108+30. TWC cable will remain in the existing conduits attached to the outside of the westbound Alligator Creek bridge (see plan sheet 3, 3A, 4, 5, 6, 7, 8, 9, 10 . NO impact

Contact person- Robert John- 910-772-5757

Earthlink : Earthlink has underground lines located within the project limits. They will abandon the existing lines and will directionally bore new lines inside the proposed and existing RW lines from Sta. 19+14 Rt. -RPCY- to – LLT – sta. 152+42 +/- . The bores under the Brunswick River and Alligator Creek will be 15 ft under the river/creek beds and a minimum of 10 ft deep outside the wetlands areas (see plan sheets 3 thru 15). NO Impact

Brian Whitford (910-332-9120) and Scott Powell w/ Templar, Inc. (919-600-4934)

MCNC : MCNC has underground lines located within the project limits. MCNC will adjust the existing lines as need it for the construction of the proposed drainage. NO impact

David Warden (919-248-1467) and John Holcomb w/ Kimley-Horn (919-653-5872)

Progress Energy (distribution) : Progress Energy has O/H lines located within the project limits Progress Energy will be removing poles at the following locations:-Y2-12+40 Lt., -Y2-13+30 Lt., -Y2-13+80 Lt., -Y2A-11+00 Lt., -Y-34+00 Rt., -Y- 34+80 Lt. due to the conflict with project

construction and new poles will be installed at these locations: -Y2- 13+30 Lt., -Y2- 14+30 Lt., -Y- 34+20 Rt., -Y- 35+10 Lt (see planS sheet 4& 5). No impact

Contact person for Progress Energy (trans)- Jamie Loy 919-604-9543, Contact person for - Progress Energy (distribution) Sheila Talton 919-481-6126 and consultant-UC Synergetic- Tom Edwards 919-438-8789

ATMC : ATMC has underground lines located within the project limits. ATMC will relocate the existing underground line due to the conflict with construction of the road to the left side of –Y2- from the very end of –Y2- line to sta. 38+73 Rt to -Y- PRC 1 ft inside RW line as shown on see plans sheet 4 &13. No impact

The contact person is Jerry Barefoot at 910-755-1709.

Brunswick Regional H2Go Water and Sewer : Burns Regional H2go water and sewer owns the water and sewer lines which is located within the project limits.

The existing water line located to the right –Y- from sta. 18+32+/- –Y- to sta. 18+61 –Y- is in conflict with construction of the proposed drainage and will be relocate further to the right of –Y- as shown of plan sheets 4. The existing water line located to the right of –YNBL- from sta. 20+47 –YNBL- to sta. 27+41–YNBL- and from sta. 30+38 +/- –YNBL- to sta. 32+12 +/- –YNBL- is in conflict with construction of the proposed drainage and will be relocate further to the right of –YNBL- line inside the proposed R/w. Relocate the gate valves, fire hydrant, connect the existing 12" water line located on the –Y2A- and connect the existing 6" water line crossing –YNBL- as shown on plans sheet 4 and 13. The existing 6" water line located to the left of –YNBL- and crossing to –Y1- line from sta. 31+35 +- –YNBL- to sta. 11+12 +- -Y1- is in conflict with construction of proposed drainage and will be relocated as shown on plans sheet 4. The existing water line located to the right of –Y2A- center line is in conflict with construction of the proposed road from sta. 10+08 +/- -Y2A- to sta. 11+37 +/- -Y2A- and will be relocated further to the right of –Y2A- center line as shown on the plans sheet 4. No impact

The existing sewer line located on -YNBL- is in conflict with construction of the proposed drainage from sta. 18+40+/- -YNBL- to Sta. 29+78 +/- -YNBL- and will be relocated to the right side of -YNBL- center line as shown on plans sheet 4. The existing sewer line located to the left of –Y2A- line from sta. 14+37 +/- -Y2A- to sta. 15+30 +/- -Y2A- is in conflict with construction of proposed ditch and will be relocated further to the left as shown on plans sheet 4. No impact

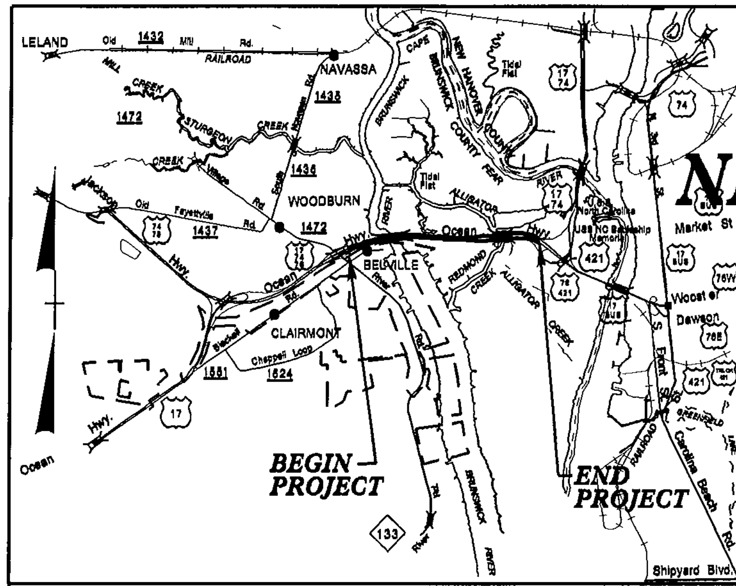
The contact person is Bob Walker at Office: 910-371-9949, ext 106 and Mobile: 910-279-4581

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEU UTILITY DRAWING PLANS
BRUNSWICK AND NEW HANOVER COUNTIES

NAD 83/95

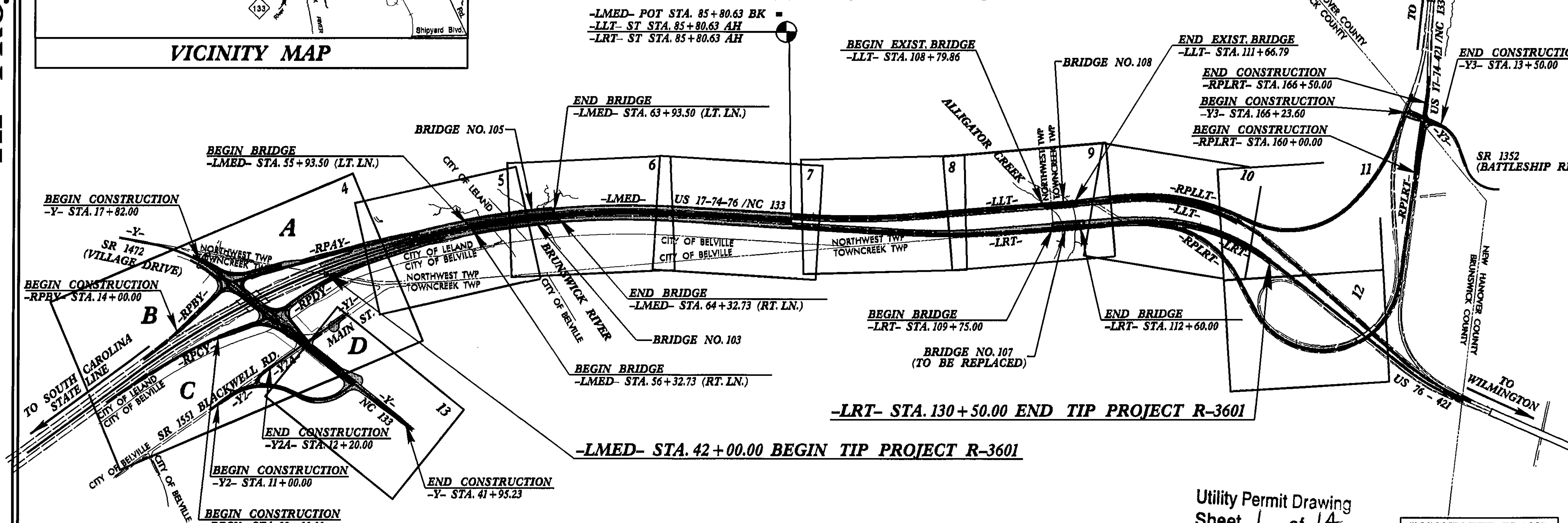
TIP PROJECT:



VICINITY MAP

LOCATION: US 17-74-76 FROM NC 133 / SR 1472 INTERCHANGE TO THE US 421 /NC 133 INTERCHANGE

TYPE OF WORK: RELOCATE UTILITY LINES



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF LELAND AND BELVILLE.

Utility Permit Drawing
Sheet 1 of 14

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

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

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2 THUR 3A	PROFILE SHEETS
4 THRU 12	UTILTIY DRAWING SHEETS

UTILITIES OWNER

1- AT&T
2- TIME WARNER CABLE (TWC)
3- EARTHLINK
4- MCNC
5- PROGRESS ENERGY (DISTRIBUTION)
6- ATMC
7- BRUNSWICK REGIONAL H2GO WATER AND SEWER

SEAL

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

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

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Corey Bousquet, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Kifah Kamil UTILITIES PROJECT DESIGNER

28-FEB-2013 18:24
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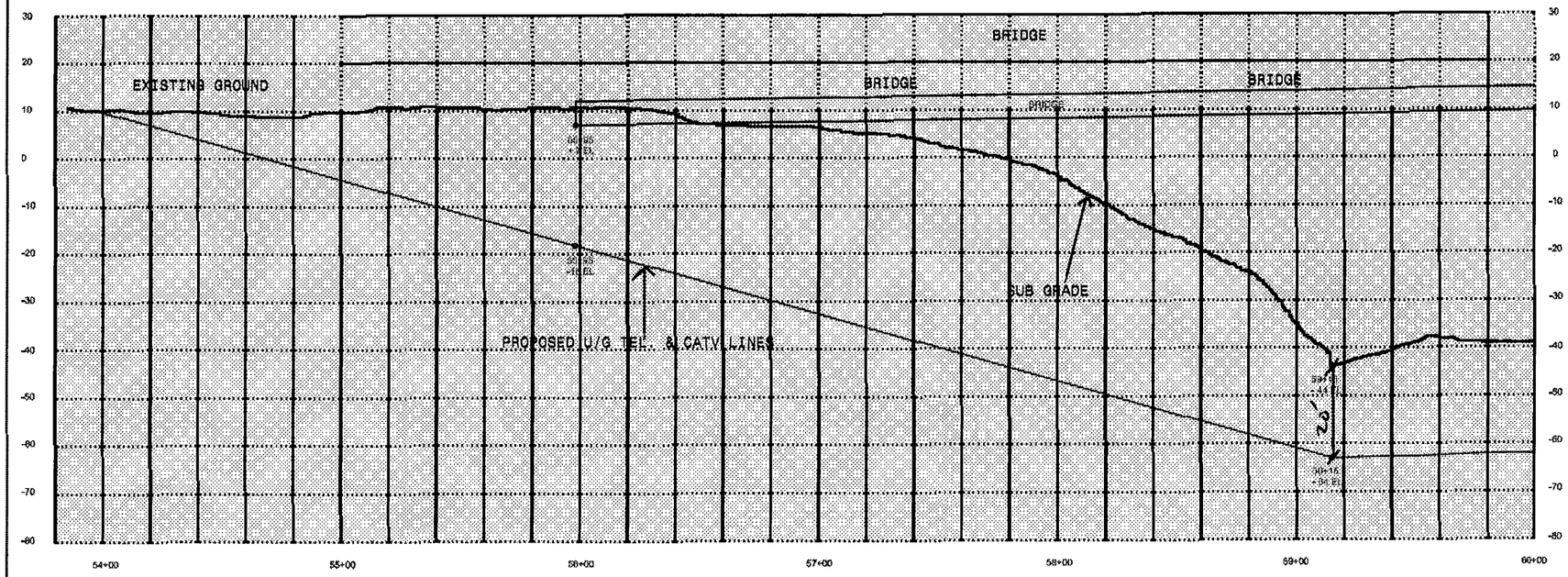
$$$$USERNAME$$$$
09/08/99

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

PROPOSED U/G TEL. LINE PROFILE

PRELIMINARY
BORE DETAIL - PROFILE VIEW



DWG _01_ OF _02_

Utility Permit Drawing
Sheet 2 of 14

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

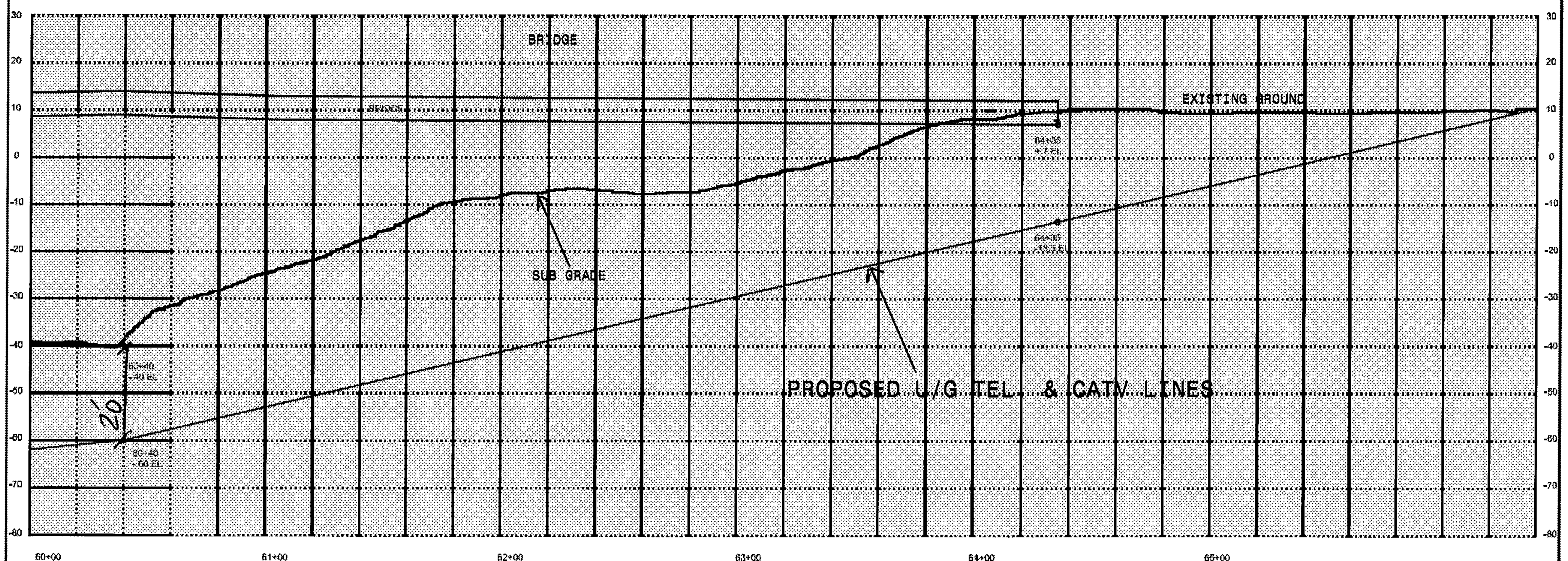
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

PROPOSED U/G TEL. LINE PROFILE

PRELIMINARY
BORE DETAIL - PROFILE VIEW



Utility Permit Drawing
Sheet 3 of 14

DWG _02_ OF _02_

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

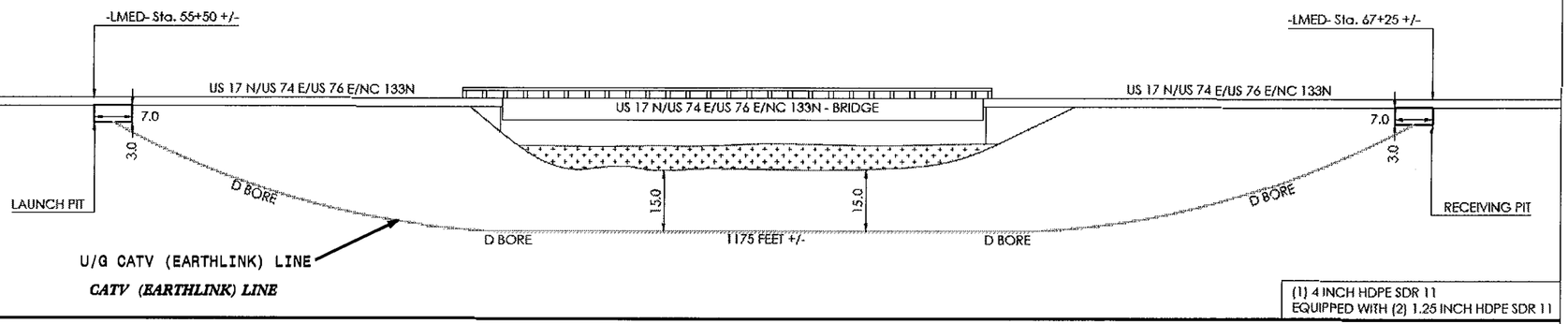
8/17/99

REVISIONS

9/24/12 Design Revision: Revised proposed structure over the Brunswick River from dual bridges to one bridge. SCL

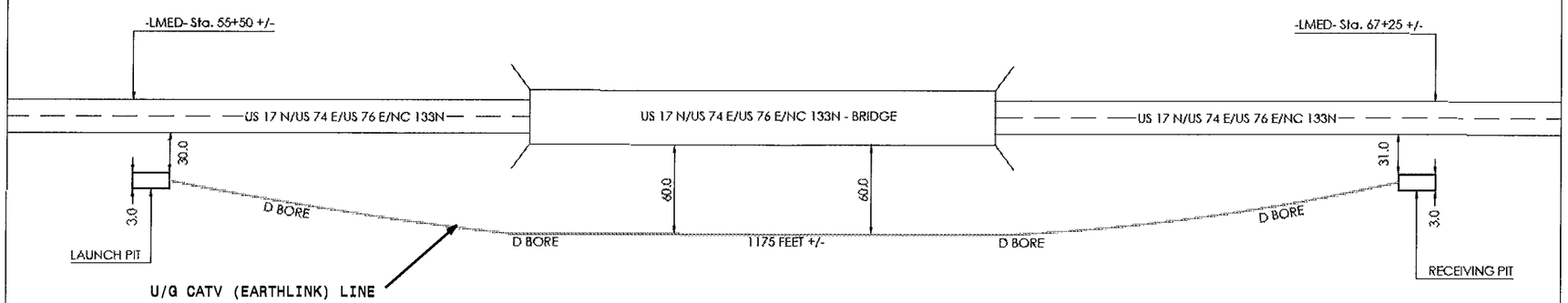
BRUNSWICK RIVER CROSSING
HORIZONTAL DIRECTIONAL DRILL

PROFILE VIEW



(1) 4 INCH HDPE SDR 11
EQUIPPED WITH (2) 1.25 INCH HDPE SDR 11

AERIAL VIEW



(1) 4 INCH HDPE SDR 11
EQUIPPED WITH (2) 1.25 INCH HDPE SDR 11

ENGINEERED AND DRAFTED BY:

TEMPLAR INC.

PAGE NOTES:

BTI
3255 BURNT MILL DR
SUITE: C
WILMINGTON, NC 28403

BELVILLE, NC	TEMPLAR, INC PROJECT NUMBER	ALL THE INFORMATION ON THESE PLANS ARE PROPRIETARY AND SHALL NOT BE REPRODUCE OR DISCLOSED WITHOUT WRITTEN CONSENT.	DWG NO.
	TI-122		D1.1
SCALE	BTI PROJECT NUMBER		
NTS	R-3601		

Utility Permit Drawing
Sheet 4 of 14

PROJECT REFERENCE NO.	SHEET NO.
R-3601	3A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

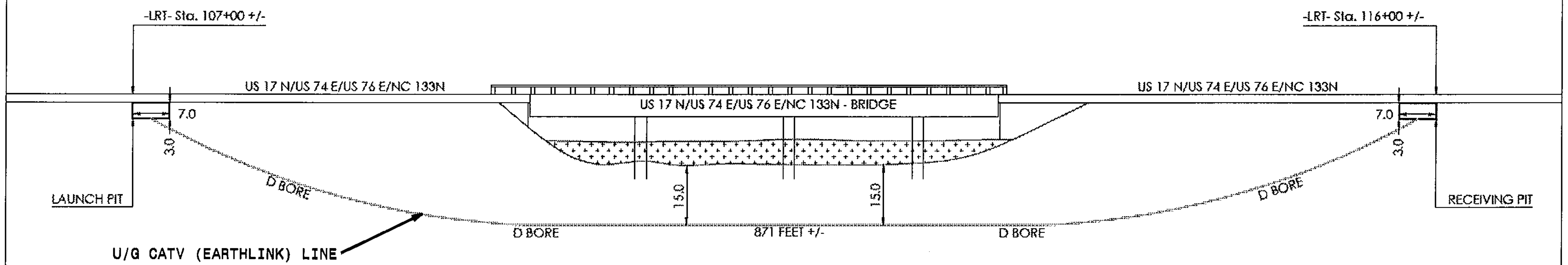
8/17/99

REVISIONS

9/24/12 Design Revision: Revised proposed structure over the Brunswick River from dual bridges to one bridge. SCL

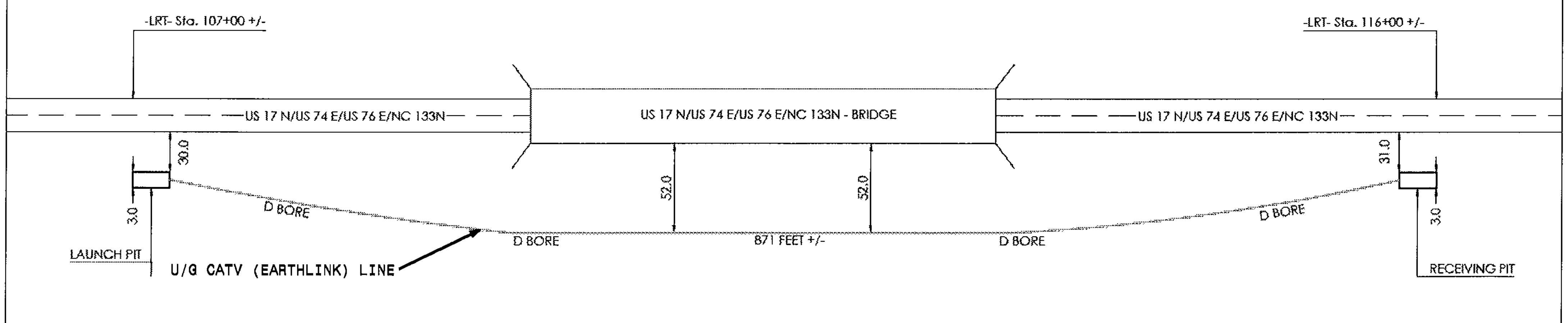
ALLIGATOR CREEK CROSSING
HORIZONTAL DIRECTIONAL DRILL

