STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

June 29, 2010

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Ms. Sarah Elizabeth Hair
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 14 and Section 401 Water Quality Certification** for widening of NC 73 from West of US 21 to East of NC 115 in Mecklenburg County, Federal Aid Project Number STM-0073, Division 10, T.I.P. No. R-2632AA, $240.00 debit WBS No. 38824.3.ST1

Dear Ms. Hair:

The North Carolina Department of Transportation (NCDOT) and the Federal Highway Administration (FHWA), in cooperation with the Town of Huntersville, propose to improve the existing NC-73 (Sam Furr Road) between US 21 and NC 115 in northern Mecklenburg County, North Carolina. The existing two-lane, undivided, highway will be widened to a multi-lane (i.e., four- or six-lane) highway with divided and un-divided sections. There will be 90 feet of permanent surface water impact and 7 feet (<0.01 acre) of temporary surface water impact at Site 1 (see Permit Drawing Sheets 10 & 11 of 18. The impacts occur as a result of a pipe installation, bank stabilization, and dewatering. Pursuant to correspondence with Steve Lund of the US Army Corps of Engineers (USACE), the USACE will not require mitigation for impacts to this stream. Additionally, the stream impacts do not exceed the NC Division of Water Quality (NCDWQ) mitigation threshold of greater than or equal to 150 linear feet. As such, no compensatory mitigation is proposed.

Please see enclosed copies of the following:

- the Pre-Construction Notification (PCN),
- U.S. Fish and Wildlife Service (USFWS) concurrence letter,
- stormwater management plan,
- U.S. Army Corps of Engineers (USACE) jurisdictional determination letter for the above-referenced project.
- permit drawings, including impact summary table, and
- design plans

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

TELEPHONE: 919-431-2000
FAX: 919-431-2002
WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 ATLANTIC AVENUE
SUITE 116
RALEIGH NC 27604

The attached permit drawings are based on the final design for the project. Permit Drawing Sheets 6-9 of 18 and Sheets 12-13 of 18 have been included to illustrate and document the avoidance of impacts to two jurisdictional streams.

The Categorical Exclusion (CE) report was distributed in June of 2009. Additional copies are available upon request.

This project is a design build project. The anticipated start date of construction is June 14, 2010 in non-jurisdictional areas.

A copy of this permit application will be posted on the NCDOT website at: http://www.ncdot.org/doh/precontruct/pe/. If you have any questions or need additional information, please contact Bill Barrett by phone at (919) 431-6688 or by email at wabarrett@ncdot.gov.

Sincerely,

E. L. Lusk

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

w/ attachment

Mr. Brian Wrenn, NCDWQ (5 Copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. Jeff D'Arruda, PE, NCDOT, Division 10 Resident Engineer
Mr. Jason Hoyle, PE, Blythe Development
Mr. Daniel Bridges, PE, PB

w/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Barry Moose, P.E., Division 10
Mr. Larry Thompson, Division 10
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Ms. Theresa Ellerby, PDEA Project Planning Engineer
Mr. Khaled Alakhdar, NCDOT Design Build Unit
Twanna Brooks, PE – NCDOT Division 10 Construction Engineer

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: 14	or General Permit (GP) number:	
1c. Has the N WP 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:	Proposed Widening of NC 73 from West of US 21 to East of NC 115
2b. County:	Mecklenburg
2c. Nearest municipality / town:	Huntersville
2d. Subdivision name:	N/A
2e. NCDOT only, T.I.P. or state project no:	R-2632AA
3. Owner Information	
3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	
3c. Responsible Party (for LLC i f applicable):	not applicable
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	919-431-6688
3g. Fax no.:	919-431-2002
3h. Email address:	wabarrett@ncdot.gov

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

B. Project Information and Prior Project History			
1. Property Identification			
1a. Property identification no. (tax PIN or parcel ID):	not applicable		
1b. Site coordinates (in decimal degrees):	Latitude: 35.4408 (DD.DDDDDD)	Longitude: - 80.8414 (-DD.DDDDDD)	
1c. Property size:	39.5 acres		
2. Surface Waters			
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Ramah Creek (HUC 03040105)		
2b. Water Quality Classification of nearest receiving water:	C		
2c. River basin:	Yadkin		
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: The local area surrounding the project is mainly surburban residential and commercial, with some forested areas.			
3b. List the total estimated acreage of all existing wetlands on the property: 0 AC			
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 330 ft			
3d. Explain the purpose of the proposed project: To alleviate current traffic congestion problems and accommodate future traffic demands by increasing the capacity of the existing facility.			
3e. Describe the overall project in detail, including the type of equipment to be used: NCDOT proposes to improve a 1.8 mi. section of NC 73 by widening the existing roadway to multi-lane (i.e., 4- or 6-lane) highway with divided and undivided sections, installing guardrails at select locations, one pipe extension on a jurisdictional stream, and changing the horizontal and vertical alignment to improve sight distance and public safety. Heavy duty excavation equipment will be used such as dozers, cranes, and other equipment necessary for roadway construction.			
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): Brandon Phillips	Agency/Consultant Company: STV/Ralph Whitehead Associates Other:		
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. December 1, 2009			
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. There is future work planned to widen NC 73 (T.I.P. R-2632 AB) from East of NC 115 to East of SR 2693 (Davidson-Concord Road). This future work for section AB is planned post year. Each section has independent utility.	

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)
W1 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
W2 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
W3 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
W4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
W5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
W6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
2g. **Total wetland impacts**					

2h. Comments:

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
S1 ☒ P ☒ T	culvert install, bank stabilization (rip-rap), and dewatering	Unnamed Tributary to Ramah Creek	☐ PER ☒ INT	☒ Corps ☐ DWQ	3' - 5'	90' (P) 7' (T)
S2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
S3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
S4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
S5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
S6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
3h. **Total stream and tributary impacts**						90' (P) 7' (T)

3i. Comments: Culvert installation accounts for 80' of permanent impact; bank stabilization accounts for the rest of the total impact.

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
4f. Total open water impacts				
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 ☐ Tar-Pamlico ☐ Other: ☐ Catawba ☐ Randleman

6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ 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. Overall for the project, impacts to waters of the United States are unavoidable to meet the project's purpose and need. The NCDOT has avoided two stream impacts at -L1- (NC 73) sta. 70+75 by shifting the alignment to the north and implementing rock plating at a 1 ½: 1 slope to eliminate the need to lengthen an existing pipe culvert. Another stream was avoided along Holly Point Drive near -HP- sta. 14+50 by shifting the proposed improvements away from the stream. The impacts at -L1- (NC 73) sta. 90+00 were minimized by reducing the height of the fill section and utilizing 2:1 fill slopes. Minimal impacts to waters of the US will result from project construction.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. During construction, impacts to jurisdictional waters will be minimized by implementation of NCDOT best management practices for the protection of surface waters.		
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: Pursuant to Steve Lund of the US Army Corps of Engineers(USACE), the USACE will not require mitigation for stream impacts. Stream impacts do not exceed the NC Division of Water Quality mitigation threshold (≥ 150 LF). No compensatory mitigation is proposed.	
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps	
2c. If yes, which mitigat ion option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation	
3. Complete if Using a Mitigation Bank		
3a. Name of Mitigation Bank:		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
4. Complete if Making a Payment to In-lieu Fee Program		
4a. Approval letter from in-lieu fee program is attached.	☐ Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:	acres	
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	
4h. Comments:		
5. Complete if Using a Permittee Responsible Mitigation Plan		
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.		