PROFILE VIEW



(1) 4 INCH HDPE SDR 11
EQUIPPED WITH (2) 1.25 INCH HDPE SDR 11

AERIAL VIEW



(1) 4 INCH HDPE SDR 11
EQUIPPED WITH (2) 1.25 INCH HDPE SDR 11

ENGINEERED AND DRAFTED BY:

TEMPLAR INC.	PAGE NOTES:	BTI 3255 BURNT MILL DR SUITE: C WILMINGTON, NC 28403	BELVILLE, NC	TEMPLAR, INC PROJECT NUMBER TI-122	ALL THE INFORMATION ON THESE PLANS ARE PROPRIETARY AND SHALL NOT BE REPRODUCE OR DISCLOSED WITHOUT WRITTEN CONSENT.	DWG NO. D1.1
			SCALE NTS	BTI PROJECT NUMBER R-3601		

Utility Permit Drawing
Sheet 5 of 14

21-FEB-2013 10:09
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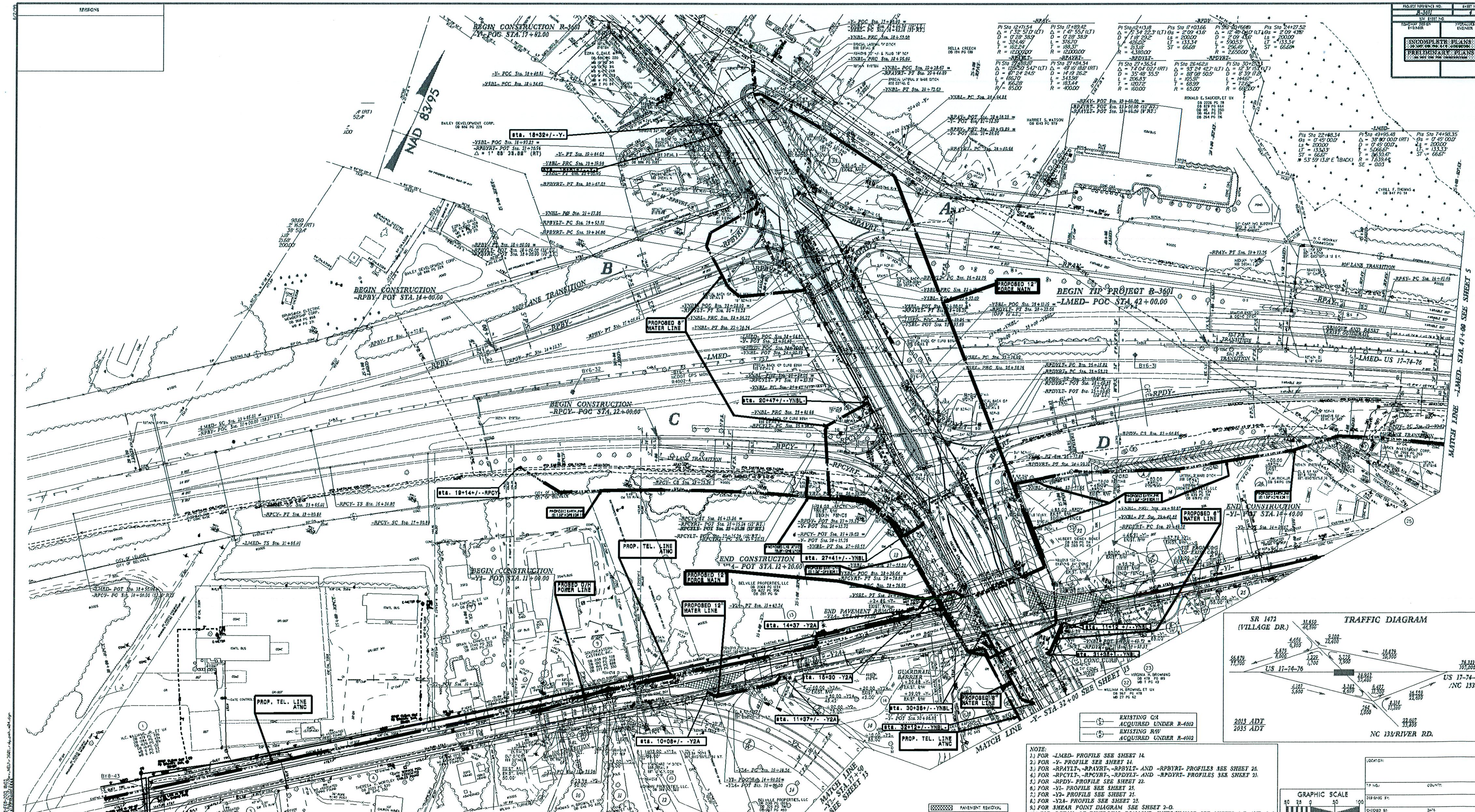


NOTE:
1.) FOR -LMED- PROFILE SEE SHEET 14.
2.) FOR -Y- PROFILE SEE SHEET 24.
3.) FOR -RPAYLT-, -RPAYRT-, -RPBYLT- AND -RPBYRT- PROFILES SEE SHEET 26.
4.) FOR -RPCYLT-, -RPCYRT-, -RPDYLT- AND -RPDYRT- PROFILES SEE SHEET 21.
5.) FOR -RPDY- PROFILE SEE SHEET 22.
6.) FOR -Y1- PROFILE SEE SHEET 25.
7.) FOR -Y2- PROFILE SEE SHEET 25.
8.) FOR -Y2A- PROFILE SEE SHEET 25.
9.) FOR SHEAR POINT DIAGRAM SEE SHEET 2-O.
10.) FOR DETAIL OF DIVERGING DIAMOND INTERCHANGE SEE SHEETS 2-P AND 2-Q.

Utility Permit Drawing
Sheet 6 of 14

PROJECT REFERENCE NO.	SHEET NO.
R-3601	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

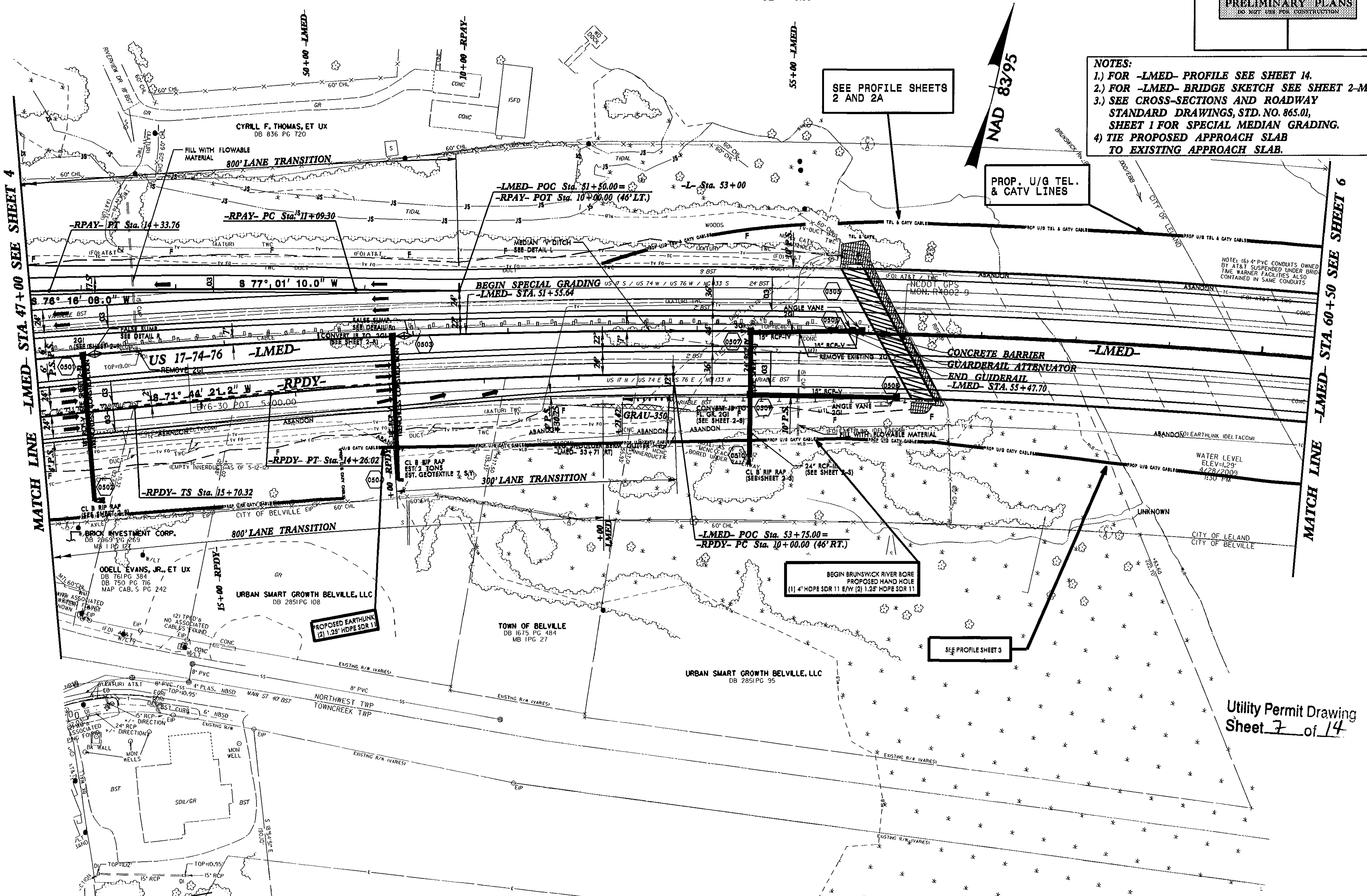
-LMED-

PIs Sta 22+98.34	PI Sta 49+95.48	PIs Sta 74+98.35
Θs = 0° 45′ 00.0″	Δ = 38° 00′ 00.0″ (RT)	Θs = 0° 45′ 00.0″
Ls = 200.00′	D = 0° 45′ 00.0″	Ls = 200.00′
LT = 133.33′	L = 5,066.67′	LT = 133.33′
ST = 66.67′	T = 2,630.47′	ST = 66.67′
N 53° 59′ 13.8″ E (BACK)	R = 7,639.44′	
	SE = 0.03	

-RPDY-

PI Sta 12+59.51	PIs Sta 16+33.49	PI Sta 20+11.50	PIs Sta 23+68.76
Δ = 4° 07′ 42.6″ (LT)	Θs = 0° 47′ 44.4″	Δ = 11° 56′ 07.9″ (LT)	Θs = 2° 02′ 46.6″
D = 0° 47′ 44.8″	Θs = 2° 02′ 47.0″	D = 2° 02′ 46.6″	Ls = 200.00′
L = 518.80′	Ls = 200.00′	L = 583.28′	LT = 133.34′
T = 259.51′	LT = 114.69′	T = 292.70′	ST = 66.67′
R = 7,200.00′	ST = 85.35′	R = 2,800.00′	
		SE = 0.05	

NOTES:
1.) FOR -LMED- PROFILE SEE SHEET 14.
2.) FOR -LMED- BRIDGE SKETCH SEE SHEET 2-M.
3.) SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.
4) TIE PROPOSED APPROACH SLAB TO EXISTING APPROACH SLAB.



Utility Permit Drawing
Sheet 7 of 14

REVISIONS
9/24/12 Design Revision: Revised proposed structure over the Brunswick River from dual bridges to one bridge. SCL

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

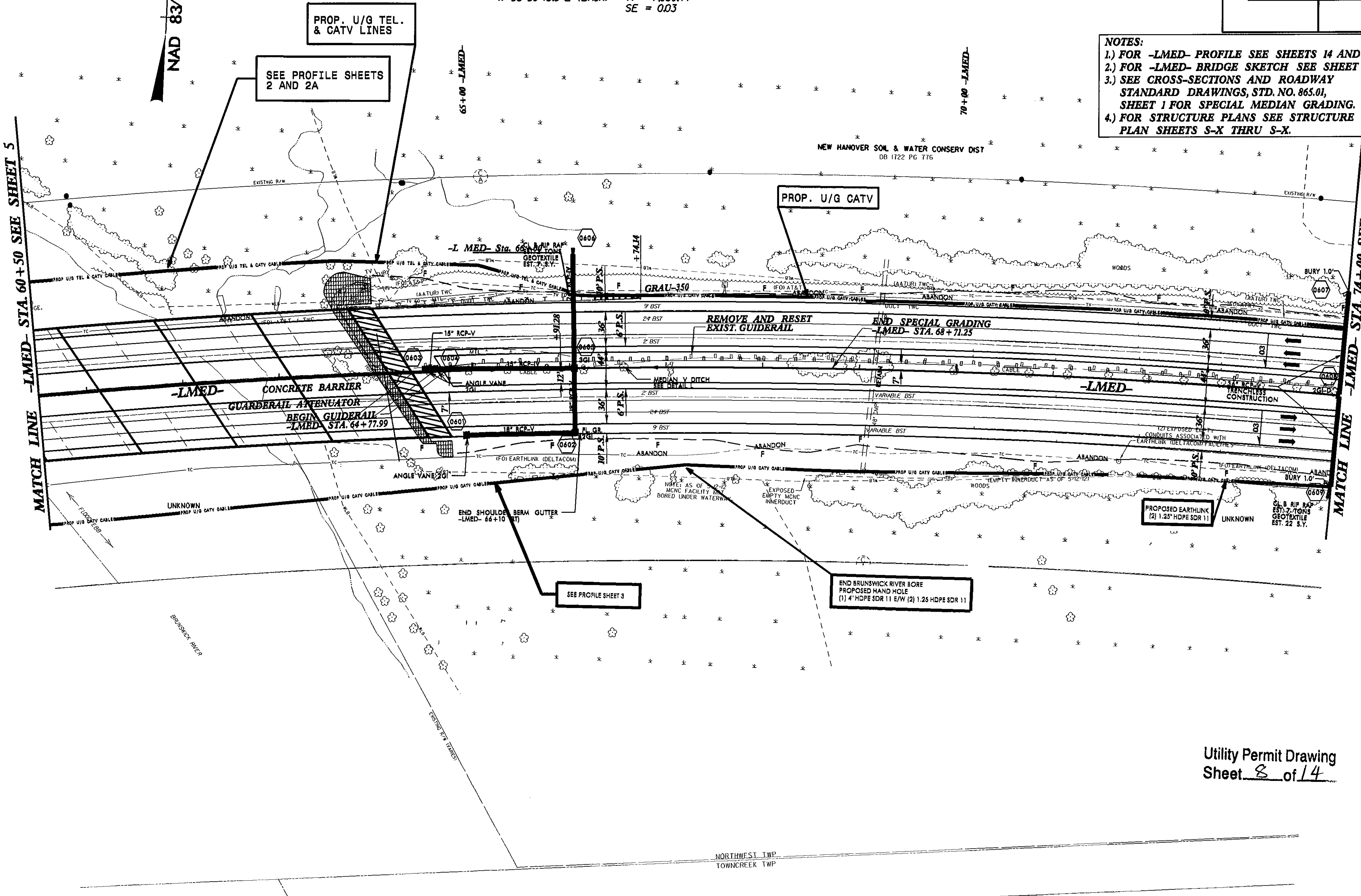
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-LMED-

PIs Sta 22+98.34	PI Sta 49+95.48	PIs Sta 74+98.35
θs = 0° 45' 00.0"	Δ = 38° 00' 00.0" (RT)	θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5,066.67'	LT = 133.33'
ST = 66.67'	T = 2,630.47'	ST = 66.67'
N 53° 59' 13.8" E (BACK)	R = 7,639.44'	
	SE = 0.03	

NOTES:
1.) FOR -LMED- PROFILE SEE SHEETS 14 AND 15.
2.) FOR -LMED- BRIDGE SKETCH SEE SHEET 2-M.
3.) SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.
4.) FOR STRUCTURE PLANS SEE STRUCTURE PLAN SHEETS S-X THRU S-X.



Utility Permit Drawing
Sheet 8 of 14

REVISIONS
9/24/12 Design Revision: Revised proposed structure over the Brunswick River from dual bridges to one bridge. SCL

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

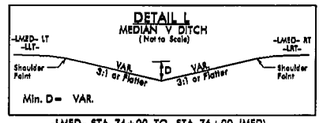
-LMED-

Pls Sta 22+98.34
Es = 0' 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
N 53° 59' 13.8" E (BACK)

Pl Sta 49+95.48
Δ = 38° 00' 00.0" (RT)
D = 0° 45' 00.0"
L = 5,066.67'
T = 2,630.47'
R = 7,639.44'
SE = 0.03

Pls Sta 74+98.35
Es = 0' 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

DETAIL L
MEDIAN V DITCH
(Not to Scale)



Min. D= VAR.

-LMED- STA. 74+00 TO STA. 76+00 (MED)
-LMED- STA. 82+00 TO STA. 84+00 (MED)
-LLT- STA. 85+81 TO STA. 95+00 (RT)

NAD 83/95

-LLT-

Pls Sta 87+13.96
Es = 0' 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
S 86° 30' 46.2" E (BACK)

Pl Sta 92+45.65
Δ = 6° 58' 00.0" (LT)
D = 0° 45' 00.0"
L = 928.89'
T = 465.02'
R = 7,639.44'
SE = 0.05

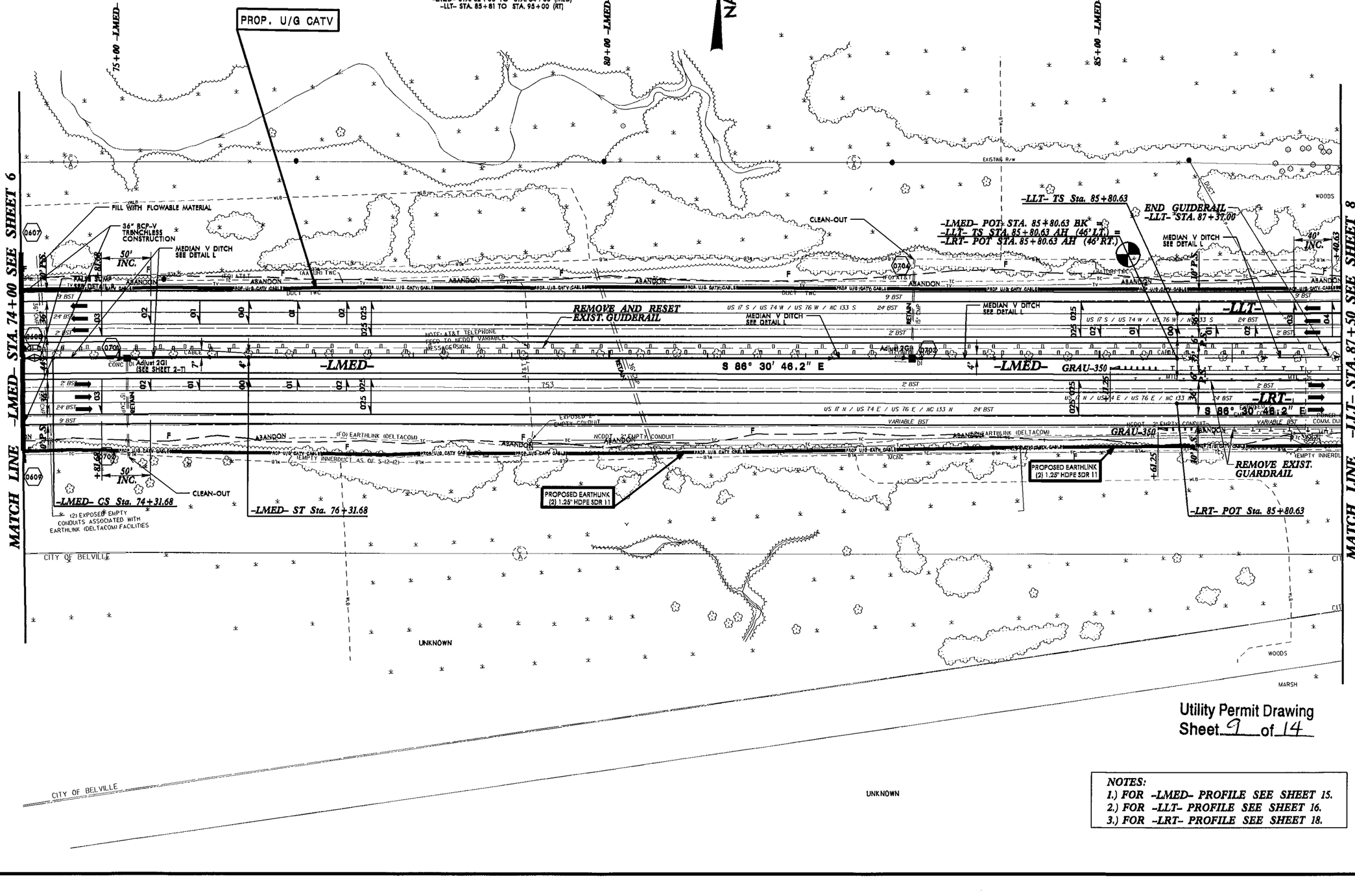
Pls Sta 97+76.19
Es = 0' 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

-LMED- STA. 74+00 SEE SHEET 6

MATCH LINE -LMED- STA. 74+00 SEE SHEET 6

MATCH LINE -LLT- STA. 87+50 SEE SHEET 8

-LLT- STA. 87+50 SEE SHEET 8



Utility Permit Drawing
Sheet 9 of 14

NOTES:
1.) FOR -LMED- PROFILE SEE SHEET 15.
2.) FOR -LLT- PROFILE SEE SHEET 16.
3.) FOR -LRT- PROFILE SEE SHEET 18.

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3601	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

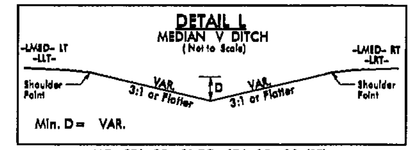
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-LLT-

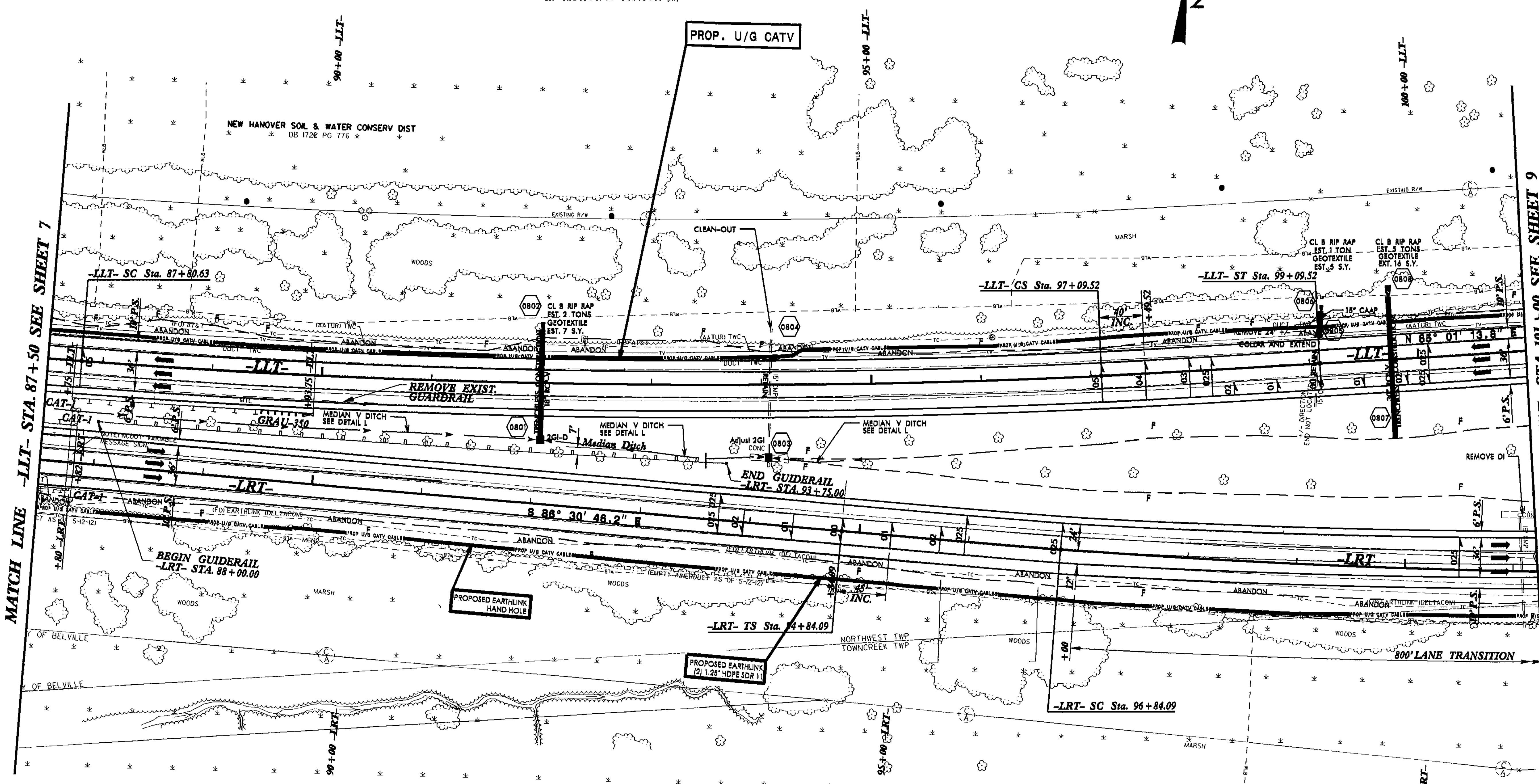
PIs Sta 87+13.96	PI Sta 92+45.65	PIs Sta 97+76.19
Θs = 0° 45' 00.0"	Δ = 6° 58' 00.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 928.89'	LT = 133.33'
ST = 66.67'	T = 465.02'	ST = 66.67'
S 86° 30' 46.2" E (BACK)	R = 7,639.44'	
	SE = 0.05	

-LRT-

PIs Sta 96+17.42	PI Sta 101+49.11	PIs Sta 106+79.65
Θs = 0° 45' 00.0"	Δ = 6° 58' 00.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 928.89'	LT = 133.33'
ST = 66.67'	T = 465.02'	ST = 66.67'
	R = 7,639.44'	
	SE = 0.025	



-LLT- STA. 85+81 TO STA. 95+00 (RT)



Utility Permit Drawing
Sheet 10 of 14

NOTES:
1.) FOR -LLT- PROFILE SEE SHEET 16.
2.) FOR -LRT- PROFILE SEE SHEET 18.

REVISIONS

28-FEB-2013 17:47
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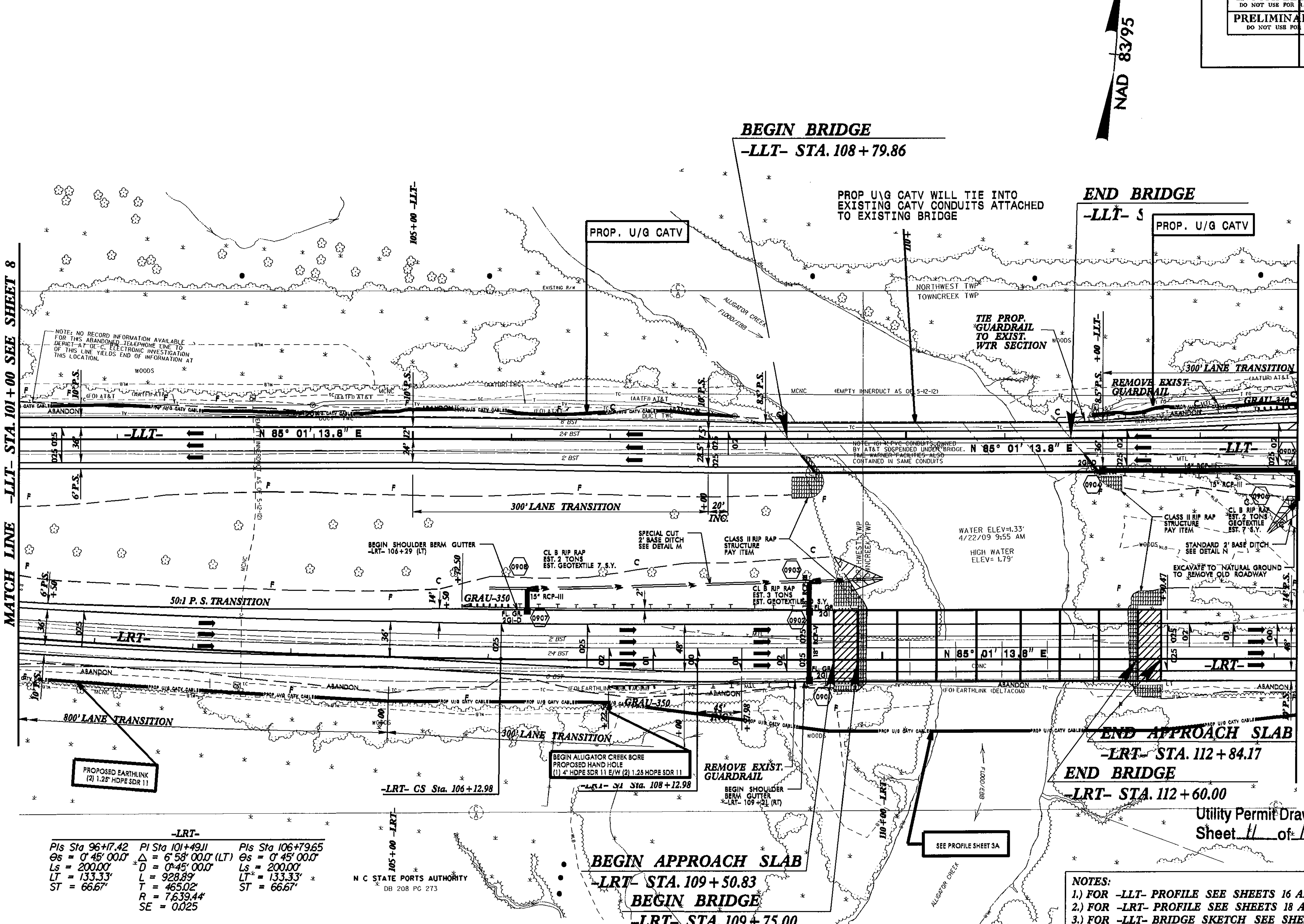
PROJECT REFERENCE NO.	SHEET NO.
R-3601	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/17/99



NAD 83/95
BEGIN BRIDGE
-LLT- STA. 108+79.86
END BRIDGE
-LLT-
PROP U\G CATV WILL TIE INTO EXISTING CATV CONDUITS ATTACHED TO EXISTING BRIDGE
PROP. U/G CATV
PROP. U/G CATV
MATCH LINE -LLT- STA. 101+00 SEE SHEET 8
MATCH LINE -LLT- STA. 114+00 SEE SHEET 10
NOTE: NO RECORD INFORMATION AVAILABLE FOR THIS ABANDONED TELEPHONE LINE TO DEPICT AT OE C. ELECTRONIC INVESTIGATION OF THIS LINE YIELDS END OF INFORMATION AT THIS LOCATION.
WOODS
EXISTING R/W
ALLIGATOR CREEK FLOOD/EBB
NORTHWEST TWP
TOWNCREEK TWP
TIE PROP. GUARDRAIL TO EXIST. WTR SECTION
REMOVE EXIST. GUARDRAIL
300' LANE TRANSITION
GRAU-350
-LLT-
N 85° 01' 13.8" E
NOTE: (6) 4" PVC CONDUITS OWNED BY AT&T SUSPENDED UNDER BRIDGE. TWC, WARNER FACILITIES ALSO CONTAINED IN SAME CONDUITS
300' LANE TRANSITION
WATER ELEV=1.33' 4/22/09 9:55 AM
HIGH WATER ELEV= 1.79'
BEGIN SHOULDER BERM GUTTER -LRT- 106+29 (LT)
CL B RIP RAP EST. 2 TONS EST. GEOTEXTILE 7 S.Y.
SPECIAL CUT 2' BASE DITCH SEE DETAIL M
CLASS II RIP RAP STRUCTURE PAY ITEM
CL B RIP RAP EST. 3 TONS EST. GEOTEXTILE 8 S.Y.
CLASS II RIP RAP STRUCTURE PAY ITEM
CL B RIP RAP EST. 2 TONS GEOTEXTILE EST. 7 S.Y.
STANDARD 2' BASE DITCH SEE DETAIL N
EXCAVATE TO NATURAL GROUND TO REMOVE OLD ROADWAY
50:1 P. S. TRANSITION
GRAU-350
-LRT-
N 85° 01' 13.8" E
-LRT-
800' LANE TRANSITION
300' LANE TRANSITION
GRAU-350
PROPOSED EARTHLINK (2) 1.25" HDPE SDR 11
-LRT- CS Sta. 106+12.98
BEGIN ALLIGATOR CREEK BORE PROPOSED HAND HOLE (1) 4" HDPE SDR 11 E/W (2) 1.25 HDPE SDR 11
-LRT- ST Sta. 108+12.98
REMOVE EXIST. GUARDRAIL
BEGIN SHOULDER BERM GUTTER -LRT- 109+21 (RT)
SEE PROFILE SHEET 3A
END APPROACH SLAB
-LRT- STA. 112+84.17
END BRIDGE
-LRT- STA. 112+60.00
BEGIN APPROACH SLAB
-LRT- STA. 109+50.83
BEGIN BRIDGE
-LRT- STA. 109+75.00
ALLIGATOR CREEK
N C STATE PORTS AUTHORITY
DB 208 PG 273

Utility Permit Drawing
Sheet 11 of 14

-LRT-

PIs Sta 96+17.42	PI Sta 101+49.11	PIs Sta 106+79.65
Θs = 0° 45' 00.0"	Δ = 6° 58' 00.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 928.89'	LT = 133.33'
ST = 66.67'	T = 465.02'	ST = 66.67'
	R = 7,639.44'	
	SE = 0.025	

NOTES:
1.) FOR -LLT- PROFILE SEE SHEETS 16 AND 17.
2.) FOR -LRT- PROFILE SEE SHEETS 18 AND 19.
3.) FOR -LLT- BRIDGE SKETCH SEE SHEET 2-M.
4.) FOR -LRT- BRIDGE SKETCH SEE SHEET 2-M.

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

NAD 83/95

-LLT-

Pls Sta 116+66.09	Pl Sta 124+10.16	Pls Sta 131+08.59
Θs = 4° 30' 00.0"	Δ = 37° 16' 30.0" (RT)	Θs = 4° 30' 00.0"
Ls = 300.00'	D = 3° 00' 00.0"	Ls = 300.00'
LT = 200.06'	L = 1,242.50'	LT = 200.06'
ST = 100.06'	T = 644.13'	ST = 100.06'
	R = 1,909.86'	
	SE = 0.07	

-RPLLT-

Pls Sta 116+80.05	Pl Sta 122+08.59	Pls Sta 126+73.90
Θs = 4° 05' 33.2"	Δ = 23° 04' 12.5" (RT)	Θs = 1° 58' 41.0"
Ls = 300.00'	D = 2° 43' 42.1"	Ls = 145.00'
LT = 200.05'	L = 845.56'	LT = 96.67'
ST = 100.05'	T = 428.59'	ST = 48.34'
	R = 2,100.00'	
	SE = 0.07	

NEW HANOVER SOIL & WATER CONSERV DISTR
DB 1584 PG 716

-LLT- SC Sta. 117+66.03

-RPLLT- SC Sta. 117+80.00

PROP. U/G CATV

END SHOULDER BERM GUTTER
-LLT- 113+77 (RT)

-LLT- TS Sta. 114+66.03

-LLT- POS Sta. 114+80.00 =
-RPLLT- ST Sta. 114+80.00 (12' LT.)

END CONSTRUCTION
BEGIN RESURFACING
-RPLLT- POC STA. 127+15.00

-RPLLT- CS Sta. 126+25.56

400' LANE TRANSITION

1200' LANE TRANSITION

1450' LANE TRANSITION

50:1 P.S. TRANSITION

25:1 P.S. TRANSITION

100' TRANSITION LT. & RT.

END CONSTRUCTION
-LLT- POC STA. 127+00.00

-LRT- PT Sta. 115+28.00 =
-RPLRT- PC Sta. 115+28.00

-RPLRT- CS Sta. 118+39.77

-LRT- SC Sta. 118+37.97

-RPLRT- SC Sta. 120+39.77

END CONSTRUCTION
-RPLRT- POC STA. 122+75.00

END ALLIGATOR CREEK BORE
PROPOSED HAND HOLE
(1) 4" HDPE SDR 11 E/W (2) 1.25" HDPE SDR 11

SEE PROFILE SHEET 3A

Pls Sta 117+38.83	Pl Sta 124+26.89	Pls Sta 130+80.53
Θs = 4° 30' 00.0"	Δ = 34° 16' 30.0" (RT)	Θs = 4° 30' 00.0"
Ls = 300.00'	D = 3° 00' 00.0"	Ls = 300.00'
LT = 200.06'	L = 1,142.50'	LT = 200.06'
ST = 100.06'	T = 588.92'	ST = 100.06'
	R = 1,909.86'	
	SE = 0.07	

Pl Sta 116+84.16	LT = 112.92'	T = 392.89'
Δ = 8° 22' 00.0" (LT)	ST = 87.45'	R = 965.00'
D = 2° 41' 01.1"		
L = 311.77'		
T = 156.16'		
R = 2135.00'		
SE = 0.08		

32.66		
30.0" (RT)		
58.4'	Ls = 200.00'	
	LT = 133.41'	
	ST = 66.74'	
Pls Sta 128+51.97		
Θs = 5° 59' 58.4"		

NOTES:
1.) FOR -LLT- PROFILE SEE SHEET 17.
2.) FOR -LRT- PROFILE SEE SHEET 19.
3.) FOR -RPLRT- PROFILE SEE SHEETS 22 AND 23.
4.) FOR -RPLLT- PROFILE SEE SHEET 23.

PAVEMENT REMOVAL

SEE SHEET 9 -LLT- STA. 114+00

MATCH LINE -LLT- STA. 127+50 SEE SHEET 11

Utility Permit Drawing
Sheet 12 of 14

28-FEB-2013 17:47
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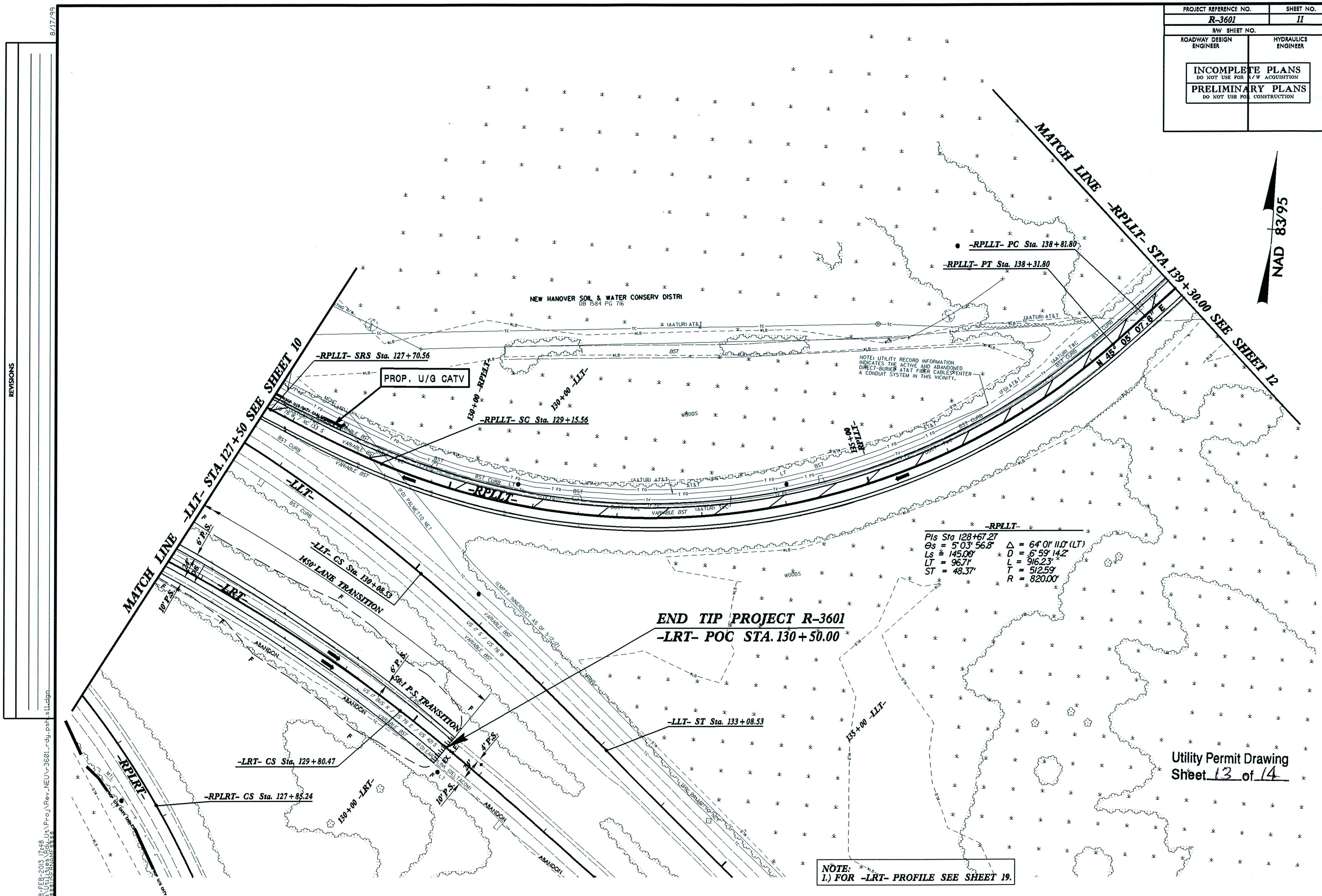


PROJECT REFERENCE NO. R-3601
SHEET NO. 11
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
8/17/99
REVISIONS
NAD 83/95
MATCH LINE -RPLLT- STA. 139+30.00 SEE SHEET 12
MATCH LINE -LLT- STA. 127+50 SEE SHEET 10
NEW HANOVER SOIL & WATER CONSERV DISTRI
DB 1584 PG 716
-RPLLT- PC Sta. 138+81.80
-RPLLT- PT Sta. 138+31.80
-RPLLT- SRS Sta. 127+70.56
PROP. U/G CATV
-RPLLT- SC Sta. 129+15.56
NOTE: UTILITY RECORD INFORMATION INDICATES THE ACTIVE AND ABANDONED DIRECT-BURIED AT&T FIBER CABLES ENTER A CONDUIT SYSTEM IN THIS VICINITY.
N 45° 05' 07.8" E
WOODS
-RPLLT-
-LLT-
-LRT-
-RPLRT-
-LLT- CS Sta. 130+08.53
1450' LANE TRANSITION
50:1 P.S. TRANSITION
END TIP PROJECT R-3601
-LRT- POC STA. 130+50.00
-LLT- ST Sta. 133+08.53
-LRT- CS Sta. 129+80.47
-RPLRT- CS Sta. 127+85.24
-RPLLT-
PIs Sta 128+67.27
θs = 5°03' 56.8"
Ls = 145.00'
LT = 96.71'
ST = 48.37'
Δ = 64°01' 11.0" (LT)
D = 6°59' 14.2"
L = 916.23'
T = 512.59'
R = 820.00'
Utility Permit Drawing
Sheet 13 of 14
NOTE:
1.) FOR -LRT- PROFILE SEE SHEET 19.
28-FEB-2013 17:48

PROJECT REFERENCE NO.	SHEET NO.
R-3601	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

MATCH LINE -LLT- STA 127+50 SEE SHEET 10

-LRT- POC STA.