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

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If no, 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: The project's stormwater management plan addresses pre- versus post-construction runoff at outfalls. Water quality treatment for road run off will be addressed by using grass swales per the NCDOT BMP manual. 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?	
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
5b. Have all of the 401 Unit submittal requirements been met?	☒ Yes ☐ No

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. As described in the Community Impact Assessment (2007) and the Categorical Exclusion document (May 2009), Town of Huntersville staff indicated that there are relatively few planned developments along NC-73, nor discussions among developers of potential developments as of May 2009. The existing regulations and town ordinances governing ongoing future development in the project area will serve to minimize their respective contributions to cumulative impacts. There are no explicit economic development purposes for the project, nor is the proposed project being constructed to serve any specific new developments. The potential for growth and land use changes in the broader project area are moderate. But land use changes are likely to occur whether or not the project is constructed because the Town of Huntersville is encouraging mixed use development in the corridor overall, which generally has transitioned from rural to urban/suburban character. The project contains growth-inducing factors such as the presence of developable land and the availability of water and sewer service. The potential for the proposed project to increase development pressure on the vacant land in the project area is moderate. Local land use plans support growth and development. The proposed project is not anticipated to substantially alter current or already planned future land use plans. The proposed improvements will provide additional capacity to relieve congestion for a small section of NC-73. The project has the potential for cumulative effects resulting from the incremental effects of the proposed widening with past projects and current and future development activities in the project region.		
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, i ndicate 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? Both USFWS and NCNHP databases, endangered species field surveys by NCDOT, USFWS Section 7 approval letter dated 6/5/2009 for Carolina heelsplitter for 'Not Likely to Adversely Affect', remaining species are 'No Effect"		
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? National Marine Fisheries Service 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? NCDOT staff archaeological historian performed required surveys and received approval from the NC State Historic Preservation office on 5/9/2007.		
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:		
8c. What source(s) did you use to make the floodplain determination? NCDOT Hydraulics Unit - FEMA online Map Service Center Mecklenburg County FIRM panels 3710464200J and 3710465200J		

Gregory J. Thorpe, PhD 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.)	6.28.10 Date

CC: L. Williams 5-22-09

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

May 6, 2009

RECEIVED
Division of Highways
MAY 12 2009
Project Development and Environmental Analysis Branch
Barnett
RECEIVED
MAY 26 2009
DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

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

Dear Dr. Thorpe:

Subject: Endangered Species Concurrence for TIP Project No. R-2632A, Proposed Widening of NC 73 from West of US 21 to East of SR 2427 in Mecklenburg County, North Carolina, Federal Aid Project No. STP-73(16), WBS No. 38824.1.1

We have reviewed your concurrence request and the survey reports for the subject project and potential impacts to the federally endangered Carolina heelsplitter (*Lasmigona decorata*). We provide the following comments in accordance with the provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

The North Carolina Department of Transportation (NCDOT) proposes to widen NC 73 from west of US 21 to east of SR 2427. The widening will impact Ramah Creek, two unnamed tributaries to Ramah Creek, and an unnamed tributary to Caldwell Station Creek. The unnamed tributaries do not provide suitable habitat for freshwater mussels. Ramah Creek will be impacted by extending the existing culvert. According to the information provided, surveys for freshwater mussels resulted in the discovery of no mussels in the footprint of the project at Ramah Creek or for 400 meters downstream or 100 meters upstream. The closest known native freshwater mussels were located about 4.5 miles downstream of the project crossing. Given the negative survey data and the minimal impact of the project, we concur that the proposed culvert extension is "not likely to adversely affect" the Carolina heelsplitter in the project area. In view of this, we believe the requirements under section 7(c) of the Act are fulfilled. However, obligations under section 7 of the Act 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, (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 is determined that may be affected by the identified action.

If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning this project, please reference our Log No. 4-2-09-282.

Sincerely,

Brian P. Cole
Field Supervisor

Stormwater Management Plan - Narrative

State Project 38824.3.ST1 (**R-2632AA**)
Federal Project STM-0073 (21)
Mecklenburg County (Div 10)
NC 73 (Sam Furr Road) from West of US 21 to East of NC 115

The project site consists of the developed urban roadway corridor along NC 73 within the limits stated above. No interchange work that would provide infield areas for stormwater management facilities is included in the project. In addition, the developed nature of the land on either side of the roadway significantly limits alternatives for providing effective stormwater management. For this reason, after consultation with the NCDOT Highway Stormwater Program (HSP) staff, it was decided that use of grass swales, designed in accordance with the NCDOT Stormwater BMP design criteria, to provide water quality treatment of roadway runoff, is the most appropriate strategy for this project.

Water Quality Treatment

As detailed in the attached Stormwater Management Plan (SMP) and supporting documentation, grass swales have been provided to address water quality treatment of roadway runoff. The project will result in a net increase of 16.23 acres of impervious area. Therefore, in accordance with NCDOT criteria, at least 1623 feet of grass swales should be provided. The proposed project will include 1766 feet of grass swales that meet the physical dimensions and velocity requirements specified in the BMP manual to provide water quality benefits. Due to the linear nature of the project, the existing development of the adjacent land, and the limited right-of-way available, the only feasible location for these swales adjacent and parallel to the reconstructed roadways. The design of the swales has been optimized to provide the maximum water quality benefit primarily by maximizing the length of grass swales that can be constructed. Since the mainline NC 73 corridor is to be provided with a curb and gutter section, this significantly limited the amount of grassed swale that could be provided. However, as shown above, the project meets the target treatment of 100 LF of grassed swale per acre of new impervious surface.

Quantity Control

Due to the limited right-of-way and the developed nature of the corridor, in consultation with the NCDOT Highway Stormwater Program (HSP) staff, it was decided that it was not feasible to construct stormwater detention facilities to address increases in stormwater runoff rates. However, as documented herein, all stormwater outfalls have been evaluated to quantify the project's impacts on peak flow rates. Of the four (4) outfall points evaluated, only one showed an increase greater than 10%. For that outfall, the flows are not discharged to an open channel but to an existing storm sewer system. The capacity of the receiving storm sewer system was assessed and it was found that it had more than enough capacity for the increased flow. Of the four outfall points, two discharge to jurisdictional waters, and the increase at both will be less than 10%.

Highway Stormwater

North Carolina Department of Transportation
Highway Stormwater Program

STORMWATER MANAGEMENT PLAN | Page 1 of 3

GENERAL PROJECT INFORMATION			
Project No.: 38824.3.ST1		Date: 4/15/10	
TIP No.: R2632AA	Designer: PARSONS BRINCKERHOFF		
City/Town:	Project Manager: DANIEL BRIDGES		
County: A–B, C–D, E–L, (M–P) Mecklenburg, R–U, V–W		County: A–B, C–D, E–L, M–P, R–U, V–W	
CAMA County: ☐ Yes	TVA County: ☐ Yes	CAMA County: ☐ Yes	TVA County: ☐ Yes
River Basin(s): (1) CATAWBA		(2) YADKIN	
Primary Receiving Water:			
NCDWQ Surface Water Classification			
Primary:	SEE ATTACHED		
Supplemental:			
Other Stream Classification:			
303(d) Stream: ☐ Yes (NO) Type of Impairment:			
State Stormwater Permit Required? ☐ Yes ☒ No			
Could the Project Impact Threatened or Endangered Species? ☐ Yes ☒ No			
Description:			
Anadromous Fish Present? ☐ Yes ☒ No			
Description:			
Buffer Rules in Effect? ☐ Yes ☒ No		Buffer Rules:	
Existing Site			
Existing Roadway Description: Urban Arterial			
ADT: 22,600 (2006)			
Existing Cross-Section: 2-lane, with shoulder			
Surrounding Land Use: Commercial, residential			
General Comments: Developed corridor			
Project Description			
Proposed Roadway Description: Urban arterial			
ADT: 46,300 (2030)			
Proposed Cross-Section: 4-lane divided, with curb+gutter			
Interchange Modification: NA		Median Type: raised	
Terminus: W of US 21		Terminus: E of NC 115	