NOTE
FOR -LRT- PROFILE SEE SHEET 9

WJ

WS

NAD 83'95

PROPOSED EARTHLINK
(2) 1.25" HDPE SDR 14

PROPOSED EARTHLINK
(2) 1.25" HDPE SDR 11

-LLT- CS Sta. 152+42 +/-

END CONSTRUCTION
PROPOSED EARTHLINK HAND HOLE
(2) 1.25" HDPE SDR 11
SPLICE LOCATION

GRAPHIC SCALE
50 25 0 50 100
PLANS

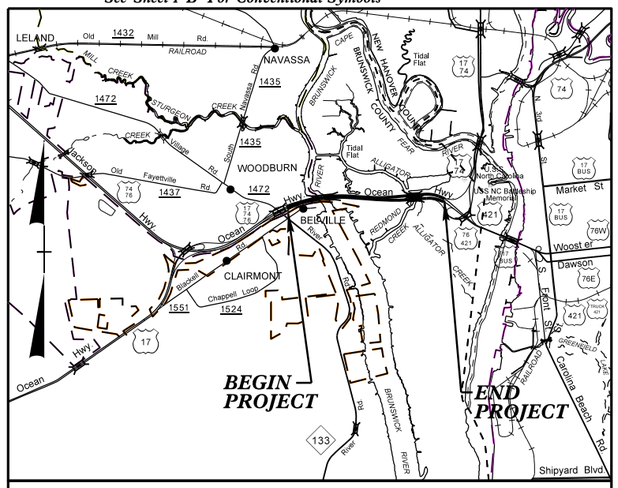
Utility Permit Drawing
Sheet 14 of 14

09/08/99

TIP PROJECT: R-3601

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRUNSWICK AND NEW HANOVER COUNTIES

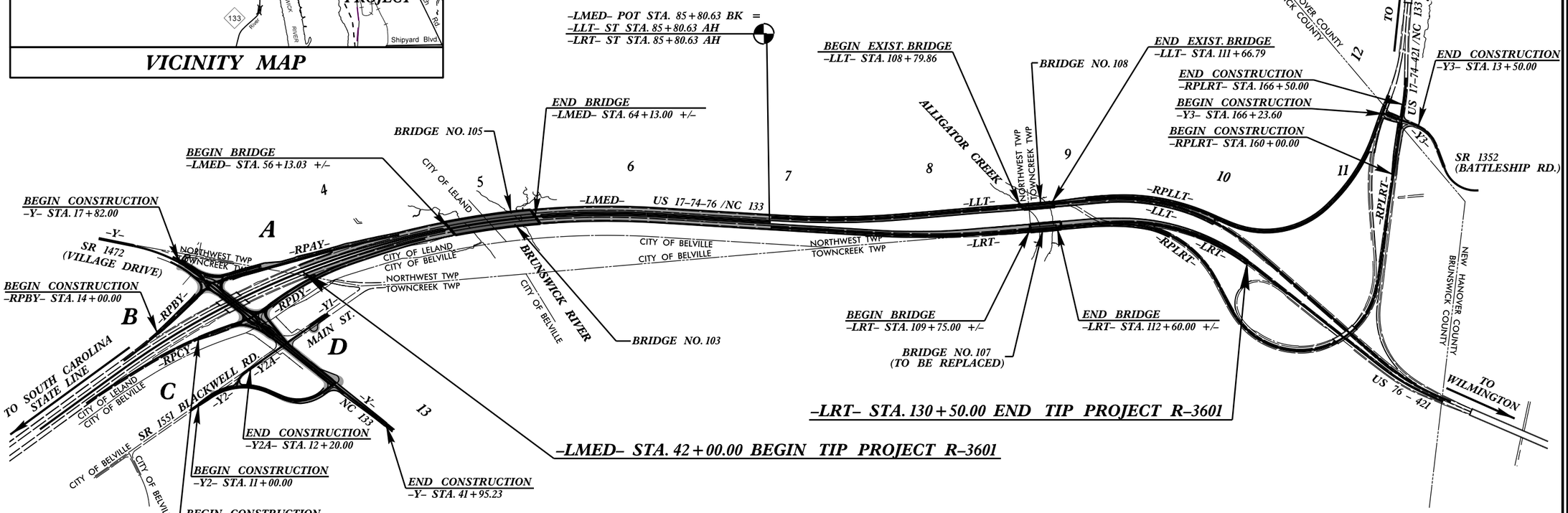
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3601	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38868.1.1	NHS-0017(68)	P.E.
38868.2.1	NHS-0017(68)	R/W & UTIL.

NAD 83/95

LOCATION: US 17-74-76 FROM NC 133 / SR 1472 INTERCHANGE TO THE US 421 /NC 133 INTERCHANGE

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



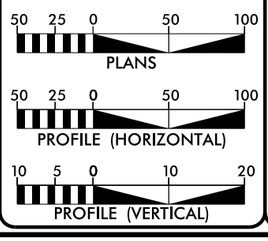
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF LELAND AND BELVILLE.

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

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2013	=	78,321 VPD
ADT 2035	=	107,000 VPD
DHV	=	11 %
D	=	55 %
* T	=	6 %
V	=	60 MPH

*(TTST 3% + DUALS 3%)

FUNC. CLASS. = FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3601 = 1.471 MILES
LENGTH STRUCTURE TIP PROJECT R-3601 = 0.205 MILES
TOTAL LENGTH TIP PROJECT R-3601 = 1.676 MILES

(EASTBOUND LANES WERE USED FOR LENGTH OF PROJECT CALCULATION.)

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 28, 2013

LETTING DATE:
FEBRUARY 18, 2014

GARY LOVERING, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
R-3601	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- 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 — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

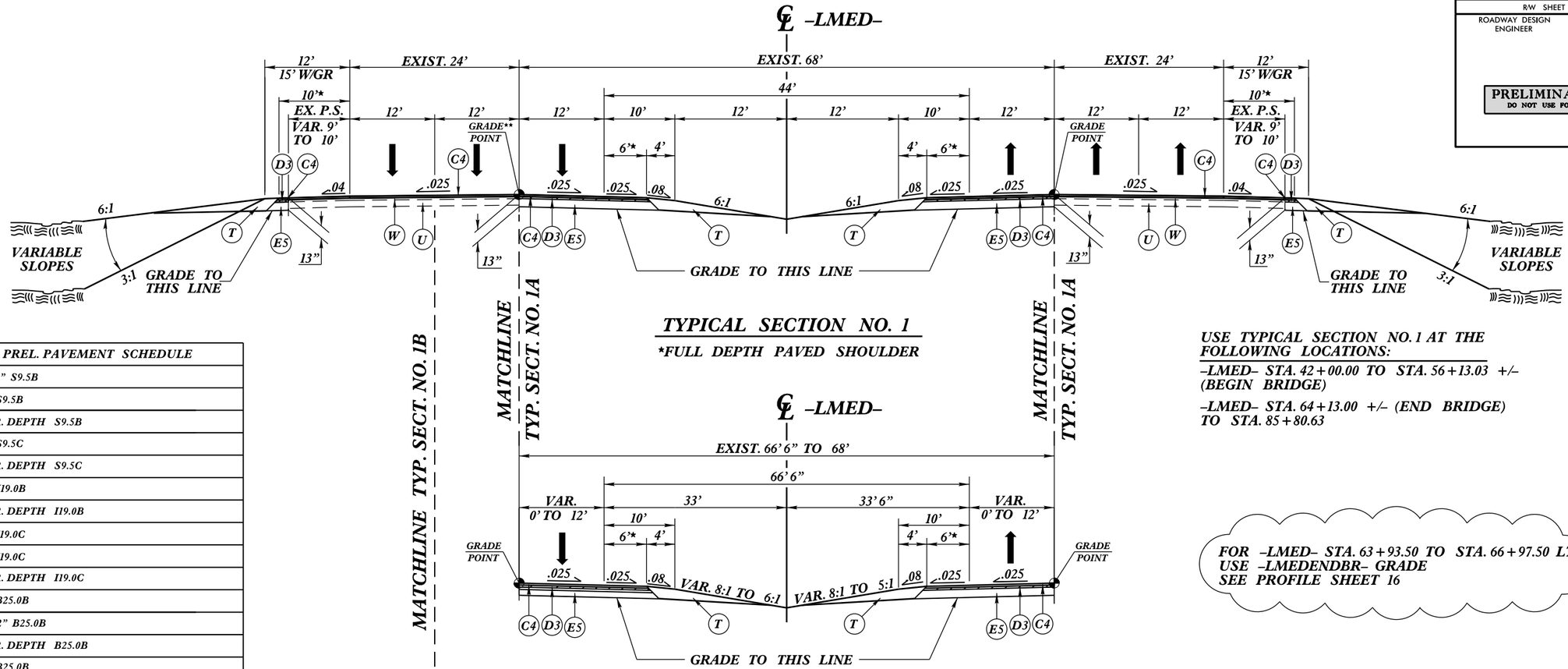
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
R–3601	2–A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 1

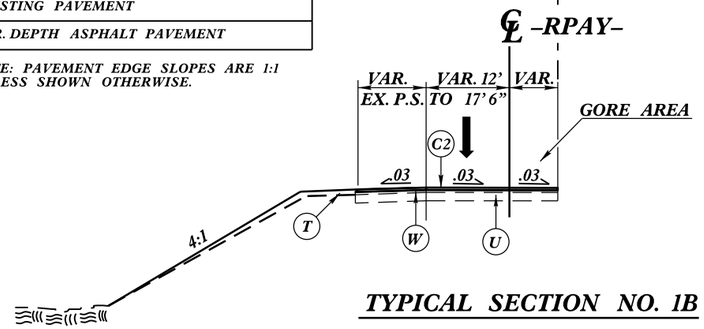
*FULL DEPTH PAVED SHOULDER

TYPICAL SECTION NO. 1A

*FULL DEPTH PAVED SHOULDER

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'–6" CONC. CURB AND GUTTER
R2	2'–6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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



TYPICAL SECTION NO. 1B

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

–LMED– STA. 42+00.00 TO STA. 56+13.03 +/– (BEGIN BRIDGE)

–LMED– STA. 64+13.00 +/– (END BRIDGE) TO STA. 85+80.63

FOR –LMED– STA. 63+93.50 TO STA. 66+97.50 LT., USE –LMEDENDBR– GRADE SEE PROFILE SHEET 16

USE TYPICAL SECTION NO. 1A AT THE FOLLOWING LOCATIONS:

–LMED– STA. 42+00.00 TO STA. 53+00.00

USE TYPICAL SECTION NO. 1B AT THE FOLLOWING LOCATION:

–LMED– STA. 45+02.02 TO STA. 51+50.00 LT.

TRANSITION FROM TYPICAL SECTION NO. 1B @ –RPAY– STA. 16+05.00 TO EXIST. @ –RPAY– STA. 16+55.00

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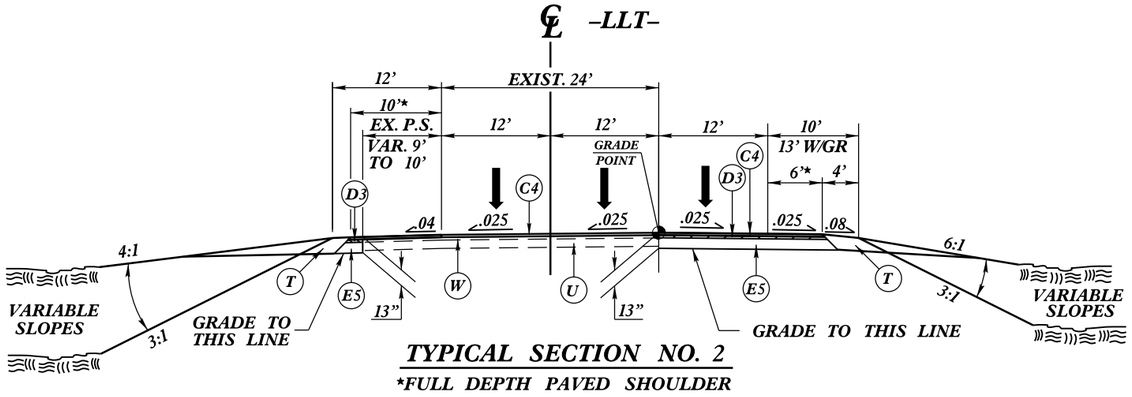
PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

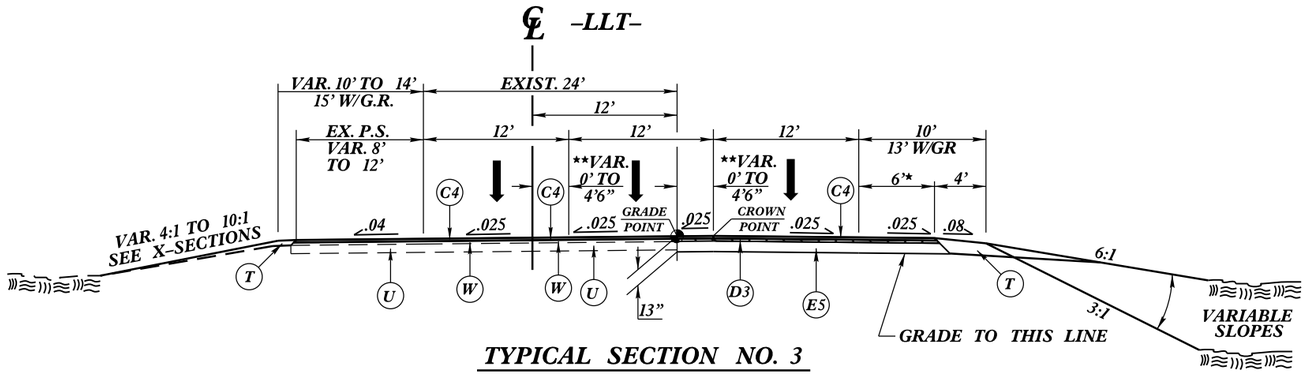


TYPICAL SECTION NO. 2

*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATION:

-LLT- STA. 85+80.63 TO STA. 105+00.00



TYPICAL SECTION NO. 3

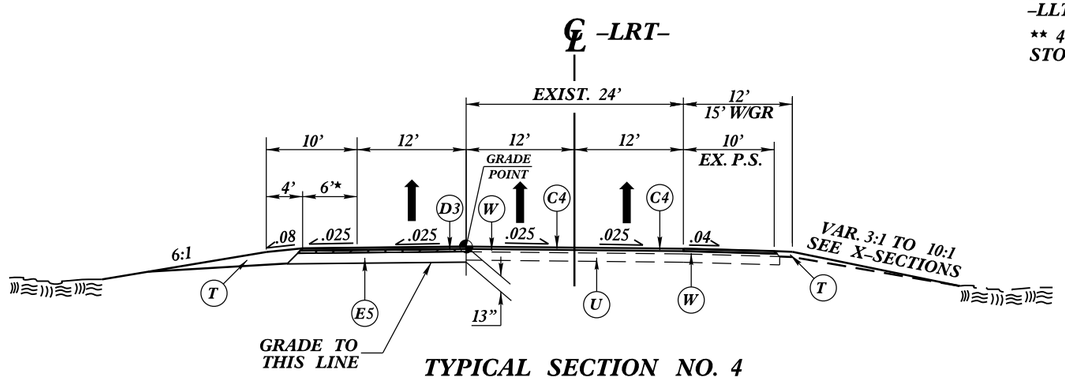
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

-LLT- STA. 105+00.00 TO STA. 108+79.86 (BEGIN EXIST. BRIDGE)
-LLT- STA. 111+66.79 (END EXIST. BRIDGE) TO STA. 115+00.00

TRANSITION FROM TYPICAL SECTION NO. 3 @
-LLT- STA. 115+00.00 TO EXISTING @ -LLT- STA. 127+00.00

** 4'6" NECESSARY SHIFT TO MEET STATE STORM WATER PERMIT REQUIREMENTS FOR BRIDGE NO. 108.



TYPICAL SECTION NO. 4

*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 4 AT THE FOLLOWING LOCATION:

-LRT- STA. 85+80.63 TO STA. 105+00.00

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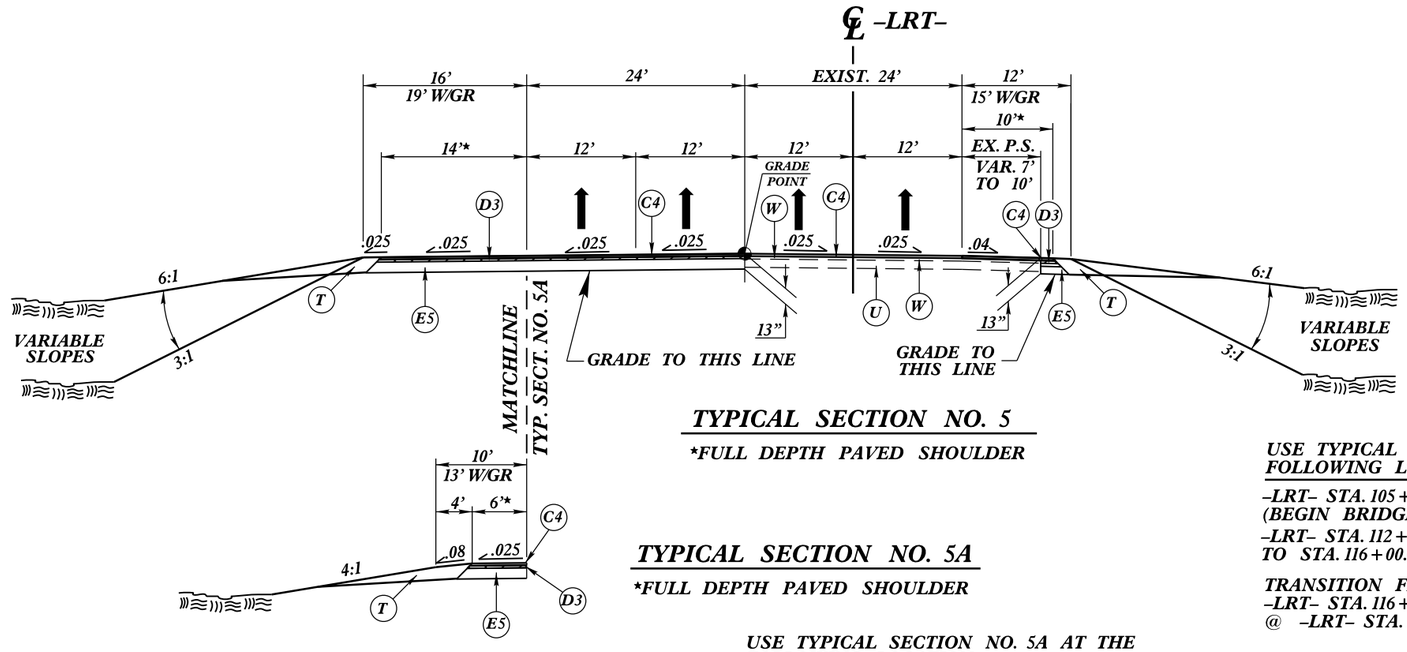
PROJECT REFERENCE NO.	SHEET NO.
R–3601	2–C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'–6" CONC. CURB AND GUTTER
R2	2'–6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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



TYPICAL SECTION NO. 5

*FULL DEPTH PAVED SHOULDER

TYPICAL SECTION NO. 5A

*FULL DEPTH PAVED SHOULDER

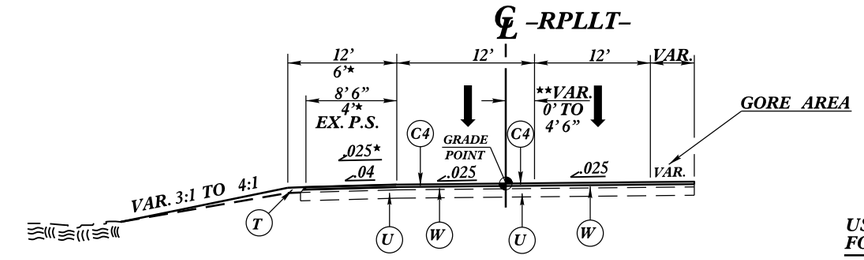
USE TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS:

–LRT– STA. 105 + 00.00 TO STA. 109 + 72.50 +/– (BEGIN BRIDGE)
–LRT– STA. 112 + 46.50 +/– (END BRIDGE) TO STA. 116 + 00.00

TRANSITION FROM TYPICAL SECTION NO. 5 @ –LRT– STA. 116 + 00.00 TO EXISTING @ –LRT– STA. 130 + 50.00

USE TYPICAL SECTION NO. 5A AT THE FOLLOWING LOCATION:

–LRT– STA. 118 + 00.00 TO STA. 130 + 50.00

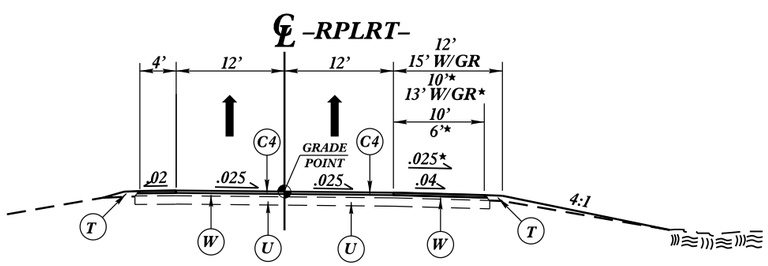


TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AT THE FOLLOWING LOCATIONS:

–RPLLT– STA. 115 + 00.00 TO STA. 127 + 15.00
* –RPLLT– STA. 122 + 00.00 TO STA. 125 + 50.00

** –RPLLT– STA. 115 + 00.00 TO STA. 119 + 00.00
4' 6" NECESSARY SHIFT TO MEET STATE STORM WATER PERMIT REQUIREMENTS FOR BRIDGE NO. 108



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AT THE FOLLOWING LOCATIONS:

–RPLRT– STA. 115 + 28.00 TO STA. 121 + 75.00

TRANSITION FROM TYPICAL SECTION NO. 8 @ –RPLRT– STA. 121 + 75.00 TO EXISTING @ –RPLRT– STA. 122 + 75.00

* –RPLRT– STA. 120 + 95.93 TO STA. 121 + 75.00

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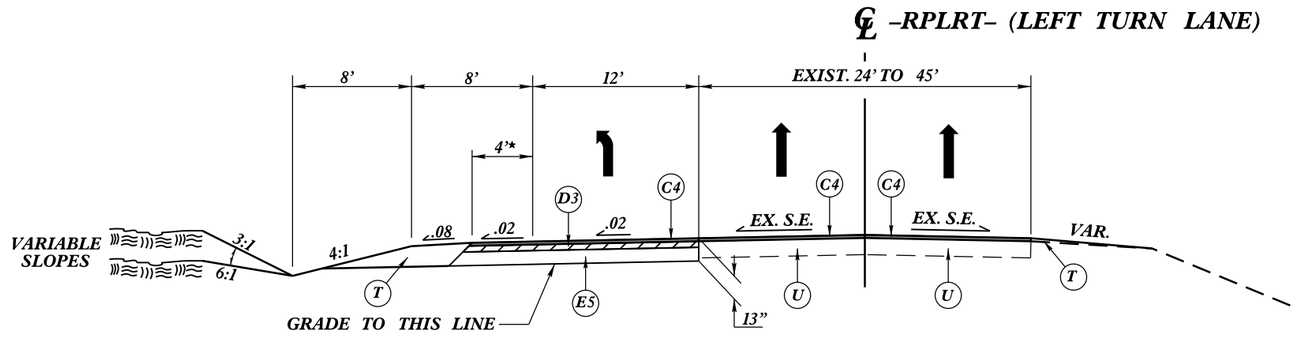
PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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



TYPICAL SECTION NO. 8

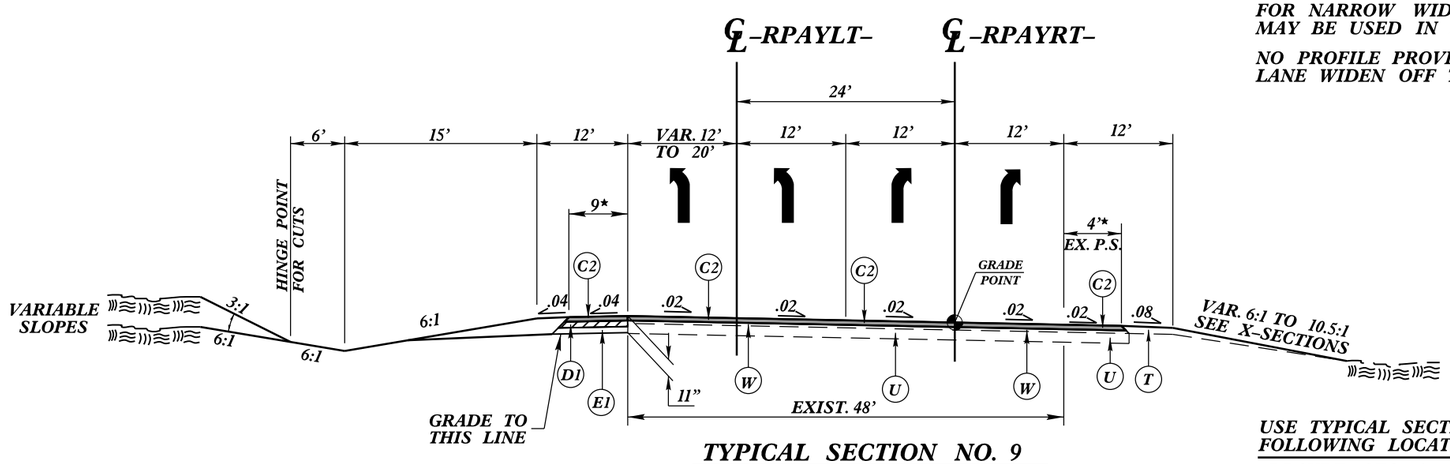
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 8 AT THE FOLLOWING LOCATION:

-RPLRT- STA. 160+00.00 TO STA. 166+50.00

NOTES:
FOR NARROW WIDENING 4" OF B25.0B MAY BE USED IN LIEU OF ABC.