Length of Project: 1.8 miles feet	Added Impervious Area: 16.2 acres
General Comments:	

ENVIRONMENTAL SUMMARY

Jurisdictional Stream Crossings

Station	Stream Name	Type	Classification	Proposed Structure
90+00	UT to Rainah	Intermit.	C	24" RCP

Stream Relocation

Station	Stream Name	Stream Length (ft)	Additional Information
	NONE		

Jurisdictional Wetlands

Station	Type of Impact	Minimization of Impact
	NONE	

BEST MANAGEMENT PRACTICES

Description of Best Management Practices

Type	Water Quality Benefit	Checklist Completed?[a]
Grass Swale	Runoff Treatment	☒ Yes
		☐ Yes
		☐ Yes
		☐ Yes

[a] Checklists are available in the BMP Toolbox.

Location of Best Management Practices						
Station	Receiving Stream	BMP	DA[a] (acres)	Q_2 (ft^3/s)	Q_{10} (ft^3/s)	WQv[b] (ft^3/s)
82+91	NA	Grass Swale	3.85	7.45	9.60	NA
- 99+00						
105+43	NA	Grass Swale	1.04	2.59	3.34	NA
- 107+00						

[a] Drainage Area
[b] Water Quality Volume

Additional Comments
See attached narrative.

References

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

COPY

Action Id. SAW-2007-0862 County: Mecklenburg U.S.G.S. Quad: Cornelius

NOTIFICATION OF JURISDICTIONAL DETERMINATION

RECEIVED
DEC 9 2009
STV/Ralph Whitehead Associates
Charlotte, NC

Property Owner/Agent: NC Department of Transportation, Attn: Gregory J. Thorpe
Address: Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, NC 27699-1548
Telephone No.: 919-715-1334

Property description:
Size (acres) 400 approx. Nearest Town Huntersville
Nearest Waterway Ramah Creek River Basin Catawba
USGS HUC 03040105 Coordinates N 35.4410 W 80.8631
Location description NC Hwy 73 Widening, Statesville Road to Ramah Church Road, TIP R-2632A

Indicate Which of the Following Apply:

A. Preliminary Determination

_ Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. 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.

X There are waters and 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 waters and wetlands on your property have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed (GPS). 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.

X The surface waters and/or wetlands have been delineated and surveyed and are accurately depicted on the maps and GPS surveys from STV/Ralph Whitehead Associates dated 27 March 2009 and 20 February 2007 with the exception noted in **D. Remarks** below. 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.

Action ID: _____

SAW-2007-0862

COPY

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 **Steven Lund** at **828-271-7980**.

C. Basis For Determination

Stream Identification Forms, Wetland Determination Forms and Jurisdictional Determination Forms included with the submittals of 27 March 2009 and 20 February 2007 from STV/Ralph Whitehead Associates

D. Remarks

Ramah Creek and unnamed tributaries are relatively permanent waters (RPWs) flowing to the Rocky River, a traditionally navigable water (TNW). Based on an April 11, 2007 onsite inspection, Intermittent Stream A becomes perennial approximately 30 feet downstream (south) of the existing culvert under NC 73.

E. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division
Attn: Steven Lund, Project Manager,
Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, North Carolina 28801-5006

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address within 60 days of the date of this verification.

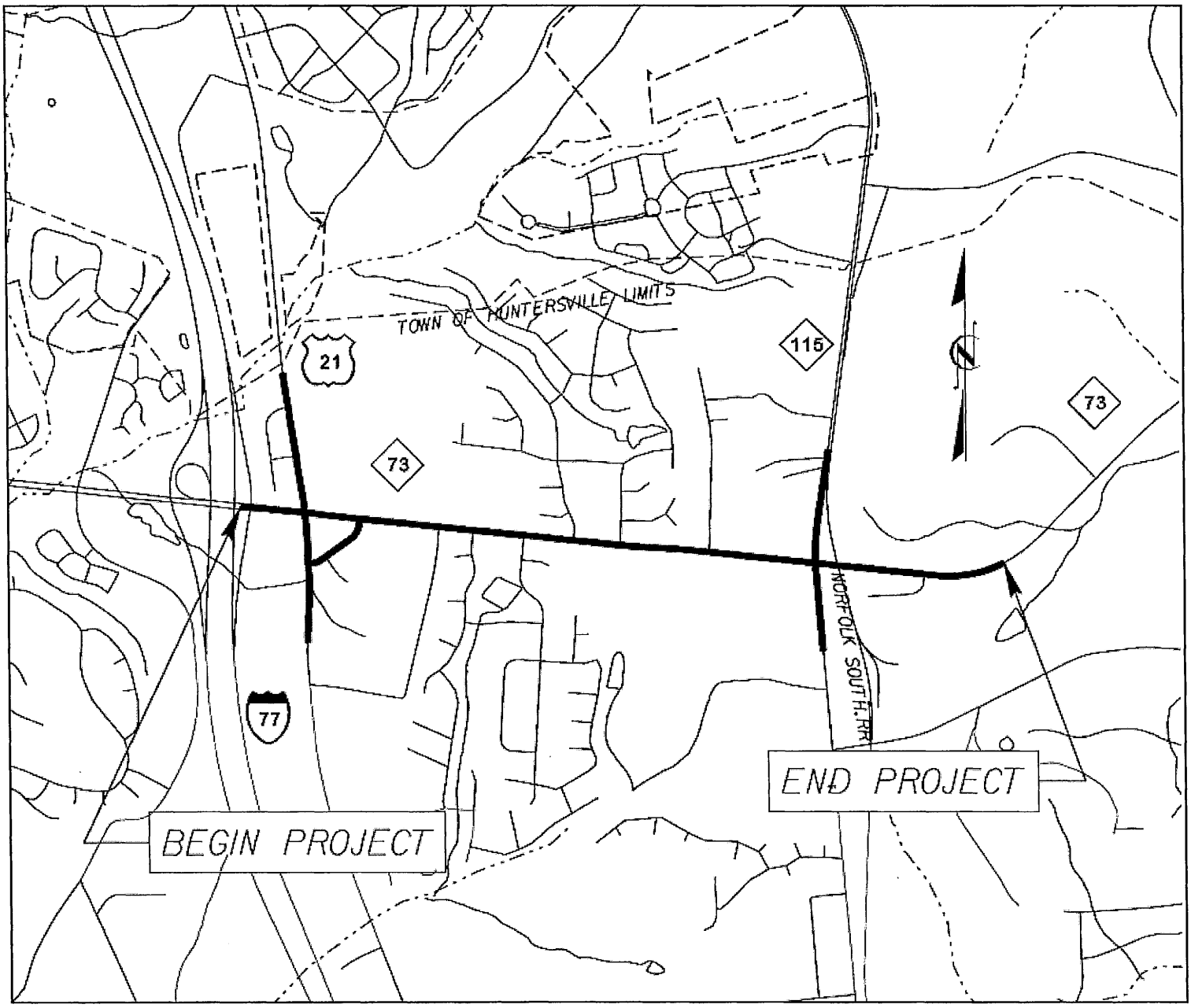
It is not necessary to submit an RFA form to the District Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Steven W. Lund SWL

Date: **December 1, 2009** Expiration Date: **December 1, 2014**

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.

Copy furnished: Brandon Phillips, STV/Ralph Whitehead Associates, 1000 West Morehead Street, Suite 200, Charlotte, NC 28208



VICINITY MAP

NOT TO SCALE

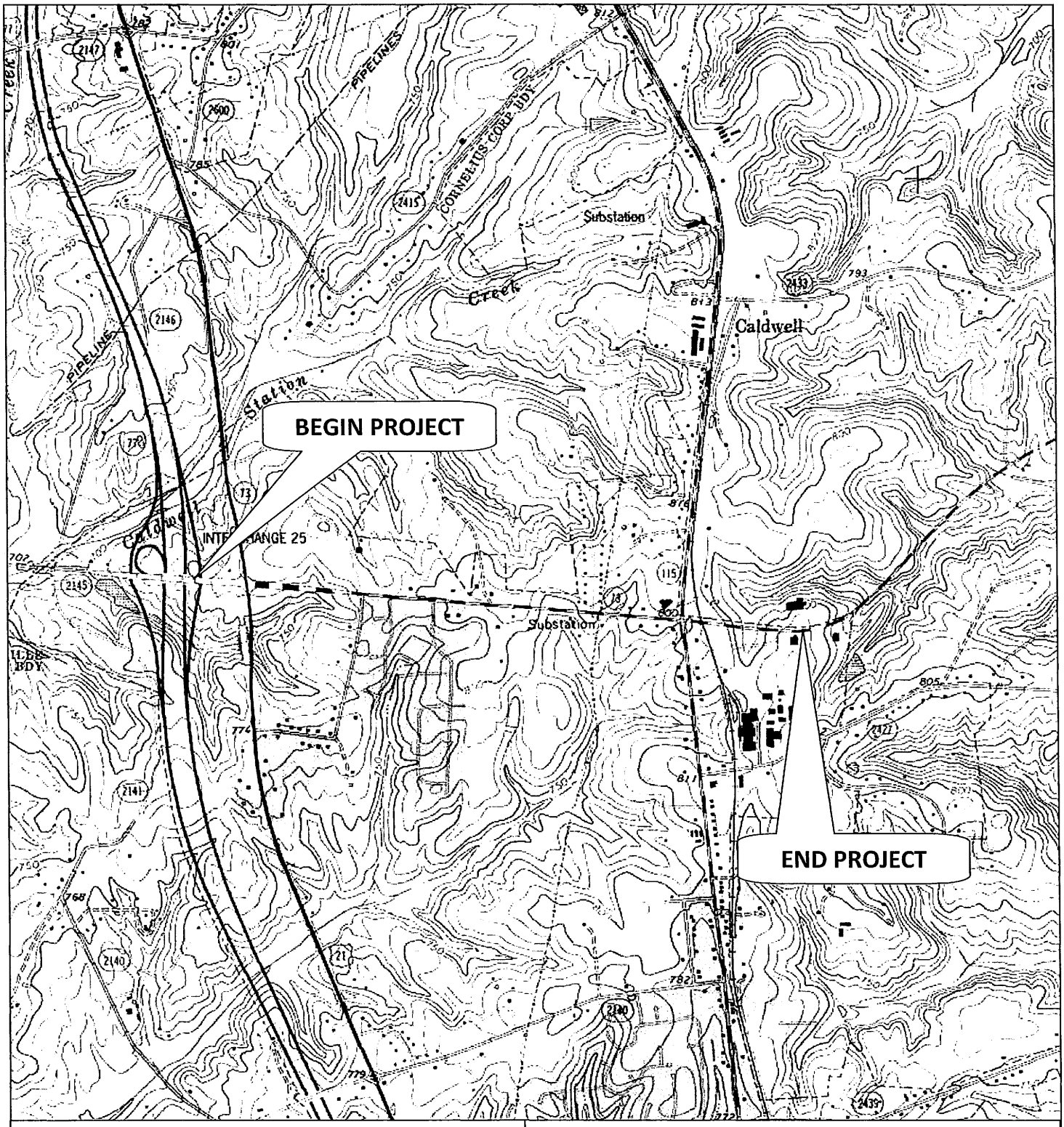
NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: R-2632AA

NC 73 (SAM FURR RD.) FROM WEST OF US 21 TO EAST OF NC 115

SHEET 1 OF 18

04/09/10



TOPO MAP

SCALE: 1" = 2000'

NCDOT
DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: R-2632AA

NC 73 (SAM FURR RD.) FROM WEST OF US 21 TO EAST OF NC 115

SHEET 2 OF 18 04/09/10

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
54	CHARLES E. KNOX, MURRAY G. KELLY, & JAMES LITTLE AUTEN, JR.	17000 OLD STATESVILLE ROAD, HUNTESRVILLE, NC

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG COUNTY

PROJECT: R-2632AA

HUNTERSVILLE
NC 73 (SAM FURR ROAD)
FROM WEST OF US 21

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L1- 90+08 to -L1- 90+33'	24" RCP						0.02		80		
		Bank Stabilization to Unnamed Stream						<0.01	<0.01	10	7	
TOTALS:								0.02	0.01	90	7	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
Mecklenburg
COUNTY
WBS - 38824.3.ST1 (TIP No. R-2632AA)
SHEET 4 of 18 6/14/2010

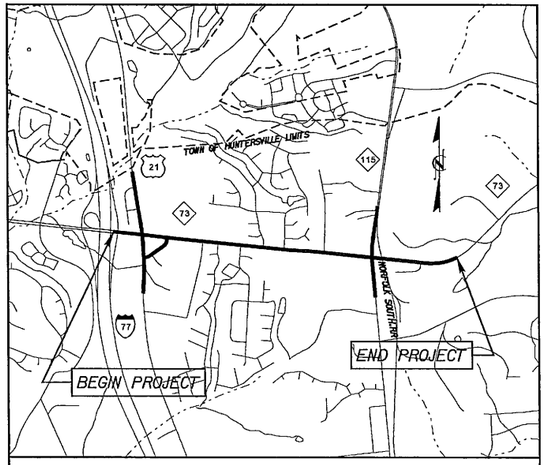
ATN Revised 3/31/05

09/08/95

TIP PROJECT: R-2632AA

CONTRACT: C202255

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2632AA	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38824.3.ST1	STM-0073 (21)	CONST.
38824.3.ST1	STM-0073 (21)	RIGHT OF WAY