NO PROFILE PROVIDED FOR LEFT TURN LANE WIDEN OFF THE EXISTING.



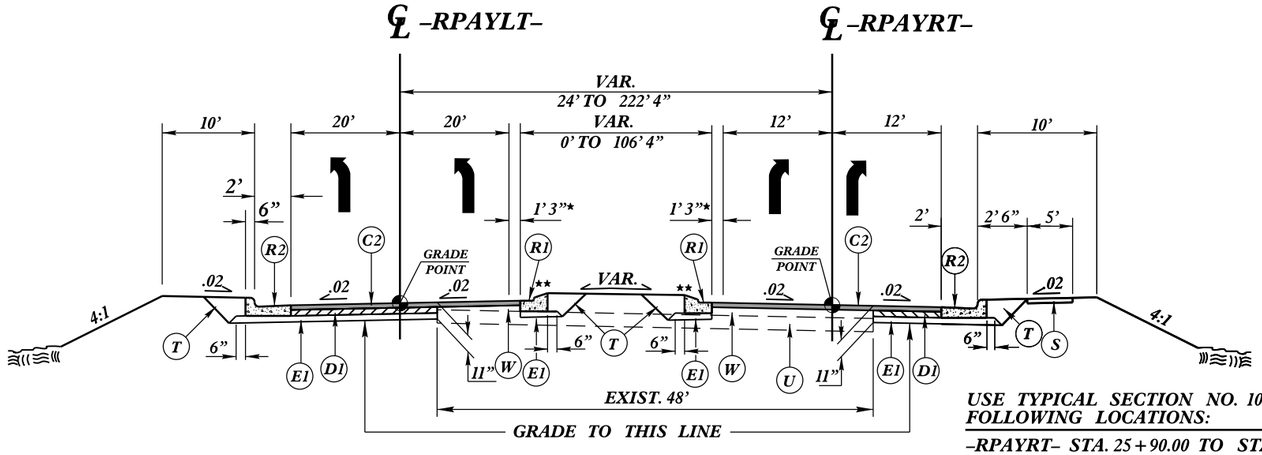
TYPICAL SECTION NO. 9

*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 9 AT THE FOLLOWING LOCATION:

-RPAYRT- STA. 25+00.00 TO STA. 25+90.00

NOTE:
OVERLAY EXIST. -RPAY- WITH 3" OF S9.5C FROM -RPAY- STA. 16+55.00 TO STA. 25+00.00



TYPICAL SECTION NO. 10

*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 10 AT THE FOLLOWING LOCATIONS:

-RPAYRT- STA. 25+90.00 TO STA. 28+67.35
-RPAYLT- STA. 26+00.00 TO STA. 27+30.32

NOTES:
SEE PLANS FOR SIDEWALK LIMITS.

** MILL OR WEDGE AS NECESSARY FOR 1'-6" CONC. CURB AND GUTTER.

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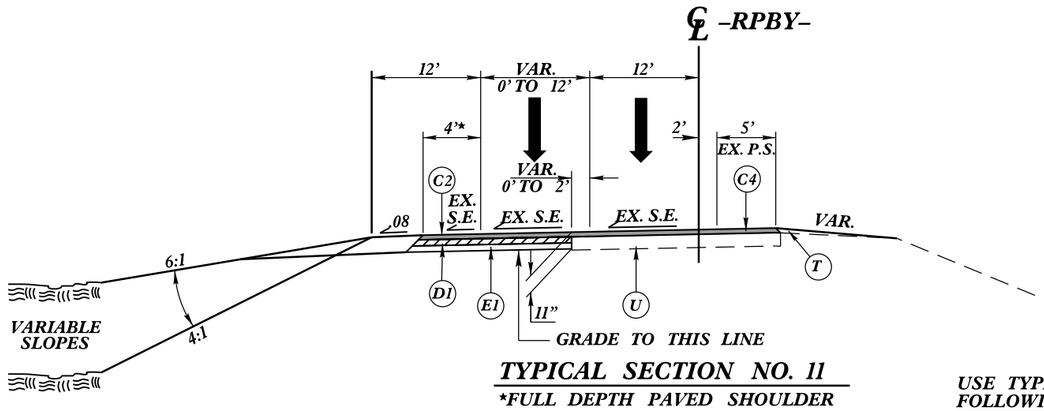
PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

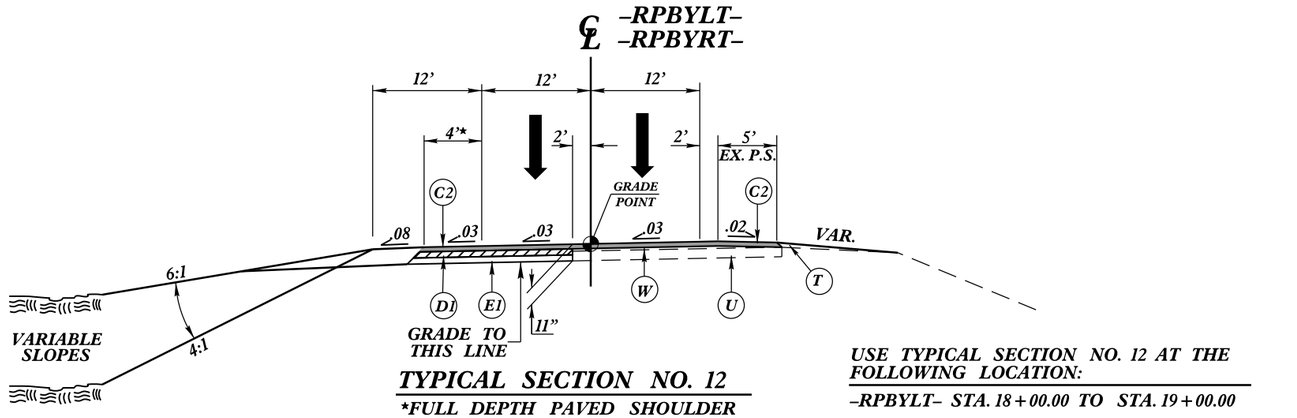
PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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



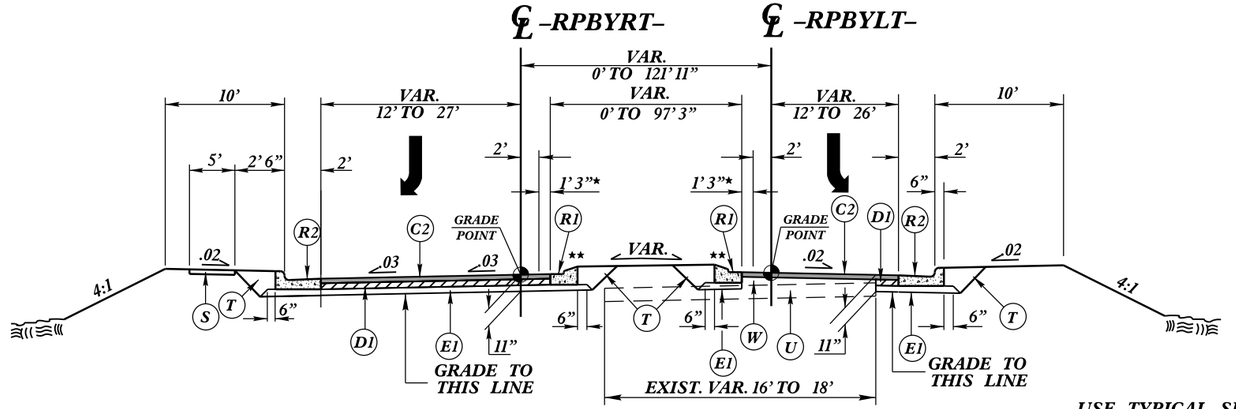
TYPICAL SECTION NO. 11
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 11 AT THE FOLLOWING LOCATION:
-RPBY- STA. 14+00.00 TO STA. 18+00.00



TYPICAL SECTION NO. 12
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 12 AT THE FOLLOWING LOCATION:
-RPBYLT- STA. 18+00.00 TO STA. 19+00.00



TYPICAL SECTION NO. 13
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 13 AT THE FOLLOWING LOCATIONS:
-RPBYLT- STA. 19+00.00 TO STA. 20+29.66
-RPBYRT- STA. 19+00.00 TO STA. 20+62.67

NOTES:
SEE PLANS FOR SIDEWALK LIMITS.

** MILL OR WEDGE AS NECESSARY FOR 1'-6" CONC. CURB AND GUTTER.

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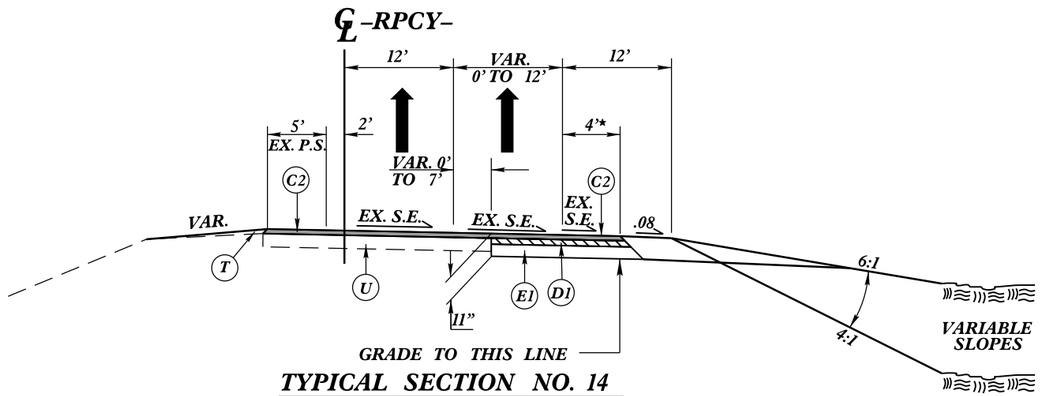
PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-F
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

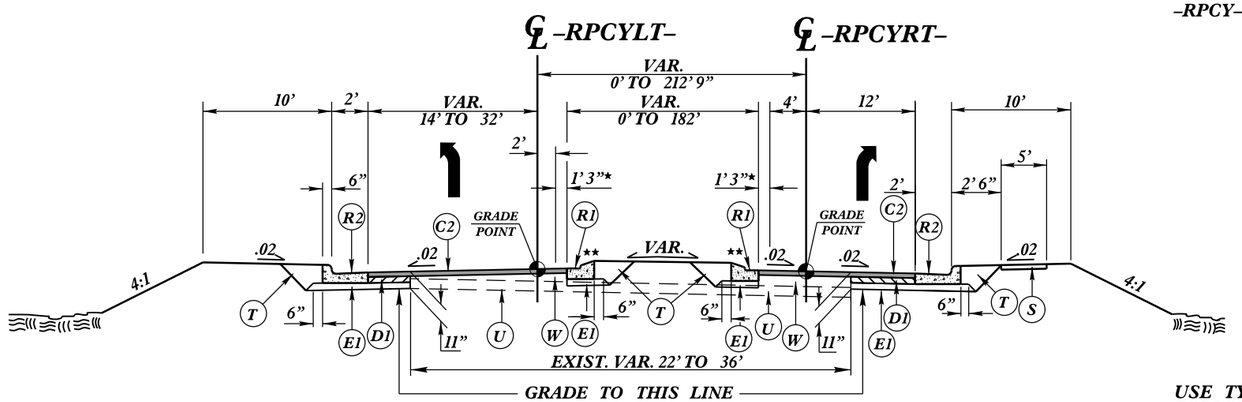
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 14
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 14 AT THE FOLLOWING LOCATIONS:

-RPCY- STA. 22+00.00 TO STA. 25+15.26



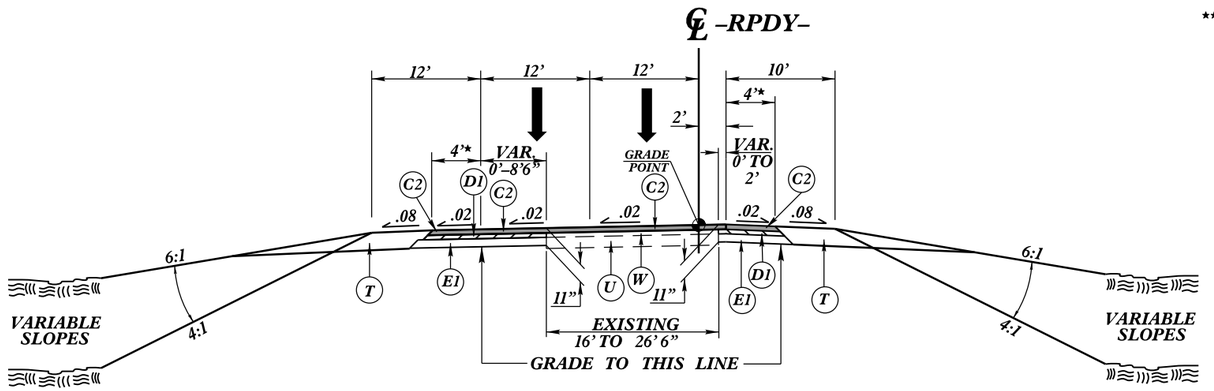
TYPICAL SECTION NO. 15
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 15 AT THE FOLLOWING LOCATIONS:

-RPCYRT- STA. 25+15.26 TO STA. 28+06.84
-RPCYLT- STA. 25+15.26 TO STA. 26+76.96

NOTES:
SEE PLANS FOR SIDEWALK LIMITS.

** MILL OR WEDGE AS NECESSARY FOR 1'-6" CONC. CURB AND GUTTER.



TYPICAL SECTION NO. 16
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 16 AT THE FOLLOWING LOCATION:

-RPCY- STA. 10+00.00 TO STA. 25+60.85

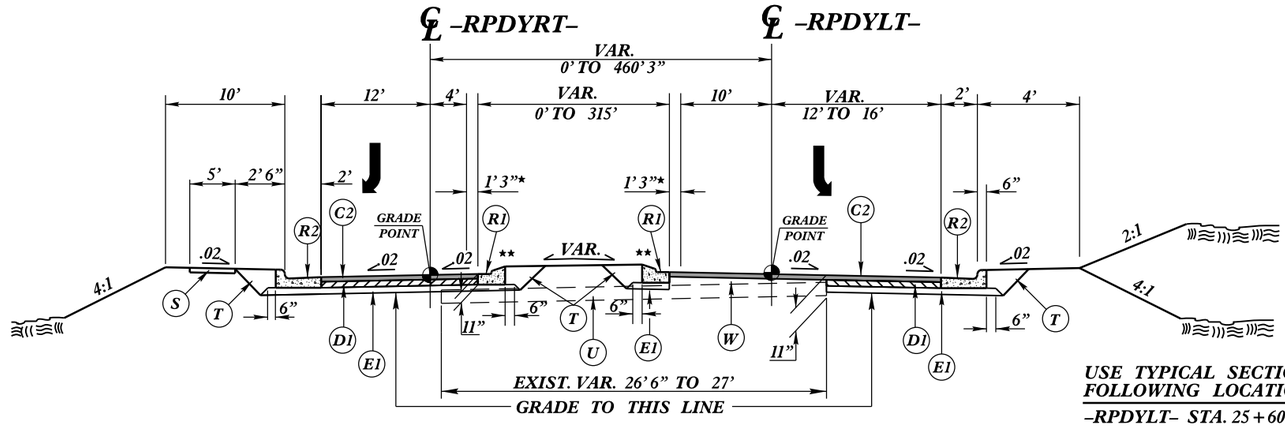
6/2/99

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-G
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 17

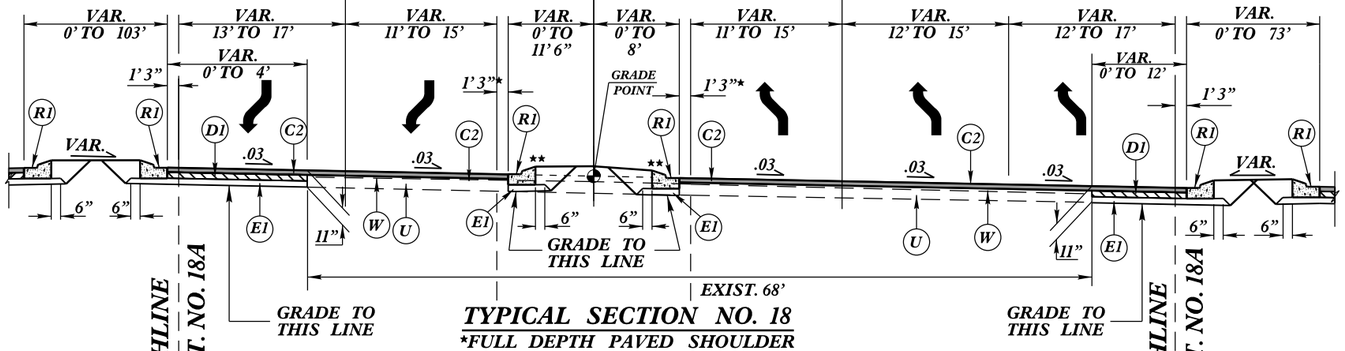
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 17 AT THE FOLLOWING LOCATION:

–RPDYLT– STA. 25+60.85 TO 28+22.66
–RPDYRT– STA. 25+60.85 TO 29+56.98

NOTES:
SEE PLANS FOR SIDEWALK LIMITS.
** MILL OR WEDGE AS NECESSARY FOR 1'-6" CONC. CURB AND GUTTER.

CROSSOVER
–YSBL– –YNBL–
–YNBL– –YSBL–



TYPICAL SECTION NO. 18

*FULL DEPTH PAVED SHOULDER

FOR –RPAYRT– AND –RPAYLT– PAVEMENT DESIGN AND DIMENSIONS SEE SHEET 2–D

FOR –RPBYRT– AND –RPBYLT– PAVEMENT DESIGN AND DIMENSIONS SEE SHEET 2–E

GRADE TO THIS LINE

GRADE TO THIS LINE

MATCHLINE TYP. SECT. NO. 18A

MATCHLINE TYP. SECT. NO. 18A

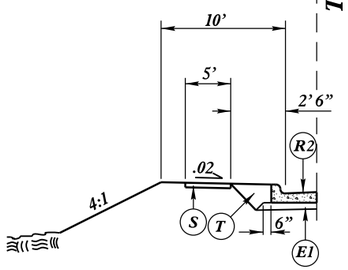
MATCHLINE TYP. SECT. NO. 18B

MATCHLINE TYP. SECT. NO. 18B

USE TYPICAL SECTION NO. 18 AT THE FOLLOWING LOCATION:

–Y– STA. 18+40.00 TO STA. 22+50.00

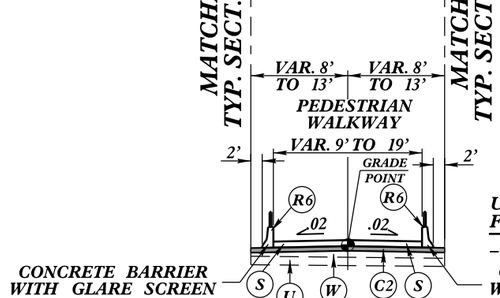
NOTE:
** MILL OR WEDGE AS NECESSARY FOR 1'-6" CONC. CURB AND GUTTER.



TYPICAL SECTION NO. 18A

USE TYPICAL SECTION NO. 18A AT THE FOLLOWING LOCATION:

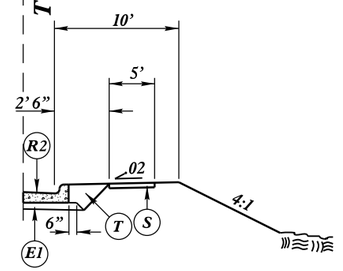
–Y– STA. 18+40.00 TO STA. 20+00.00



TYPICAL SECTION NO. 18B

USE TYPICAL SECTION NO. 18B AT THE FOLLOWING LOCATION:

–Y– STA. 21+10.00 TO STA. 22+50.00



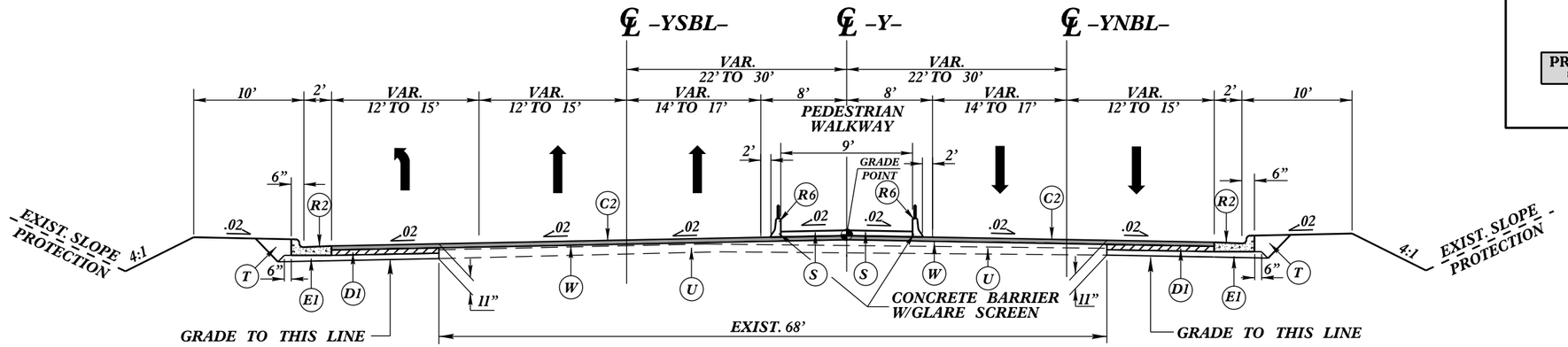
TYPICAL SECTION NO. 18A

04-MAR-2013 17:27
R:\Roadway\PROJ\R-3601_rdy_typ_s02g.dgn
$$$$USERNAME$$$$

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-H
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 19

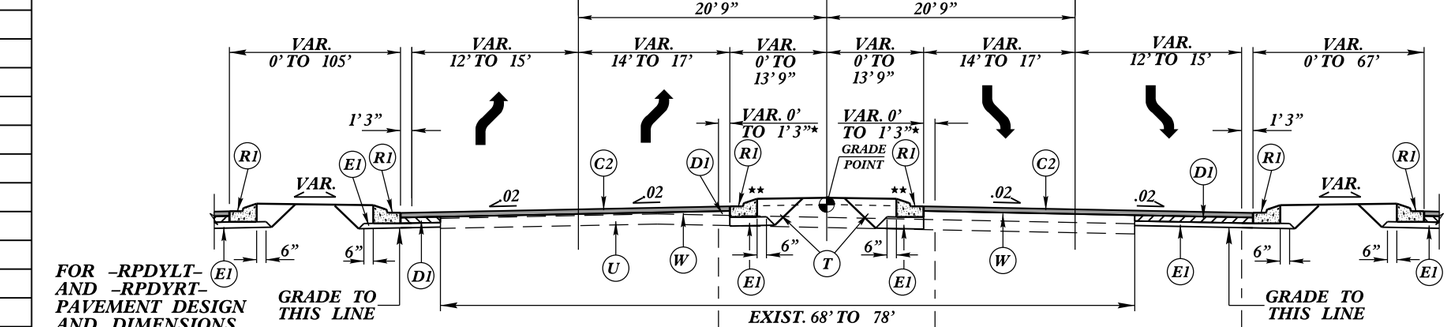
PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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

USE TYPICAL SECTION NO. 19 AT THE FOLLOWING LOCATION:

-Y- STA. 22+50.00 TO STA. 25+00.00

CROSSOVER
-YNBL- -YSBL-
-YSBL- -YNBL-



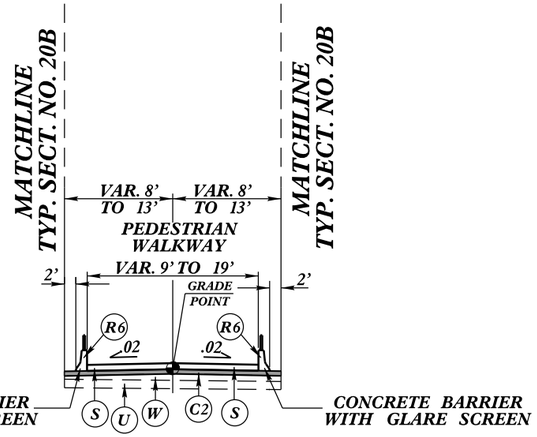
TYPICAL SECTION NO. 20

*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 20 AT THE FOLLOWING LOCATION:

-Y- STA. 25+00.00 TO STA. 30+50.00

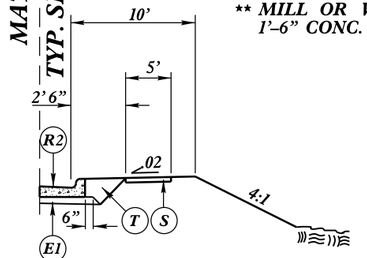
NOTE:
** MILL OR WEDGE AS NECESSARY FOR 1'-6" CONC. CURB AND GUTTER.



TYPICAL SECTION NO. 20B

USE TYPICAL SECTION NO. 20B AT THE FOLLOWING LOCATION:

-Y- STA. 25+00.00 TO STA. 26+70.00



TYPICAL SECTION NO. 20A

USE TYPICAL SECTION NO. 20A AT THE FOLLOWING LOCATION:

-Y- STA. 28+25.00 TO STA. 30+15.00

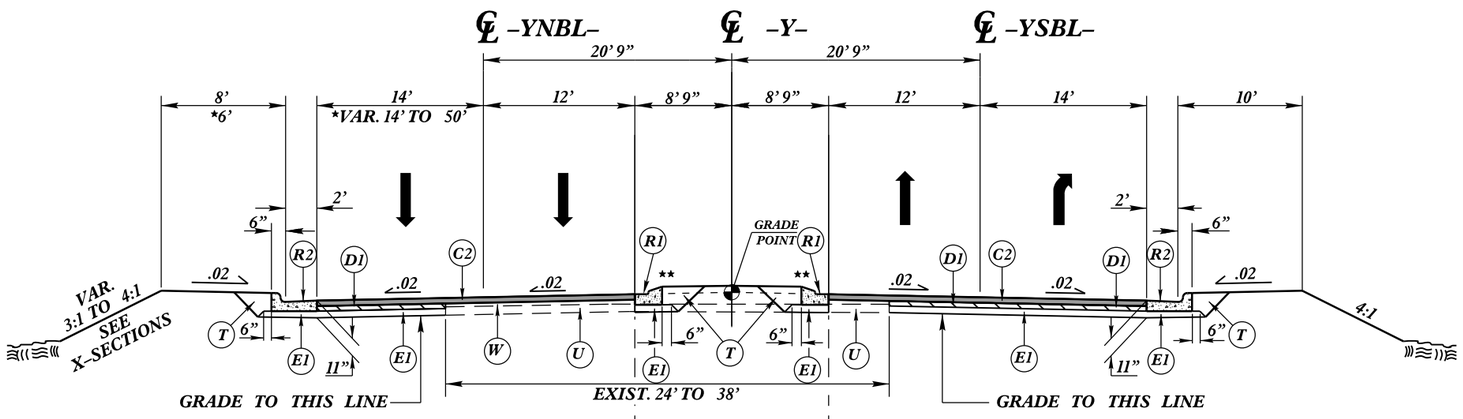
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-I
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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



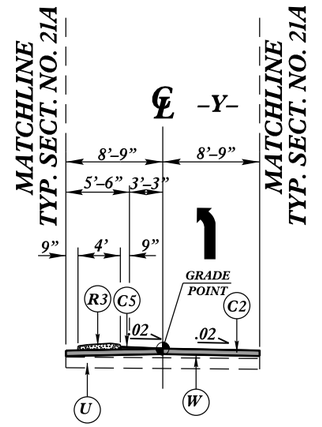
TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21 AT THE FOLLOWING LOCATIONS:

-Y- STA. 30+50.00 TO STA. 36+16.00
*-Y- STA. 34+14.00 TO STA. 36+16.00

NOTES:
SEE PLANS FOR MONOLITHIC ISLAND LIMITS.

** MILL OR WEDGE AS NECESSARY FOR 1'-6" CONC. CURB AND GUTTER.

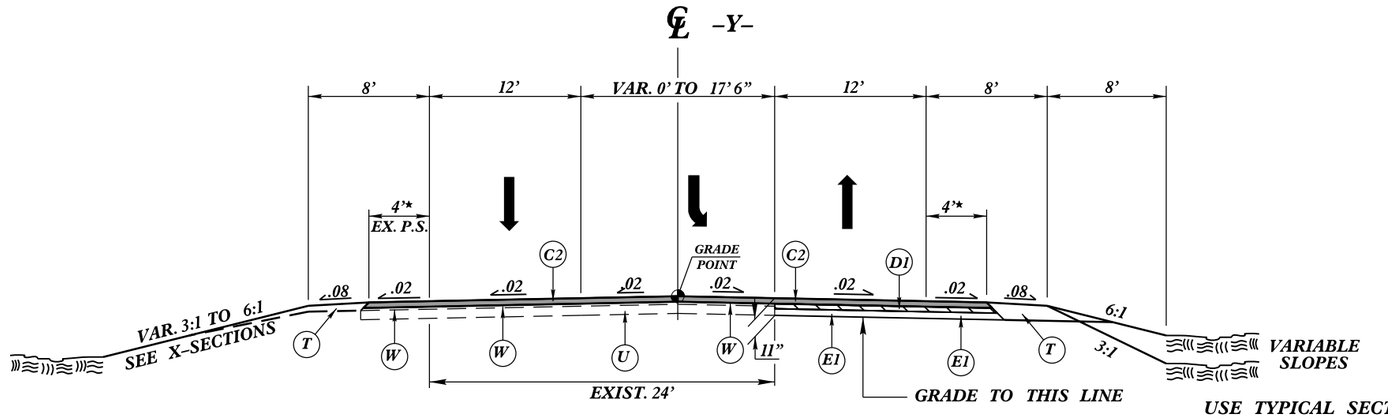


TYPICAL SECTION NO. 21A

USE TYPICAL SECTION NO. 21A AT THE FOLLOWING LOCATION:

-Y- STA. 32+32.00 TO STA. 35+47.00

NOTE:
SEE SHEET 2 FOR DETAIL SHOWING MODIFIED 5" MONOLITHIC CONCRETE ISLAND.



TYPICAL SECTION NO. 22

*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 22 AT THE FOLLOWING LOCATION:

-Y- STA. 36+16.00 TO STA. 41+45.23

TRANSITION FROM TYPICAL SECTION NO. 22 @ -Y- STA. 41+45.23
TO EXISTING @ -Y- STA. 41+95.23

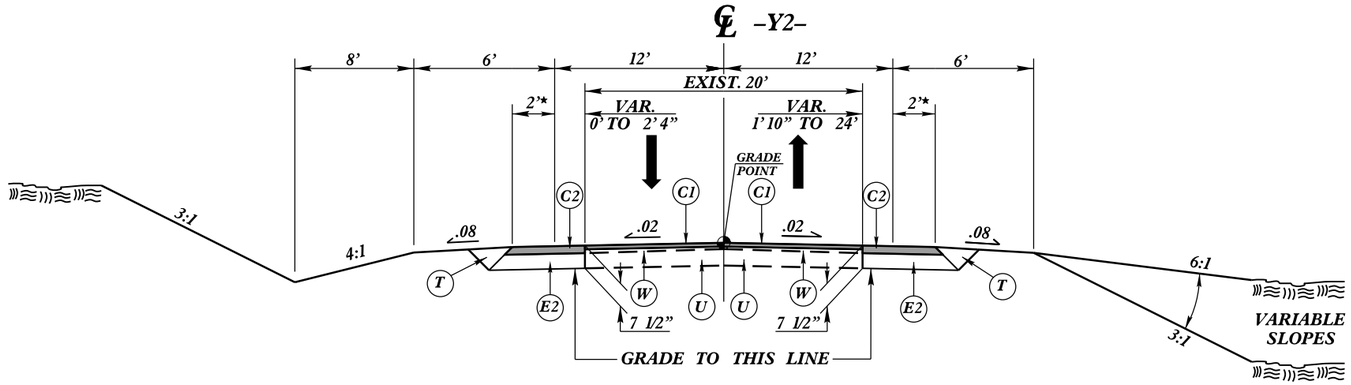
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-J
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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

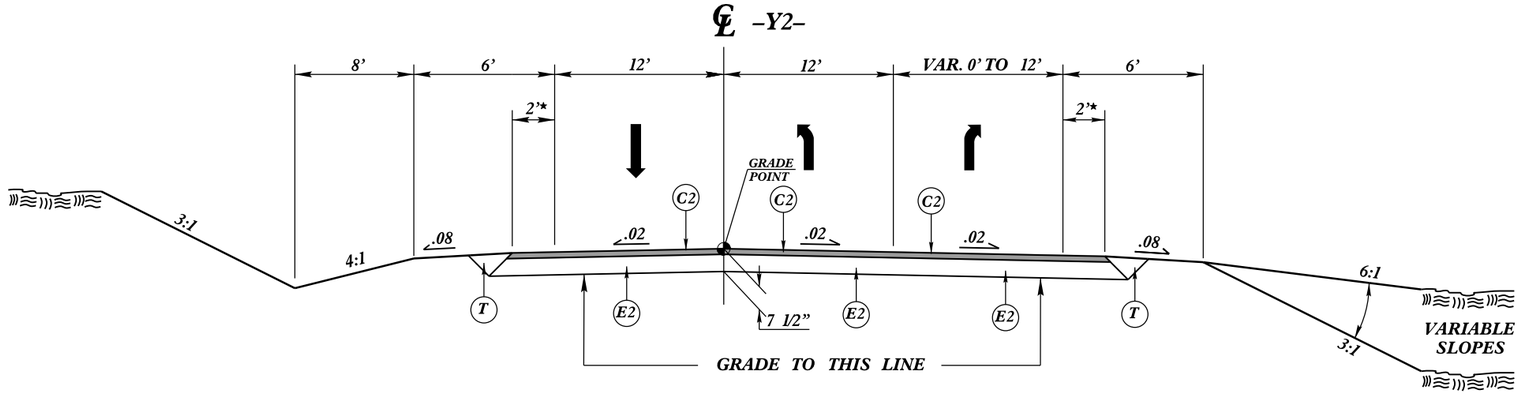


TYPICAL SECTION NO. 23
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 23 AT THE FOLLOWING LOCATION:

-Y2- STA. 11+00.00 TO TYPICAL SECTION NO. 23 @ -Y2- STA. 12+00.00

-Y2- STA. 12+00.00 TO STA. 13+78.07



TYPICAL SECTION NO. 24
*FULL DEPTH PAVED SHOULDER

USE TYPICAL SECTION NO. 24 AT THE FOLLOWING LOCATION:

-Y2- STA. 13+78.07 TO STA. 24+28.52

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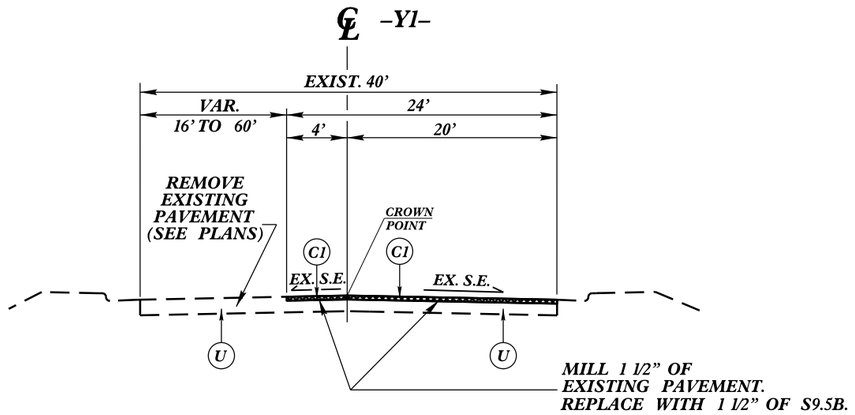
6/2/99

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-K
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

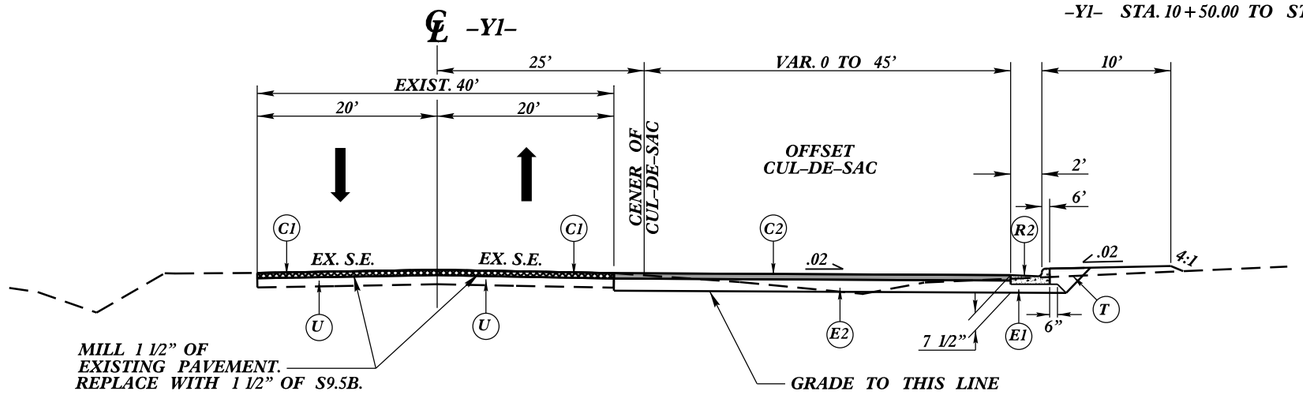
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 25

USE TYPICAL SECTION NO. 25 AT THE FOLLOWING LOCATION:

-Y1- STA. 10+50.00 TO STA. 11+82.50

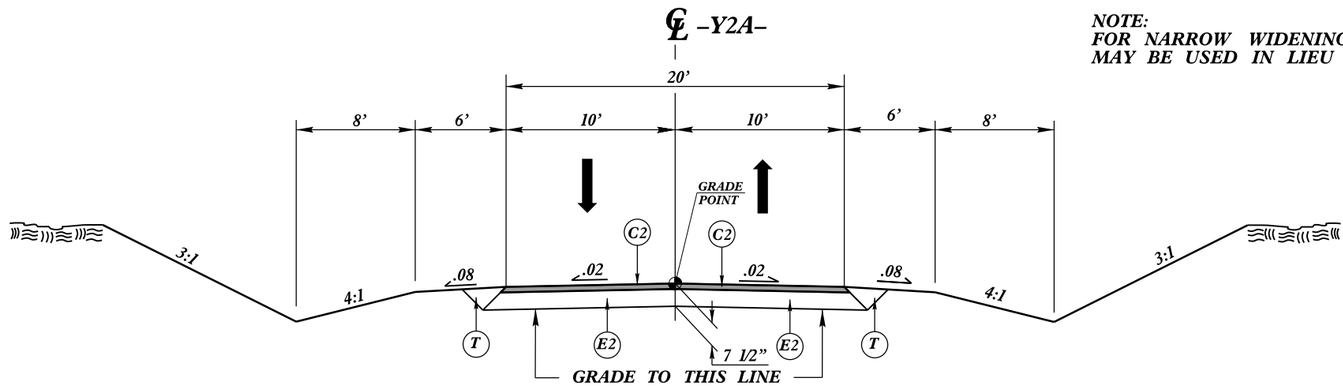


TYPICAL SECTION NO. 26

USE TYPICAL SECTION NO. 26 AT THE FOLLOWING LOCATION:

-Y1- STA. 12+63.00 TO STA. 14+40.00

NOTE:
FOR NARROW WIDENING 4" OF B25.0B MAY BE USED IN LIEU OF ABC.



TYPICAL SECTION NO. 27

USE TYPICAL SECTION NO. 27 AT THE FOLLOWING LOCATION:

-Y2A- STA. 10+12.75 TO STA. 10+76.23

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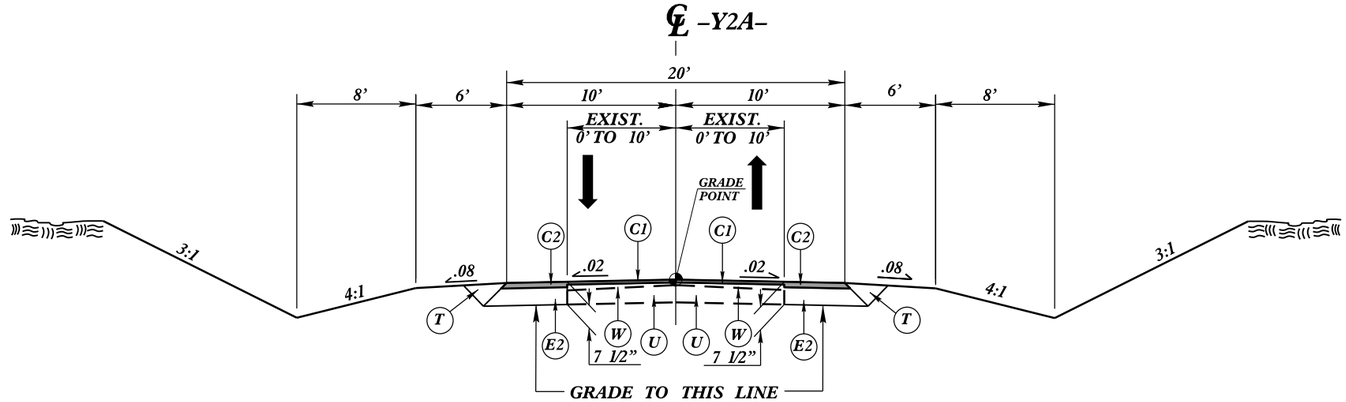
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2-L
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PREL. PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
D3	3" I19.0C
D4	4" I19.0C
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	VAR. DEPTH B25.0B
E4	7" B25.0B
E5	7" B25.0C
E6	VAR. DEPTH B25.0C
R1	1'-6" CONC. CURB AND GUTTER
R2	2'-6" CONC. CURB AND GUTTER
R3	MOD. 5" MONOLITHIC ISLAND (KEYED IN)
R4	8" X 18" CONC. CURB
R5	9" X 18" CONC. CURB
R6	REINF. SINGLE FACED CONC. BARRIER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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

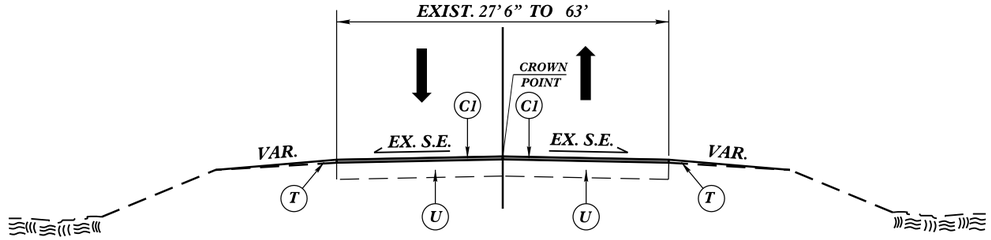


TYPICAL SECTION NO. 28

USE TYPICAL SECTION NO. 28 AT THE FOLLOWING LOCATION:

-Y2A- STA. 10+76.23 TO STA. 12+20.00

NOTE:
FOR -Y2A- TURNAROUND LOCATED RT. OF STA. 14+85.00 USE 3" OF S9.5B AND 8" OF ABC.



TYPICAL SECTION NO. 29

USE TYPICAL SECTION NO. 29 AT THE FOLLOWING LOCATION:

-Y3- STA. 10+23.60 TO STA. 13+50.00

NOTE:
NO PROFILE PROVIDED FOR -Y3-.