Blythe

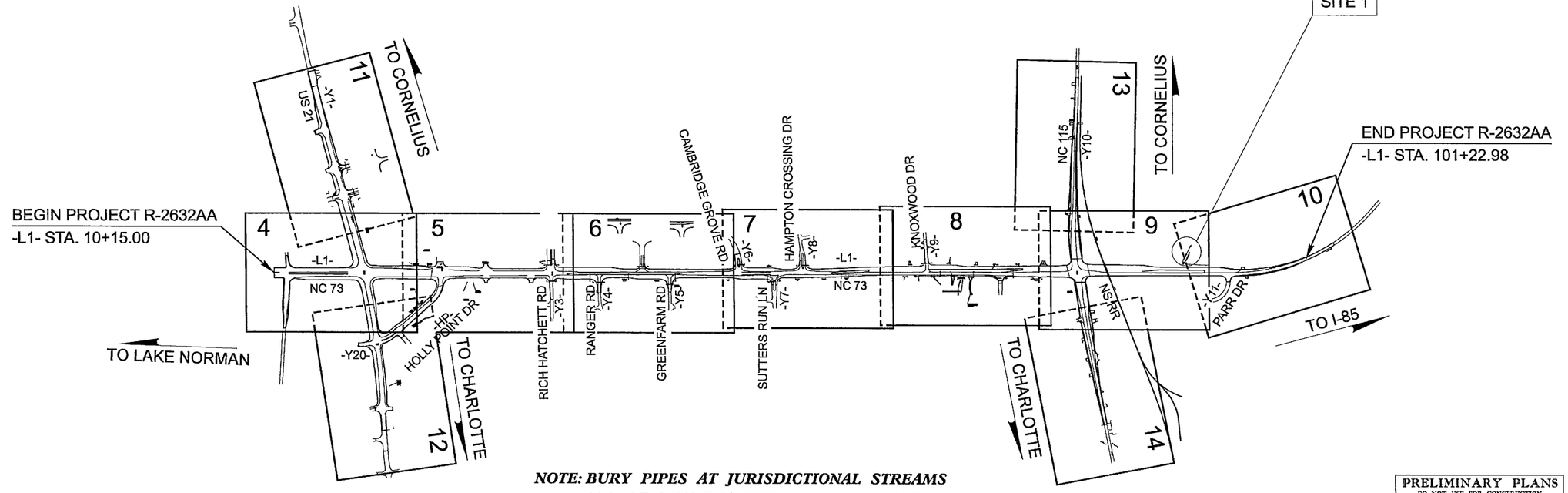
PB 100 YEARS

LOCATION: *NC 73 (SAM FURR ROAD) FROM WEST OF US 21 TO EAST OF NC 115*

TYPE OF WORK: *GRADING, PAVING, RETAINING WALLS, DRAINAGE, SIGNALS, AND SIGNING*

PERMIT DRAWING
SHEET 5 OF 18

STREAM & WETLAND IMPACTS



NOTE: BURY PIPES AT JURISDICTIONAL STREAMS 20% OF PIPE DIAMETER UP TO 1 FOOT.

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 2006 = 22600
ADT 2030 = 46300
DHV = 10 %
D ≐ 60 %
T = 13 % *
V = 50 MPH

* TTST 10% DUAL 3%

PROJECT LENGTH

LENGTH OF ROADWAY, TIP PROJECT R-2632AA = 1.725 MILES
LENGTH OF STRUCTURE, TIP PROJECT R-2632AA = 0 MILES
TOTAL LENGTH, TIP PROJECT R-2632AA = 1.725 MILES

NCDOT CONTACT: JACQUELINE E. ARMSTRONG, P.E.
DESIGN BUILD SQUAD LEADER

Prepared In the Office of:
PB PARSONS BRINCKERHOFF 100 YEARS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 5, 2009

LETTING DATE: NOVEMBER 5, 2009

DANIEL H. BRIDGES, P.E.
PROJECT ENGINEER

CHRIS DAVIS, P.E.
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

P.E.
STATE HIGHWAY DESIGN ENGINEER

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8/17/99

REVISIONS

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Blythe

PB 100 YEARS

PERMIT DRAWING
SHEET 6 OF 18

NAD 83/95

MATCHLINE -L1- STA. 22+00 SEE SHEET 4

MATCHLINE -L1- STA. 36+00 SEE SHEET 6

MATCHLINE -HP- STA. 14+50 SEE SHEET 12

-L1- PC Sta. 23+86.13

-L1- PT Sta. 25+48.97

-HP- PC Sta. 10+51.28

-HP- PT Sta. 12+00.00

-Y3- POT Sta. 12+64.63

25+00 30+00 35+00

ACCESS EASEMENT MB 5 PG 554

SAMS MART INC

TARGET CORPORATION

NORTHCROSS LAND & DEVELOPMENT LP INC

NORTHCROSS II, LLC

INLAND AMERICAN STP PORTFOLIO IV LLC

DAVID J BAKER

PALILLO SALON LLC

MTW PROPERTIES

STAN D PHILLIPS

JASON CRAWFORD

SIMMER CHIROPRACTIC

PAPAROUSI LLC

NORTHCROSS MEDICAL PROPERTIES CORP.

SCOTT P. GUICE
MICHELLE K. GUICE

MEDICAL INVESTORS I LLC

NAVEEN HABASHI-FALLS

NORTH BAY PLAZA LLC

JAMES R. WHITE
KIMBERLY WHITE

PUBLIC LIBRARY OF WEEK CITY

SAM FURR RD HWY 73 65.0' BST

SAM FURR RD HWY 73 40.5' BST

NORTHCROSS CENTER COURT

BST PARKING

TIE 12" CMP TO PROP. STR.
RETAIN 8" RCP
RETAIN MH

REMOVE 15" RCP

TIE EXIST. PIPES TO STR. 0532

REMOVE 36" RCP

REMOVE EXIST. CB AND 15" RCP

REMOVE 24" RCP

RETAIN 48" RCP

REMOVE 18" RCP

RETAIN 24" RCP

RETAIN REMOVE 12" RCP

NO PLANTING STRIP BETWEEN STA. 11+00 TO 11+75

NO IMPACTS TO STREAM

SEE SHEET 15 FOR -L1- PROFILE

SEE SHEET 20 FOR -HP- PROFILE

SEE SHEET 20 FOR -Y3- PROFILE

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8/17/99

REVISIONS

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Blythe

PB 100 YEARS

PERMIT DRAWING
SHEET 7 OF 18

NAD 83/95

MATCHLINE -L1- STA. 22+00 SEE SHEET 4

MATCHLINE -L1- STA. 36+00 SEE SHEET 6

MATCHLINE -HP- STA. 14+50 SEE SHEET 12

-L1- PC Sta. 23+86.13

-L1- PT Sta. 25+48.97

-HP- PC Sta. 10+51.28

-Y3- POT Sta. 12+64.63

ACCESS EASEMENT MB 5 PG 554

SAMS MART INC

TARGET CORPORATION

NORTHCROSS LAND & DEVELOPMENT LP INC

NORTHCROSS II, LLC

25+00

30+00

35+00

TIE 12" CMP TO PROP. STR.
RETAIN 8" RCP
RETAIN MH
REMOVE 15" RCP
REMOVE 36" RCP
TIE EXIST. PIPES TO STR. 0532
REMOVE EXIST. CB AND 15" RCP
REMOVE 24" RCP
RETAIN 48" RCP
REMOVE 24" RCP
REMOVE 18" RCP
1ST STATION REMOVE 24" RCP
RETAIN 24" RCP
RETAIN 24" RCP
REMOVE 18" RCP
REMOVE 12" RCP
RETAIN REMOVE 12" RCP
REMOVE 18" RCP

SAM FURR RD HWY 73 65.0' BST
SAM FURR RD HWY 73 40.5' BST
BST PARKING
24" CONC C&G
10" ACP (ABANDONED) DRAWN PER RECORD
59.00' EXISTING R/W
88.00'
EXISTING R/W
WORTHCROSS CENTER COURT 34' BST
HANCOCK RD 23' BST
AT&T EASEMENT
POWER METER BOX
PUE
PUL
CONC
EXISTING

WETLAND AMERICAN SUB PORTFOLIO IV LLC

DAVID J BAKER

PALILLO SALON LLC

MTW PROPERTIES

NO PLANTING STRIP BETWEEN STA. 11+00 TO 11+75

STAN D PHILLIPS

JASON CRAWFORD

MEDICAL INVESTORS I LLC

NAVEEN HABASHI-FALLS

NORTH BAY PLAZA LLC

SIMMER CHIROPRACTIC

PAPAROUSI LLC

NORTHCROSS MEDICAL PROPERTIES CORP.

SCOTT P. GUICE
MICHELLE K. GUICE

JAMES R. WHITE
KIMBERLY WHITE

GRADE TO DRAIN MINIMUM 1% SLOPE

NO IMPACTS TO STREAM

SEE SHEET 15 FOR -L1- PROFILE

SEE SHEET 20 FOR -HP- PROFILE

SEE SHEET 20 FOR -Y3- PROFILE

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REVISIONS

8/17/99

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Blythe

PB 100 YEARS

PERMIT DRAWING
SHEET 8 OF 18

NAD 83/95

-Y9- POT Sta. 5+98.00

MATCHLINE -L1- STA. 64+00 SEE SHEET 7

MATCHLINE -L1- STA. 78+00 SEE SHEET 9

NOT JURISDICTIONAL STREAM

GARY DALE MARSHALL
LINDY MARSHALL

MELVIN WAYNE TAYLOR
PENNY RICHARDS TAYLOR

BRIAN L. BURGE
STACEY ROBINETTE BURGE

WILLIAM L. KITCHEL
THOMAS D. SELF SR.
DEBORAH B. SELF
THOMAS D. SELF, JR.

MARK C. BRAGG

EVELYN P. DUTY

HAROLD TRUMAN HUBBARD
SHARON J. HUBBARD

PATRICIA S. AUTEN
JAMES LITTLE AUTEN, JR.
CHERYL BREVARD A ROBINETTE

RAYMER FUNERAL HOME, INC.
(FORMERLY ALMOND FUNERAL HOME)

HAMPTON RIDGE HOMEOWNERS ASSOCIATION OF CHARLOTTE, INC.

65+00

70+00

75+00

REMOVE 15" RCP

REMOVE 18" RCP

REMOVE 24" RCP

RETAIN 42" RCP

REMOVE 15" RCP

PROP. SUBSURFACE MED. DRAINAGE

REMOVE 15" RCP

RETAIN 15" HDPE

RETAIN 15" HDPE

RETAIN 15" RCP

RETAIN 15" HDPE

RETAIN 18" RCP

-DUKE- PI Sta. 10+49.99

-DUKE- POT Sta. 11+09.14

-DUKE- PC Sta. 11+40.41

-DUKE- POT Sta. 12+23.79

-DUKE- PT Sta. 12+19.68

-L1- PT Sta. 66+38.95

DONALD R. KNOX
DOIRS C. KNOX

CRESCENT ELECTRIC MEMBERSHIP CORP.

DUKE POWER COMPANY

HUNTERSVILLE CROSSING REAL ESTATE, LLC

STA 70+24 TO STA 70+89 -L- USE SLOPE 1.5:1 WITH ROCK PLATING, SEE DETAIL SHEET 2-H REMOVE CONC. DITCH

NO IMPACTS TO STREAM

BEGIN JURISDICTIONAL STREAM

DUKE DRIVEWAY (GRAVEL) SEE CROSS-SECTIONS FOR WIDTH AND DRAINAGE INFORMATION

15" 15"

RETAIN 42" RCP

ROCK PLATING

NO IMPACTS TO STREAM

SEE SHEET 17 FOR -L1- PROFILE

SEE SHEET 22 FOR -Y9- PROFILE

SEE SHEET 24 FOR -DUKE- PROFILE

15 JAN 2006 14:52
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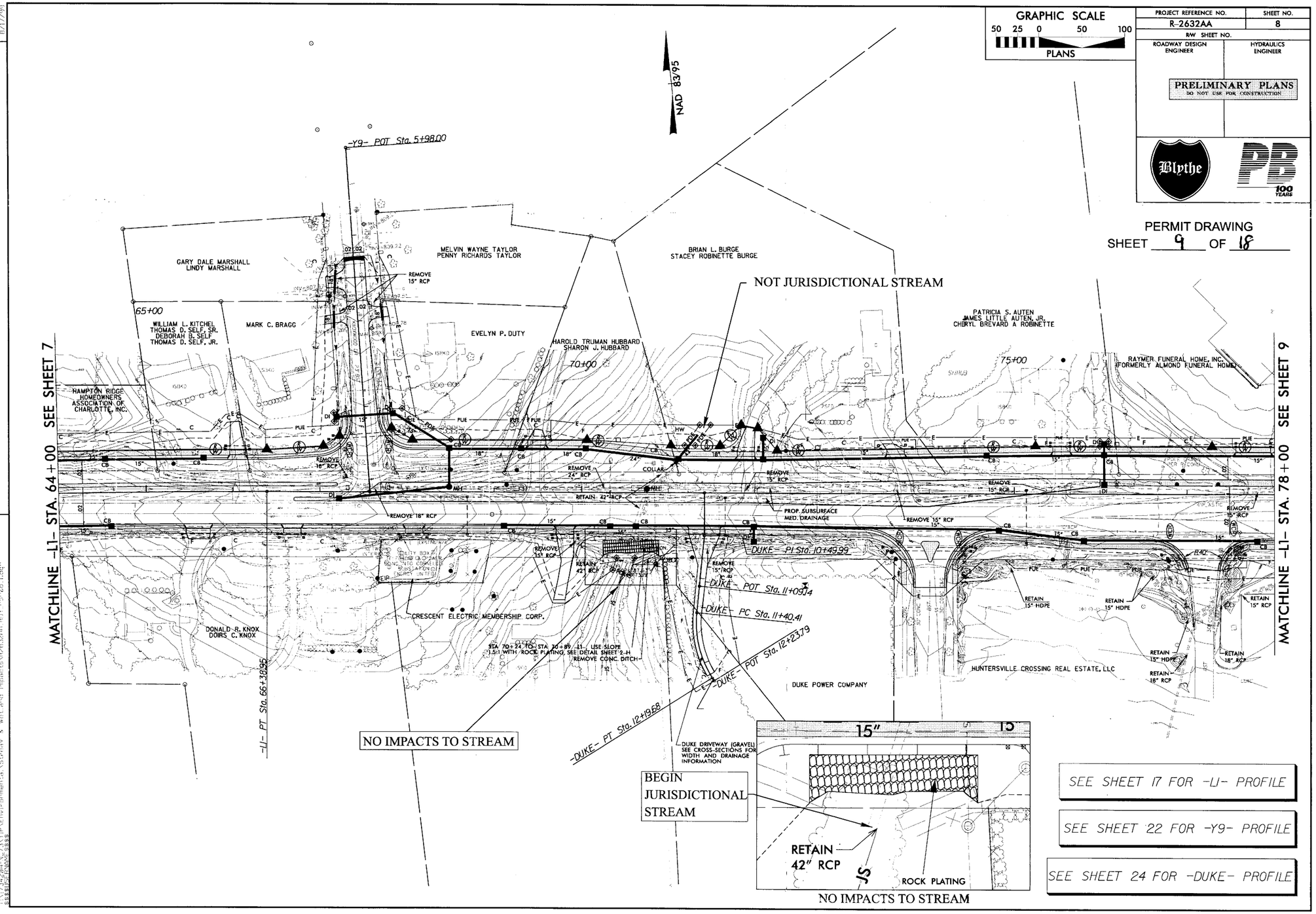
SSELSELNOMESS