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6/2/99

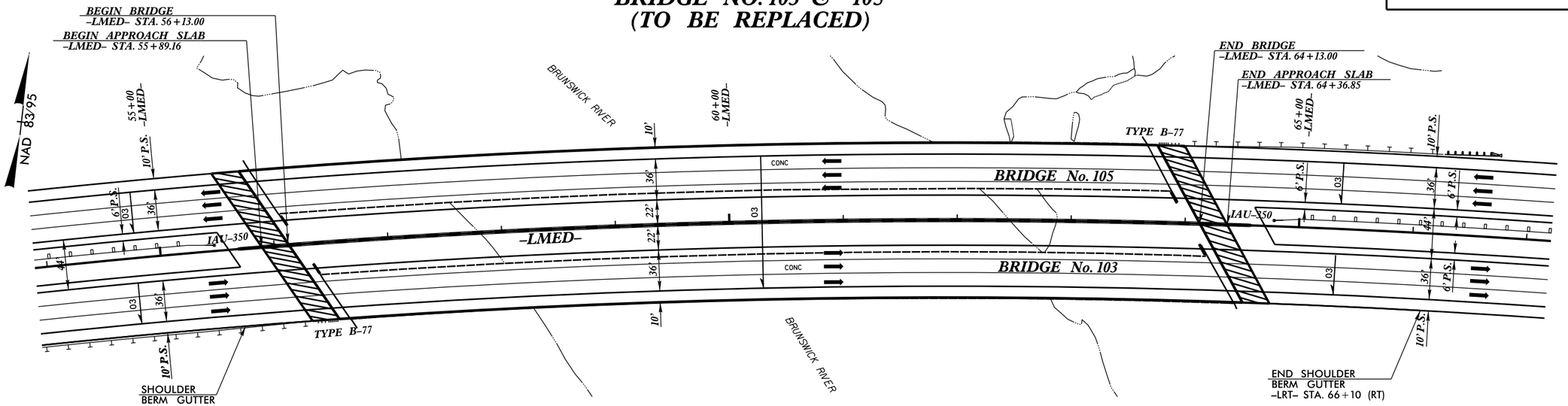
PROJECT REFERENCE NO.	SHEET NO.
R–3601	2–M

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SKETCH SHOWING PAVEMENT WIDTH TO BRIDGE WIDTH RELATIONSHIP

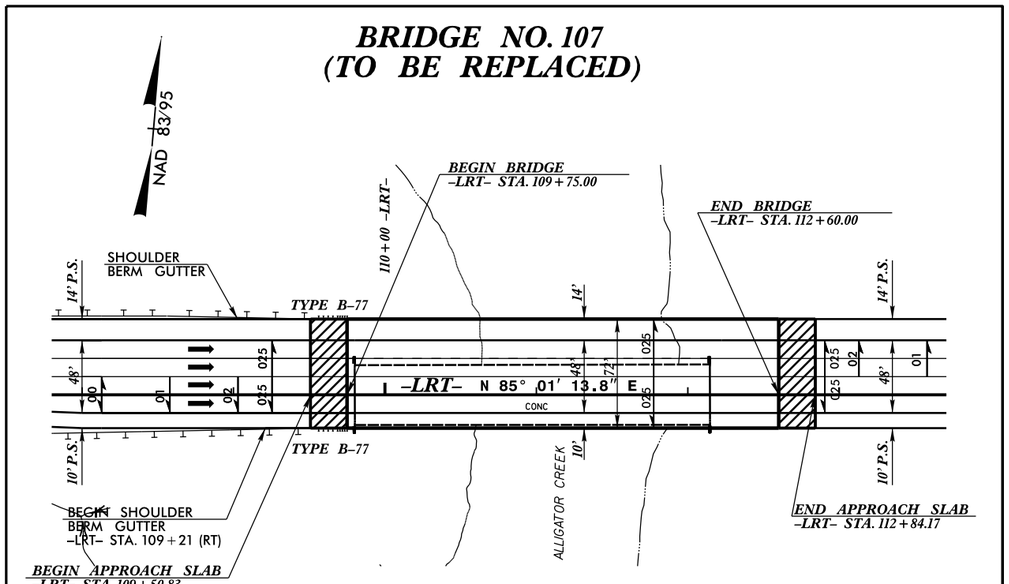
BRIDGE NO. 103 & 105 (TO BE REPLACED)



SKETCH SHOWING PAVEMENT/BRIDGE RELATIONSHIP FOR –LMED– OVER BRUNSWICK RIVER

SEE SHEETS 5 & 6 FOR PLAN VIEW AND SEE SHEET 14 FOR PROFILE

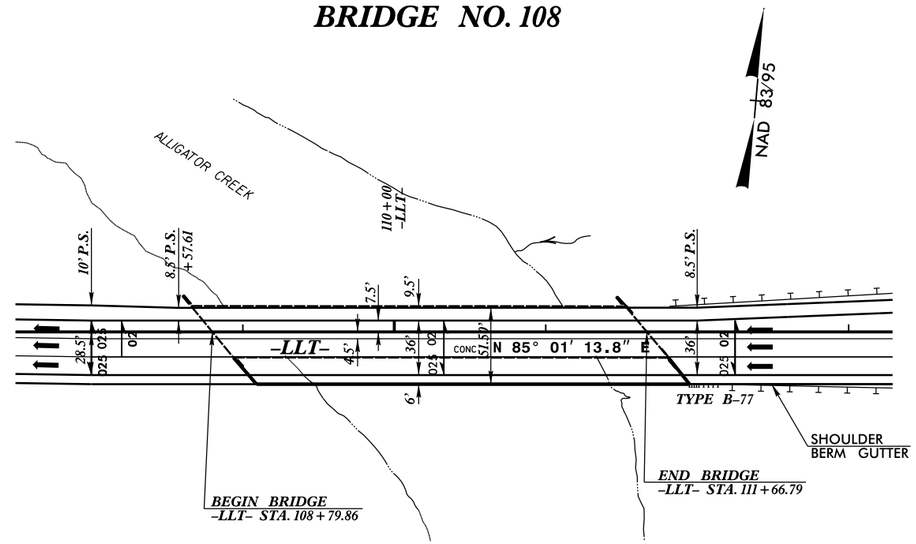
BRIDGE NO. 107 (TO BE REPLACED)



SKETCH SHOWING PAVEMENT/BRIDGE RELATIONSHIP FOR –LRT– OVER ALLIGATOR CREEK

SEE SHEET 9 FOR PLAN VIEW AND SEE SHEET 18 FOR PROFILE

BRIDGE NO. 108



SKETCH SHOWING PAVEMENT/BRIDGE RELATIONSHIP FOR –LLT– OVER ALLIGATOR CREEK

SEE SHEET 9 FOR PLAN VIEW AND SEE SHEET 17 FOR PROFILE

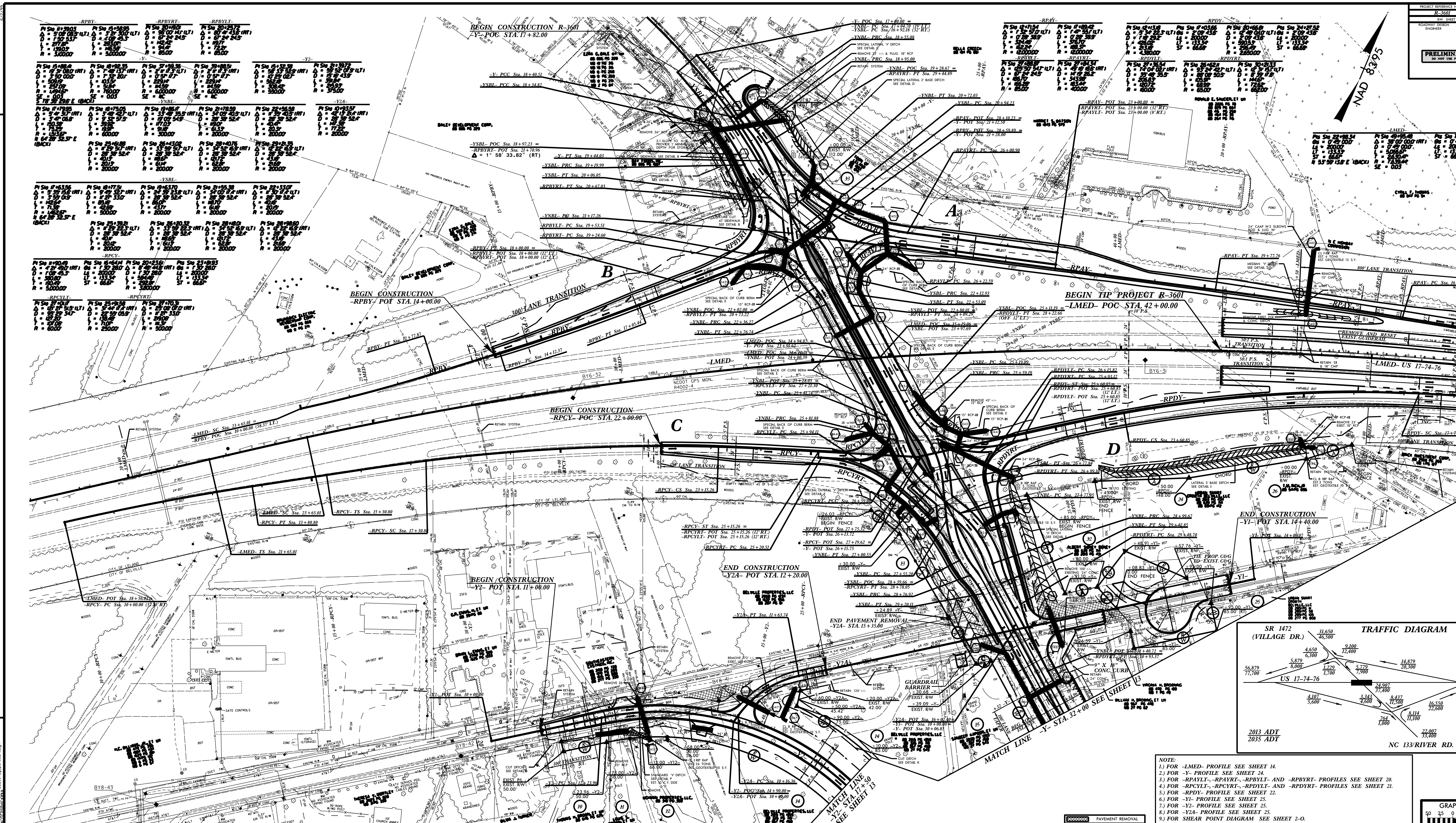
PROJECT REFERENCE NO.	SHEET NO.
R-3601	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTE:
1.) FOR -LMED- PROFILE SEE SHEET 14.
2.) FOR -Y- PROFILE SEE SHEET 24.
3.) FOR -RPAYLT-, -RPAYRT-, -RPBYLT- AND -RPBYRT- PROFILES SEE SHEET 20.
4.) FOR -RPCYLT-, -RPCYRT-, -RPDYLT- AND -RPDYRT- PROFILES SEE SHEET 21.
5.) FOR -RPDY- PROFILE SEE SHEET 22.
6.) FOR -Y1- PROFILE SEE SHEET 25.
7.) FOR -Y2- PROFILE SEE SHEET 25.
8.) FOR -Y2A- PROFILE SEE SHEET 25.
9.) FOR SHEAR POINT DIAGRAM SEE SHEET 2-O.
10.) FOR DETAIL OF DIVERGING DIAMOND INTERCHANGE SEE SHEETS 2-P AND 2-Q.

REVISIONS

4/8/13 R/W REVISION: Revised Temporary Construction Easement on Parcel 33. SCL

PROJECT REFERENCE NO.	SHEET NO.
R-3601	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

8/17/99

REVISIONS

–LMED–

PI Sta 22+98.34
Θs = 0° 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
N 53° 59' 13.8" E (BACK)

PI Sta 49+95.48
Δ = 38° 00' 00.0" (RT)
D = 0° 45' 00.0"
L = 5,066.67'
T = 2,630.47'
R = 7,639.44'
SE = 0.03

PI Sta 74+98.35
Θs = 0° 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

–RPDY–

PI Sta 12+59.51
Δ = 4° 07' 42.6" (LT)
D = 0° 47' 44.8"
L = 518.80'
T = 259.51'
R = 7,200.00'

PI Sta 16+33.49
Θs = 0° 47' 44.4"
Θs = 2° 02' 47.0"
Ls = 200.00'
LT = 114.69'
ST = 85.35'

PI Sta 20+11.50
Δ = 11° 56' 07.9" (LT)
D = 2° 02' 46.6"
L = 583.28'
T = 292.70'
R = 2,800.00'
SE = 0.05

PI Sta 23+68.76
Θs = 2° 02' 46.6"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

MATCH LINE –LMED– STA. 47+00 SEE SHEET 4

MATCH LINE –LMED– STA. 60+50 SEE SHEET 6

50+00 –LMED–

10+00 –RPAY–

55+00 –LMED–

60+00 –LMED–

CYRILL F. THOMAS, ET UX
DB 836 PG 720

FILL WITH FLOWABLE MATERIAL

800' LANE TRANSITION

–LMED– POC Sta. 51+50.00=
–RPAY– POT Sta. 10+00.00 (46' LT.)

–RPAY– PC Sta. 11+09.30

–RPAY– PT Sta. 14+33.76

MEDIAN V-DITCH
SEE DETAIL L

BEGIN SPECIAL GRADING US 17 S / US 74 W / US 76 W / NC 133 S
–LMED– STA. 51+55.64

S 77° 01' 10.0" W

S 76° 16' 08.0" W

FALSE SUMP
SEE DETAIL R

CONVERT JB TO 2GI
(SEE SHEET 2-R)

US 17-74-76 –LMED–

REMOVE 2GI

S 71° 44' 21.2" W –RPDY–

–RPDY– PT Sta. 14+26.02

–RPDY– TS Sta. 15+70.32

CL B RIP RAP
(SEE SHEET 2-R)

CITY OF LELAND
CITY OF BELVILLE

800' LANE TRANSITION

BRICK INVESTMENT CORP.
DB 2969 PG 269
MB 1 PG 127

ODELL EVANS, JR., ET UX
DB 761 PG 384
DB 750 PG 716
MAP CAB. S PG 242

URBAN SMART GROWTH BELVILLE, LLC
DB 2851 PG 108

15+00 –RPDY–

NORTHWEST TWP
TOWNCREEK TWP

TOWN OF BELVILLE
DB 1675 PG 484
MB 1 PG 27

URBAN SMART GROWTH BELVILLE, LLC
DB 2851 PG 95

BRUNSWICK RIVER

FLOOD/EBB

CITY OF LELAND

NCDOT GPS
MON. R1002 9

NOTE: (6) 4" PVC CONDUITS OWNED BY AT&T SUSPENDED UNDER BRIDGE. TIME WARNER FACILITIES ALSO CONTAINED IN SAME CONDUITS

ANGLE VANE
2GI

–LMED–
CONCRETE BARRIER

IAU-350
END GUIDERAIL
–LMED– STA. 55+47.70

GRAU-350

CL B RIP RAP
EST. 2 TONS
EST. GEOTEXTILE 7 SY

24" RCP-III
(SEE SHEET 2-S)

WATER LEVEL
ELEV=1.29'
4/28/2009
4:30 PM

UNKNOWN

CITY OF LELAND
CITY OF BELVILLE

PAVEMENT REMOVAL

NOTES:

1.) FOR –LMED– PROFILE SEE SHEET 14.
2.) FOR –LMED– BRIDGE SKETCH SEE SHEET 2–M.
3.) SEE CROSS–SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.
4) FOR –LMEDBEGBR– (MEDIAN EOP GRADE TRANSITION) SEE SHEET 16.
5) FOR STRUTURE PLANS SEE STRUCTURES PLAN SHEETS S–?? THROUGH S–??.

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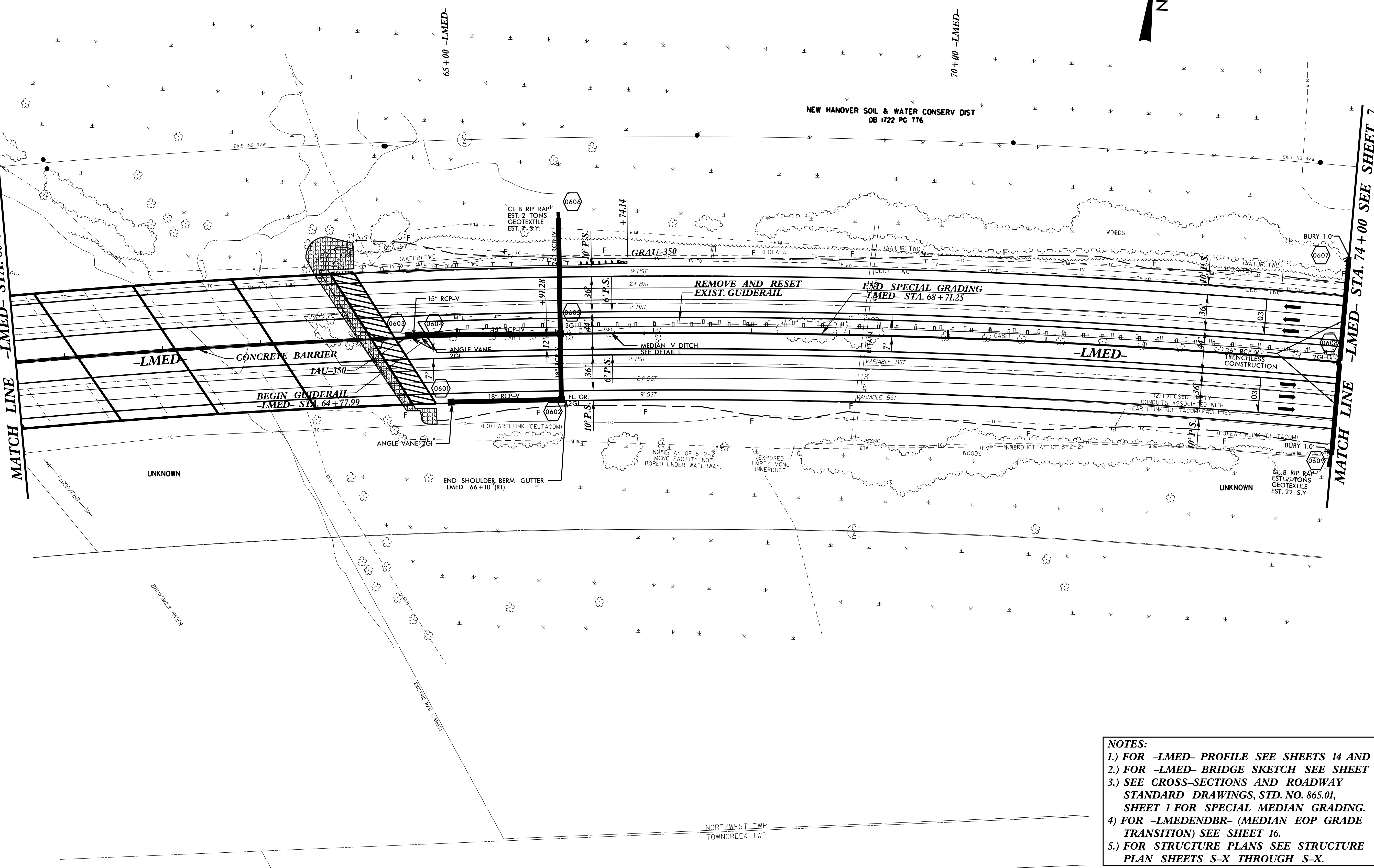
PROJECT REFERENCE NO.	SHEET NO.
R-3601	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-LMED-

PIs Sta 22+98.34	PI Sta 49+95.48	PIs Sta 74+98.35
Θs = 0° 45' 00.0"	Δ = 38° 00' 00.0" (RT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5,066.67'	LT = 133.33'
ST = 66.67'	T = 2,630.47'	ST = 66.67'
N 53° 59' 13.8" E (BACK)	R = 7,639.44'	
	SE = 0.03	



NOTES:

1.) FOR -LMED- PROFILE SEE SHEETS 14 AND 15.
2.) FOR -LMED- BRIDGE SKETCH SEE SHEET 2-M.
3.) SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.
4) FOR -LMEDENDBR- (MEDIAN EOP GRADE TRANSITION) SEE SHEET 16.
5.) FOR STRUCTURE PLANS SEE STRUCTURE PLAN SHEETS S-X THROUGH S-X.

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

NAD 83/95

–LMED–

Pls Sta 22+98.34	Pl Sta 49+95.48	Pls Sta 74+98.35
Θs = 0° 45' 00.0"	Δ = 38° 00' 00.0" (RT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5,066.67'	LT = 133.33'
ST = 66.67'	T = 2,630.47'	ST = 66.67'
N 53° 59' 13.8" E (BACK)	R = 7,639.44'	
	SE = 0.03	

DETAIL L
MEDIAN V DITCH
(Not to Scale)

–LMED– LT –LLT– | –LMED– RT –LRT–

Shoulder Point | VAR 3:1 or Flatter | D | VAR 3:1 or Flatter | Shoulder Point

Min. D = VAR.

–LMED– STA. 74+00 TO STA. 76+00 (MED)
–LMED– STA. 82+00 TO STA. 84+00 (MED)
–LLT– STA. 85+81 TO STA. 95+00 (RT)

–LLT–

Pls Sta 87+13.96	Pl Sta 92+45.65	Pls Sta 97+76.19
Θs = 0° 45' 00.0"	Δ = 6° 58' 00.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 928.89'	LT = 133.33'
ST = 66.67'	T = 465.02'	ST = 66.67'
S 86° 30' 46.2" E (BACK)	R = 7,639.44'	
	SE = 0.05	

–LMED– STA. 74+00 SEE SHEET 6

MATCH LINE

75+00 –LMED–

80+00 –LMED–

85+00 –LMED–

–LLT– STA. 87+50 SEE SHEET 8

MATCH LINE

–LMED– CS Sta. 74+31.68

–LMED– ST Sta. 76+31.68

–LLT– TS Sta. 85+80.63

END GUIDERAIL –LLT– STA. 87+37.00

–LMED– POT STA. 85+80.63 BK =
–LLT– TS STA. 85+80.63 AH (46' LT) =
–LRT– POT STA. 85+80.63 AH (46' RT.)

–LRT– POT Sta. 85+80.63

REMOVE AND RESET EXIST. GUIDERAIL

REMOVE EXIST. GUARDRAIL

S 86° 30' 46.2" E

GRAU-350

FILL WITH FLOWABLE MATERIAL

36" RCP–V TRENCHLESS CONSTRUCTION

50' INC.