GRAPHIC SCALE
50 25 0 50 100
PLANS
PROJECT REFERENCE NO.
R-2632AA
SHEET NO.
8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Blythe
PB
100 YEARS
PERMIT DRAWING
SHEET 9 OF 18
NAD 83/95
-Y9- POT Sta. 5+98.00
GARY DALE MARSHALL
LINDY MARSHALL
MELVIN WAYNE TAYLOR
PENNY RICHARDS TAYLOR
BRIAN L. BURGE
STACEY ROBINETTE BURGE
NOT JURISDICTIONAL STREAM
PATRICIA S. AUTEN
JAMES LITTLE AUTEN, JR.
CHERYL BREVARD A ROBINETTE
RAYMER FUNERAL HOME, INC.
(FORMERLY ALMOND FUNERAL HOME)
65+00
WILLIAM L. KITCHEL
THOMAS D. SELF, SR.
DEBORAH B. SELF
THOMAS D. SELF, JR.
MARK C. BRAGG
EVELYN P. DUTY
HAROLD TRUMAN HUBBARD
SHARON J. HUBBARD
70+00
75+00
HAMPTON RIDGE HOMEOWNERS ASSOCIATION OF CHARLOTTE, INC.
MATCHLINE -L1- STA. 64+00 SEE SHEET 7
MATCHLINE -L1- STA. 78+00 SEE SHEET 9
REMOVE 15" RCP
REMOVE 18" RCP
REMOVE 24" RCP
RETAIN 42" RCP
PROP. SUBSURFACE MED. DRAINAGE
DUKE- PI Sta. 10+49.99
DUKE- POT Sta. 11+09.14
DUKE- PC Sta. 11+40.41
DUKE- POT Sta. 12+23.79
DUKE- PT Sta. 12+19.68
CRESCENT ELECTRIC MEMBERSHIP CORP.
DONALD R. KNOX
DOIRS C. KNOX
-L1- PT Sta. 66+38.95
STA 70+24 TO STA 70+89 -L1- USE SLOPE 1.5:1 WITH ROCK PLATING, SEE DETAIL SHEET 2-H
REMOVE CONC. DITCH
DUKE POWER COMPANY
HUNTERSVILLE CROSSING REAL ESTATE, LLC
RETAIN 15" HDPE
RETAIN 18" RCP
NO IMPACTS TO STREAM
DUKE DRIVEWAY (GRAVEL) SEE CROSS-SECTIONS FOR WIDTH AND DRAINAGE INFORMATION
BEGIN JURISDICTIONAL STREAM
15"
RETAIN 42" RCP
ROCK PLATING
NO IMPACTS TO STREAM
SEE SHEET 17 FOR -L1- PROFILE
SEE SHEET 22 FOR -Y9- PROFILE
SEE SHEET 24 FOR -DUKE- PROFILE

REVISIONS

GRAPHIC SCALE	
50 25 0 50 100	
PLANS	

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Blythe

PB 100 YEARS

PERMIT DRAWING
SHEET 10 OF 18

NAD 83/95

S S DENOTES IMPACT TO SURFACE WATER

T T DENOTES TEMPORARY IMPACT TO SURFACE WATER

NOTE: NO PUE IS REQUIRED FOR PROPERTIES 50 AND 54. THE UTILITY OWNER HAS A PRIOR AGREEMENT FOR THESE PROPERTIES.

MATCHLINE -Y10- STA. 96+00 SEE SHEET 13

MATCHLINE -L1- STA. 78+00 SEE SHEET 8

MATCHLINE -L1- STA. 92+00 SEE SHEET 10

MATCHLINE -Y10- STA. 104+00 SEE SHEET 14

RAYMER FUNERAL HOME, INC.
(FORMERLY ALMOND FUNERAL HOME)

SBKBUS

SPECIAL CUT DITCH
SEE DETAIL C

NC 115 STATESVILLE RD 23' IST

KNOX-KELLY

-Y10- PCC Sta. 98+87.56

80+00

85+00

90+00

SHRUB

-L1- PT Sta. 87+59.05

SPECIAL LATERAL 'V' DITCH
SEE DETAIL F
CLASS 'I' RIP RAP
EST 90 TONS
EST 150 SY FF

10 LF OF CLASS 'I' RIP RAP
ON BANKS ONLY, EST. 16 TONS
SEE DETAIL G

SITE 1

CHARLES E. KNOX
MURRAY G. KELLY
JAMES LITTLE AUTEN, JR.

TIE TO STREAM
INVERT

COLLAR AND EXTEND

PROP. SUBSURFACE
MED. DRAINAGE

RETAIN 24" RCP

REMOVE
18" RCP

RETAIN 15" RCP

ISBKBUS

HUNTERSVILLE CROSSING
REAL ESTATE, LLC

REMOVE MH

REMOVE PIPES

REMOVE
24" RCP

TIE 30" RCP
TO DI

REMOVE DI

REMOVE
15" RCP

REMOVE
15" RCP

CLASS 'B' RIP RAP
EST 5 TONS
EST 14 SY FF

-L1- PC Sta. 81+49.23

SPECIAL LATERAL 'V' DITCH
SEE DETAIL D

SPECIAL CUT DITCH
SEE DETAIL C

SOTIRIOS TSILIMOS

RYLAND A. WINSTON, JR.

-L1- PRC Sta. 84+54.14

MATCH INVERT
OF CONCRETE DITCH

LCV INVESTMENTS, LLC

EDWARDS ENTERPRISES, INC.

SWEETGRASS LLC

NO IMPACTS TO STREAM

EXISTING R/W

EIP

DETAIL F
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground
2d
T
D
d
2:1 or flatter
Fill Slope
Filter Fabric
Min. D= 1.3 Ft.
Max. d= 1Ft.
Type of Liner= CLASS 'I' RIP-RAP

FROM STA. 88+00 TO STA. 90+22-L1- LT

DETAIL G
PROPOSED OUTLET CHANNEL
(Not to Scale)

W
D
Filter Fabric
W= EXISTING CHANNEL
D= 2 Ft.
Type of Liner = CLASS 'I' RIP RAP

FROM STA. 90+33 -L1- LT

SEE SHEET 17 FOR -L1- PROFILE

SEE SHEET 23 FOR -Y10- PROFILE

REVISIONS 8/17/99

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8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

GRAPHIC SCALE
50 25 0 50 100
PLANS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Blythe

PB 100 YEARS

PERMIT DRAWING
SHEET 11 OF 18

S S DENOTES IMPACT TO SURFACE WATER

T T DENOTES TEMPORARY IMPACT TO SURFACE WATER

NAD 83/95

NOTE: NO PUE IS REQUIRED FOR PROPERTIES 50 AND 54 THE UTILITY OWNER HAS A PRIOR AGREEMENT FOR THESE PROPERTIES.

MATCHLINE -Y10- STA. 96+00 SEE SHEET 13

MATCHLINE -L1- STA. 78+00 SEE SHEET 8

MATCHLINE -L1- STA. 92+00 SEE SHEET 10

MATCHLINE -Y10- STA. 104+00 SEE SHEET 14

RAYMER FUNERAL HOME, INC. (FORMERLY ALMOND FUNERAL HOME)

KNOX-KELLY

SPECIAL CUT DITCH SEE DETAIL C

SITE 1

CHARLES E. KNOX
MURRAY G. KELLY
& JAMES LITTLE AUTEN, JR.