MEDIAN V DITCH SEE DETAIL L

CLEAN-OUT

(2) EXPOSED EMPTY CONDUITS ASSOCIATED WITH EARTHLINK (DELTACOM) FACILITIES

NOTE: AT&T TELEPHONE FEED TO NCDOT VARIABLE MESSAGE SIGN.

EXISTING R/W

WOODS

UNKNOWN

MARSH

CITY OF BELVILLE

NOTES:
1.) FOR –LMED– PROFILE SEE SHEET 15.
2.) FOR –LLT– PROFILE SEE SHEET 16.
3.) FOR –LRT– PROFILE SEE SHEET 18.

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

-LLT-

Pls Sta 87+13.96
Θs = 0° 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
S 86° 30' 46.2" E (BACK)

PI Sta 92+45.65
Δ = 6° 58' 00.0" (LT)
D = 0° 45' 00.0"
L = 928.89'
T = 465.02'
R = 7,639.44'
SE = 0.05

Pls Sta 97+76.19
Θs = 0° 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

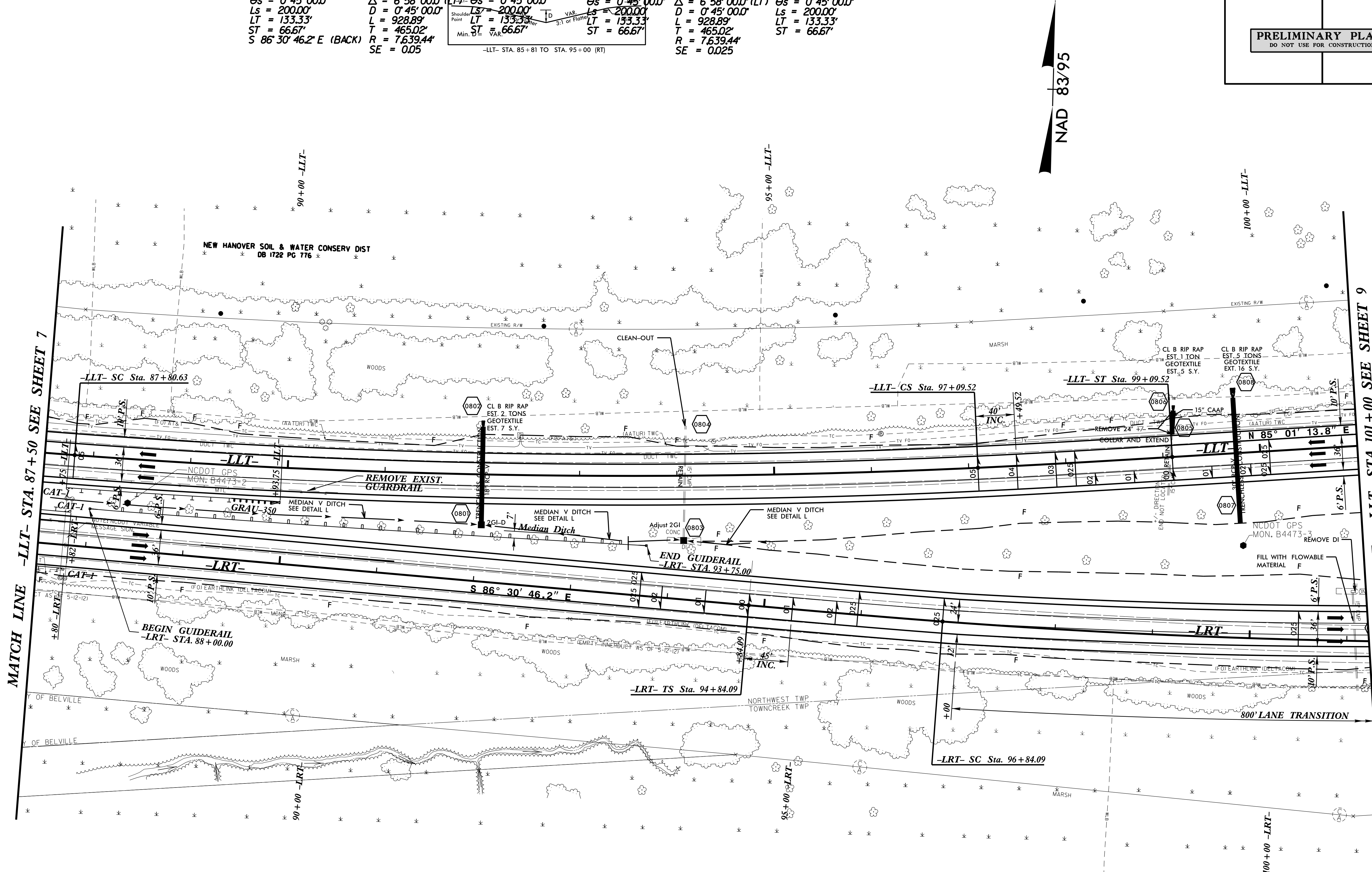
DETAIL L
MEDIAN V DITCH
(Not to Scale)
-LMED- LT
-LLT-
Shoulder Point
3:1 or Flatter
D
VAR.
3:1 or Flatter
-LMED- RT
Shoulder Point
Min. D = VAR.
-LLT- STA. 85+81 TO STA. 95+00 (RT)

-LRT-

Pls Sta 96+17.42
Θs = 0° 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

PI Sta 101+49.11
Δ = 6° 58' 00.0" (LT)
D = 0° 45' 00.0"
L = 928.89'
T = 465.02'
R = 7,639.44'
SE = 0.025

Pls Sta 106+79.65
Θs = 0° 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'



NOTES:
1.) FOR -LLT- PROFILE SEE SHEET 16.
2.) FOR -LRT- PROFILE SEE SHEET 18.

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS 8/17/99

BEGIN BRIDGE
–LLT– STA. 108 + 79.86

END BRIDGE
–LLT– STA. 111 + 66.79

MATCH LINE –LLT– STA. 101 + 00 SEE SHEET 8

MATCH LINE –LLT– STA. 114 + 00 SEE SHEET 10

105 + 00 –LLT–

110 + 00 –LLT–

NOTE: NO RECORD INFORMATION AVAILABLE FOR THIS ABANDONED TELEPHONE LINE TO DEPICT AT GLC. ELECTRONIC INVESTIGATION OF THIS LINE YIELDS END OF INFORMATION AT THIS LOCATION.

EXISTING R/W

ALLIGATOR CREEK FLOOD/EBB

NORTHWEST TWP
TOWNCREEK TWP

TIE PROP. GUARDRAIL TO EXIST. WTR SECTION

300' LANE TRANSITION

REMOVE EXIST. GUARDRAIL

GRAU-350

NOTE: (6) 4 PVC CONDUITS OWNED BY AT&T SUSPENDED UNDER BRIDGE. TIME WARNER FACILITIES ALSO CONTAINED IN SAME CONDUITS

–LLT– N 85° 01' 13.8" E

–LLT

–LRT– N 85° 01' 13.8" E

–LRT–

50:1 P. S. TRANSITION

800' LANE TRANSITION

300' LANE TRANSITION

BEGIN SHOULDER BERM GUTTER –LRT– 106+29 (LT)

CL B RIP RAP EST. 2 TONS EST. GEOTEXTILE 7 S.Y.

SPECIAL CUT 2' BASE DITCH SEE DETAIL M

CLASS II RIP RAP STRUCTURE PAY ITEM

CL B RIP RAP EST. 3 TONS EST. GEOTEXTILE 9 S.Y.

CLASS II RIP RAP STRUCTURE PAY ITEM

CL B RIP RAP EST. 2 TONS GEOTEXTILE EST. 7 S.Y.

STANDARD 2' BASE DITCH SEE DETAIL N

EXCAVATE TO NATURAL GROUND TO REMOVE OLD ROADWAY

WATER ELEV=1.33'
4/22/09 9:55 AM

HIGH WATER ELEV= 1.79'

–LRT– CS Sta. 106+12.98

–LRT– ST Sta. 108+12.98

REMOVE EXIST. GUARDRAIL

BEGIN SHOULDER BERM GUTTER –LRT– 109+21 (RT)

END APPROACH SLAB
–LRT– STA. 112 + 84.17
END BRIDGE
–LRT– STA. 112 + 60.00

BEGIN APPROACH SLAB
–LRT– STA. 109 + 50.83
BEGIN BRIDGE
–LRT– STA. 109 + 75.00

N C STATE PORTS AUTHORITY
DB 208 PG 273

FLOOD/EBB

ALLIGATOR CREEK

–LRT–

PIs Sta 96+17.42	PI Sta 101+49.11	PIs Sta 106+79.65
Θs = 0° 45' 00.0"	Δ = 6° 58' 00.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 928.89'	LT = 133.33'
ST = 66.67'	T = 465.02'	ST = 66.67'
	R = 7,639.44'	
	SE = 0.025	

PAVEMENT REMOVAL

NOTES:
1.) FOR –LLT– PROFILE SEE SHEETS 16 AND 17.
2.) FOR –LRT– PROFILE SEE SHEETS 18 AND 19.
3.) FOR –LLT– BRIDGE SKETCH SEE SHEET 2–M.
4.) FOR –LRT– BRIDGE SKETCH SEE SHEET 2–M.

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

NAD 83/95

–LLT–

PIs Sta 116+66.09	PI Sta 124+10.16	PIs Sta 131+08.59
Θs = 4° 30' 00.0"	Δ = 37° 16' 30.0" (RT)	Θs = 4° 30' 00.0"
Ls = 300.00'	D = 3° 00' 00.0"	Ls = 300.00'
LT = 200.06'	L = 1,242.50'	LT = 200.06'
ST = 100.06'	T = 644.13'	ST = 100.06'
	R = 1,909.86'	
	SE = 0.07	

–RPLLT–

PIs Sta 116+80.05	PI Sta 122+08.59	PIs Sta 126+73.90
Θs = 4° 05' 33.2"	Δ = 23° 04' 12.5" (RT)	Θs = 1° 58' 41.0"
Ls = 300.00'	D = 2° 43' 42.1"	Ls = 145.00'
LT = 200.05'	L = 845.56'	LT = 96.67'
ST = 100.05'	T = 428.59'	ST = 48.34'
	R = 2,100.00'	
	SE = 0.07	

NEW HANOVER SOIL & WATER CONSERV DISTR
DB 1584 PG 716

END SHOULDER BERM GUTTER
–LLT– 113+77 (RT)

–LLT– TS Sta. 114+66.03

–LLT– POS Sta. 114+80.00 =
–RPLLT– ST Sta. 114+80.00 (12' LT.)

–LLT– SC Sta. 117+66.03

–RPLLT– SC Sta. 117+80.00

END CONSTRUCTION
BEGIN RESURFACING
–RPLLT– POC STA. 127+15.00

–RPLLT– CS Sta. 126+25.56

400' LANE TRANSITION

1200' LANE TRANSITION

1450' LANE TRANSITION

300' LANE TRANSITION

100' TRANSITION

50:1 P.S. TRANSITION

25:1 P.S. TRANSITION

END CONSTRUCTION
–LLT– POC STA. 127+00.00

END CONSTRUCTION
–RPLRT– POC STA. 122+75.00

–LRT– TS Sta. 115+37.97

–LRT– PT Sta. 115+28.00 =
–RPLRT– PC Sta. 115+28.00

–RPLRT– CS Sta. 118+39.77

–LRT– SC Sta. 118+37.97

–RPLRT– SC Sta. 120+39.77

MATCH LINE –LLT– STA. 114+00 SEE SHEET 9

MATCH LINE –LLT– STA. 127+50 SEE SHEET 11

N 85° 01' 13.8" E

GRAU-350

CAT-1

LRT

RPLRT

LLT

RPLLT

VARIABLE BST

24' BST

EXCAVATE TO NATURAL GROUND TO REMOVE OLD ROADWAY

STANDARD 2'BASE DITCH
PAVER DETAIL N

(EX) EARTHLINK (DELTACOM)

(AATUR) AT&T

(AATUR) TWC

DUCT TWC

MCNC

WOODS

UNKNOWN

US 17 S/US 74 W/NC 133 S

US 17 BUS N / US 76 E / US 421 S

US 17 N / US 74 E / NC 133 N / US 421 N

–LRT–

PIs Sta 117+38.03	PI Sta 124+26.89	PIs Sta 130+80.53
Θs = 4° 30' 00.0"	Δ = 34° 16' 30.0" (RT)	Θs = 4° 30' 00.0"
Ls = 300.00'	D = 3° 00' 00.0"	Ls = 300.00'
LT = 200.06'	L = 1,142.50'	LT = 200.06'
ST = 100.06'	T = 588.92'	ST = 100.06'
	R = 1,909.86'	
	SE = 0.08	

–RPLRT–

PI Sta 116+84.16	PIs Sta 119+52.69	PI Sta 124+32.66	PIs Sta 128+51.97
Δ = 8° 22' 00.0" (RT)	Θs = 2° 40' 57.2"	Δ = 44° 43' 30.0" (RT)	Θs = 5° 59' 58.4"
D = 2° 41' 01.1"	Θs = 6° 00' 02.3"	D = 5° 59' 58.4"	Ls = 200.00'
L = 311.77'	Ls = 200.00'	L = 745.47'	LT = 133.41'
T = 156.16'	LT = 112.92'	T = 392.89'	ST = 66.74'
R = 2,135.00'	ST = 87.45'	R = 955.00'	
SE = 0.08			

NOTES:
1.) FOR –LLT– PROFILE SEE SHEET 17.
2.) FOR –LRT– PROFILE SEE SHEET 19.
3.) FOR –RPLRT– PROFILE SEE SHEETS 22 AND 23.
4.) FOR –RPLLT– PROFILE SEE SHEET 23.

PAVEMENT REMOVAL

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
8/17/99

NAD 83/95

MATCH LINE -RPLLT- STA. 139+30.00 SEE SHEET 12

MATCH LINE -LLT- STA. 127+50 SEE SHEET 10

-RPLLT- PC Sta. 138+81.80

-RPLLT- PT Sta. 138+31.80

-RPLLT- SRS Sta. 127+70.56

-RPLLT- SC Sta. 129+15.56

NEW HANOVER SOIL & WATER CONSERV DISTR
DB 1584 PG 716

NOTE: UTILITY RECORD INFORMATION INDICATES THE ACTIVE AND ABANDONED DIRECT-BURIED AT&T FIBER CABLES ENTER A CONDUIT SYSTEM IN THIS VICINITY.

N 45° 05' 07.8" E

-RPLLT-
Pls Sta 128+67.27
Θs = 5° 03' 56.8"
Ls = 145.00'
LT = 96.71'
ST = 48.37'
Δ = 64° 01' 11.0" (LT)
D = 6° 59' 14.2"
L = 916.23'
T = 512.59'
R = 820.00'

-LLT- CS Sta. 130+08.53

END TIP PROJECT R-3601
-LRT- POC STA. 130+50.00

-LLT- ST Sta. 133+08.53

-LRT- CS Sta. 129+80.47

-RPLRT- CS Sta. 127+85.24

NOTE:
1.) FOR -LRT- PROFILE SEE SHEET 19.

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PROJECT REFERENCE NO.	SHEET NO.
R-3601	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99 REVISIONS

04-MAR-2013 16:05
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$$$$USERNAME$$$$

NAD 83/95

-RPLRT-
PI Sta 167+79.91
Δ = 7° 30' 00.0" (LT)
D = 3° 03' 50.2"
L = 244.78'
T = 122.57'
R = 1,870.00'

-RPLLT-
PI Sta 142+31.77
Δ = 24° 18' 30.0" (LT)
D = 3° 31' 33.2"
L = 689.42'
T = 349.98'
R = 1,625.00'

MATCH LINE -RPLLT- STA. 139+30.00 SEE SHEET 11

-RPLLT- PT Sta. 145+71.22

-RPLLT- POT Sta. 148+25.95 =
-Y3- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y3- POT STA. 10+23.60

END RESURFACING
-RPLLT- POT STA. 150+00.00

720' LANE TAPER

275' FULL LANE

200' LANE TAPER

N 20° 46' 37.8" E

S 69° 30' 27" E

BEGIN CONSTRUCTION
-RPLRT- POT STA. 160+00.00

-Y3- PC Sta. 13+32.18

END CONSTRUCTION
-RPLRT- POT STA. 166+50.00

END CONSTRUCTION
-Y3- POC STA. 13+50.00

-RPLRT- PT Sta. 169+02.12

-RPLRT- PC Sta. 166+57.34

STANDARD 'V' DITCH SEE DETAIL P

CUT DITCH SEE DETAIL O

PROP. 8" X 6" CONC. CURB

PARTIAL CONCRETE ISLAND TO BE REMOVED

NCDOT CAPS MON. R3601-2

NEW HANOVER SOIL & WATER CONSERV DISTR
DB 1584 PG 116

BRUNSWICK COUNTY
NEW HANOVER COUNTY

STATE OF NORTH CAROLINA

USS NC BATTLESHIP COMMISSION
DB 6 PG 96

TRAFFIC DIAGRAM

US 17-74-421/ NC 133

26,321 / 39,600		26,321 / 39,600
564 / 800		564 / 800
1,129 / 1,600		2013 ADT / 2035 ADT

SR 1352 (BATTLESHIP RD.)

NOTE:
1.) NO PROFILE PROVIDED FOR LEFT TURN LANE WIDEN OFF THE EXISTING.
2.) FOR -RPLRT- PROFILE SEE SHEET 23.

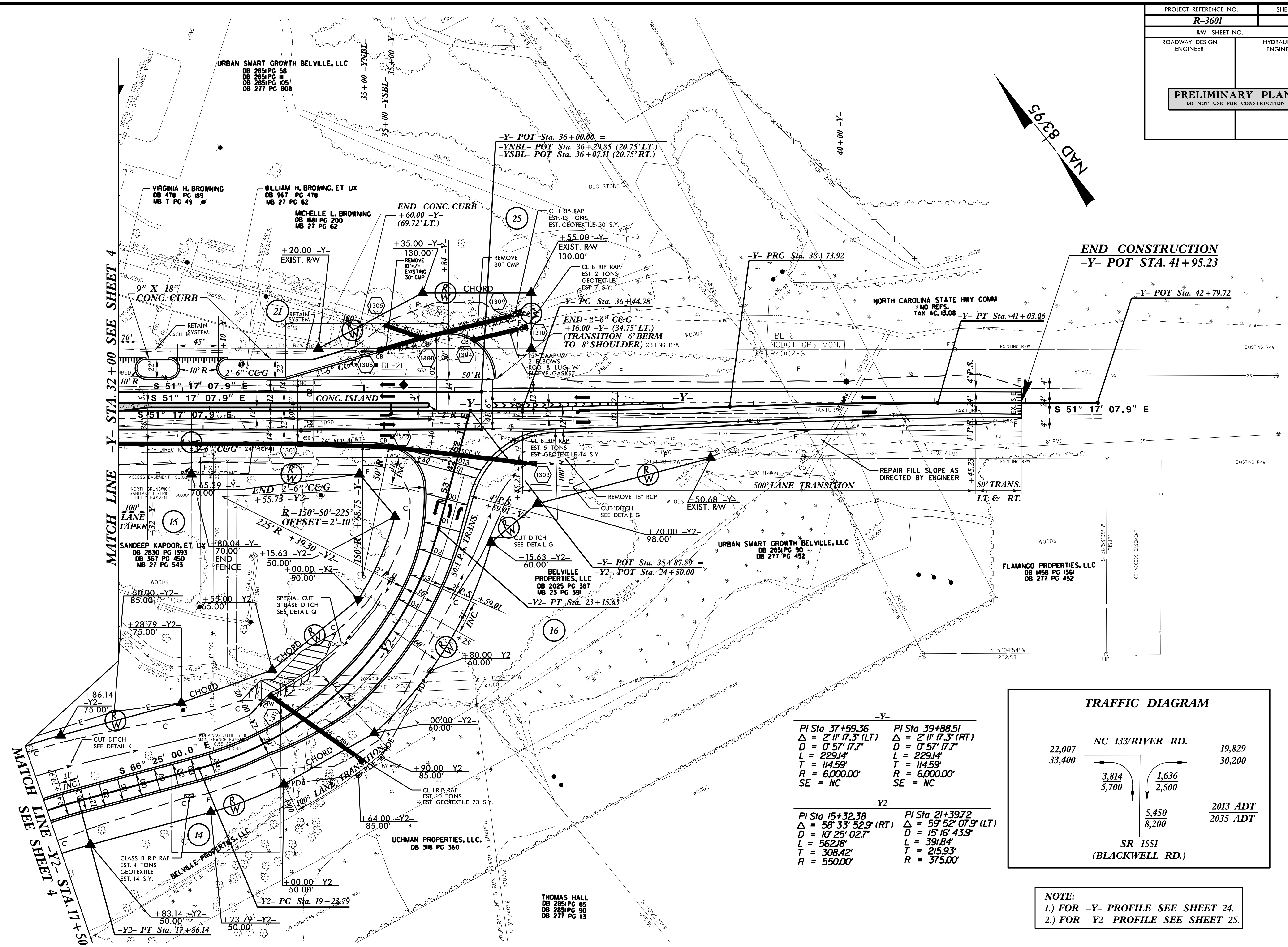
-Y3-

PI Sta 14+68.50	PI Sta 20+58.44
Δ = 48° 39' 00.0" (RT)	Δ = 74° 05' 15.7" (LT)
D = 18° 59' 58.3"	D = 19° 00' 00.0"
L = 256.06'	L = 389.94'
T = 136.32'	T = 227.60'
R = 301.56'	R = 301.56'

PROJECT REFERENCE NO.	SHEET NO.
R-3601	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



-Y-

PI Sta 37+59.36	PI Sta 39+88.51
Δ = 2° 11' 17.3" (LT)	Δ = 2° 11' 17.3" (RT)
D = 0° 57' 17.7"	D = 0° 57' 17.7"
L = 229.14'	L = 229.14'
T = 114.59'	T = 114.59'
R = 6,000.00'	R = 6,000.00'
SE = NC	SE = NC

-Y2-

PI Sta 15+32.38	PI Sta 21+39.72
Δ = 58° 33' 52.9" (RT)	Δ = 59° 52' 07.9" (LT)
D = 10° 25' 02.7"	D = 15° 16' 43.9"
L = 562.18'	L = 391.84'
T = 308.42'	T = 215.93'
R = 550.00'	R = 375.00'

TRAFFIC DIAGRAM

NC 133/RIVER RD.

22,007 / 33,400 — 19,829 / 30,200

3,814 / 5,700 — 1,636 / 2,500 — 5,450 / 8,200

2013 ADT / 2035 ADT

SR 1551 (BLACKWELL RD.)

NOTE:
1.) FOR -Y- PROFILE SEE SHEET 24.
2.) FOR -Y2- PROFILE SEE SHEET 25.

8/17/99

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