10 LF OF CLASS 'I' RIP RAP ON BANKS ONLY, EST. 1.6 TONS SEE DETAIL G

SPECIAL LATERAL 'V' DITCH SEE DETAIL F
CLASS 'I' RIP RAP
EST 90 TONS
EST 150 SY FF

TIE TO STREAM INVERT

-L1- PT Sta. 87+59.05

-Y10- POT Sta. 98+87.56

-L1- PRC Sta. 84+54.14

-L1- PC Sta. 81+49.23

RETAIN 24" RCP

REMOVE 18" RCP

RETAIN 15" RCP

CLASS 'B' RIP RAP
EST 5 TONS
EST 14 SY FF

REMOVE 24" RCP

REMOVE 15" RCP

REMOVE DI

REMOVE MH

REMOVE PIPES

TIE 30" RCP TO DI

SPECIAL LATERAL 'V' DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL C

COLLAR AND EXTEND

PROP. SUBSURFACE MED. DRAINAGE

MATCH INVERT OF CONCRETE DITCH

NO IMPACTS TO STREAM

HUNTERSVILLE CROSSING REAL ESTATE, LLC

SOTIRIOS TSILIMOS

RYLAND A. WINSTON, JR.

LCV INVESTMENTS, LLC

SWEETGRASS LLC

EDWARDS ENTERPRISES, INC.

DETAIL F
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground
2% or Flatter
Fill Slope
Filter Fabric
Min. D= 1.3 Ft.
Max. d= 1Ft.
Type of Liner= CLASS 'I' RIP-RAP
FROM STA. 88+00 TO STA. 90+22-L1- LT

DETAIL G
PROPOSED OUTLET CHANNEL
(Not to Scale)

W= EXISTING CHANNEL
D= 2 Ft.
Type of Liner = CLASS 'I' RIP RAP
FROM STA. 90+33 -L1- LT

EXISTING R/W

EIP

SEE SHEET 17 FOR -L1- PROFILE

SEE SHEET 23 FOR -Y10- PROFILE

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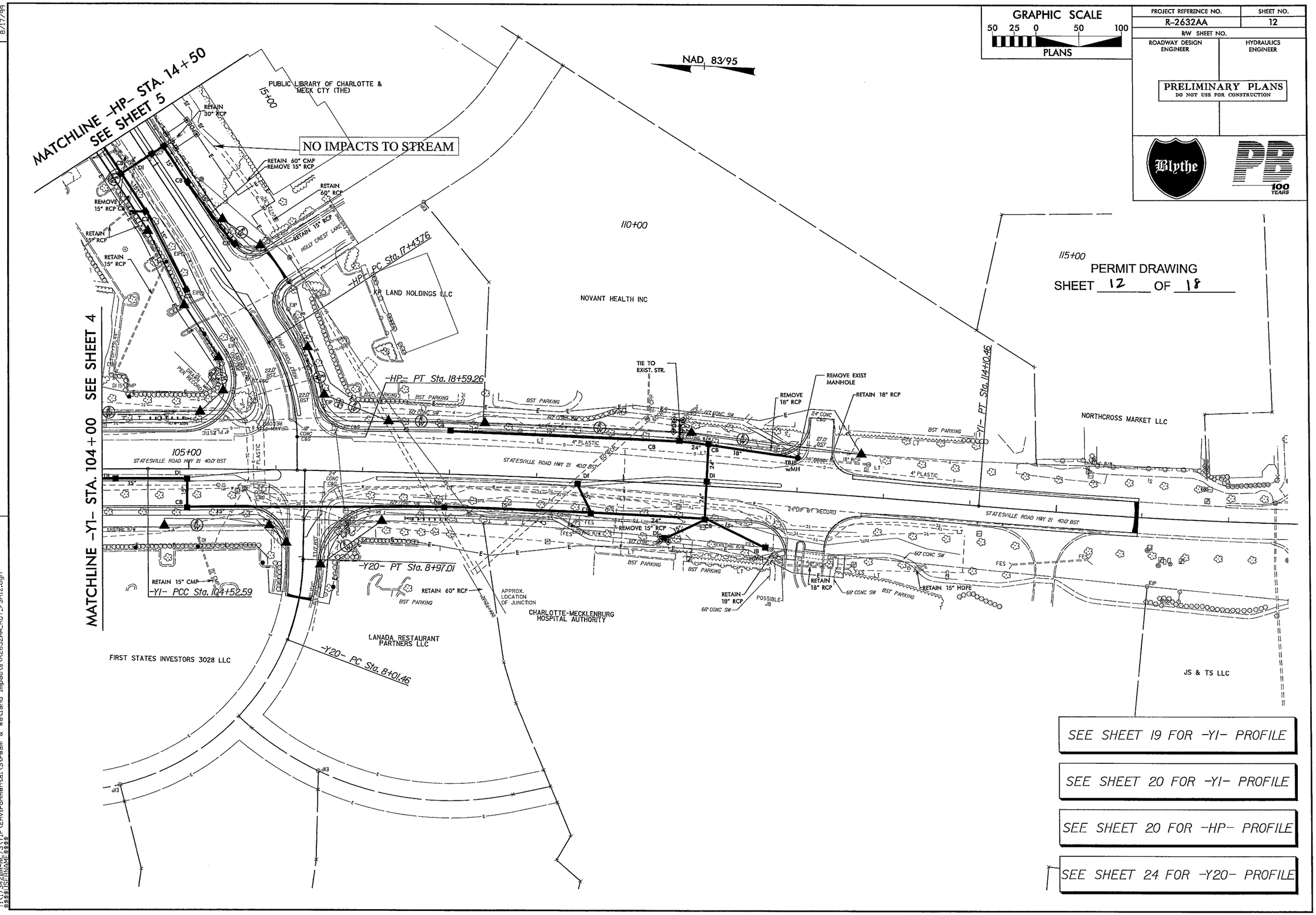

REVISIONS

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8/17/96

REVISIONS

GRAPHIC SCALE	
50 25 0 50 100	
PLANS	

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Blythe

PB 100 YEARS

PERMIT DRAWING
SHEET 13 OF 18

NAD 83/95

MATCHLINE -HP- STA. 14+50
SEE SHEET 5

MATCHLINE -Y1- STA. 104+00
SEE SHEET 4

NO IMPACTS TO STREAM

PUBLIC LIBRARY OF CHARLOTTE & MECK CTY (THE)

15+00

110+00

115+00

105+00

RETAIN 30" RCP

RETAIN 60" CMP
REMOVE 15" RCP

RETAIN 60" RCP

RETAIN 15" RCP

REMOVE 15" RCP

RETAIN 24" RCP

RETAIN 15" RCP

RETAIN 15" RCP

HOLLY CREST LANE (PRIVATE)

-HP- PC Sta. 17+43.76

KP LAND HOLDINGS LLC

NOVANT HEALTH INC

-HP- PT Sta. 18+59.26

TIE TO EXIST. STR.

REMOVE EXIST MANHOLE

RETAIN 18" RCP

REMOVE 18" RCP

-Y1- PT Sta. 114+10.46

NORTHCROSS MARKET LLC

STATESVILLE ROAD HWY 21 (NC 73) 401' BST

-Y1- PCC Sta. 104+52.59

RETAIN 15" CMP

-Y20- PT Sta. 8+97.01

RETAIN 60" RCP

APPROX. LOCATION OF JUNCTION

CHARLOTTE-MECKLENBURG HOSPITAL AUTHORITY

RETAIN 18" RCP

POSSIBLE JB

RETAIN 18" RCP

RETAIN 15" HDPE

REMOVE 15" RCP

LANADA RESTAURANT PARTNERS LLC

FIRST STATES INVESTORS 3028 LLC

-Y20- PC Sta. 8+01.46

JS & TS LLC

SEE SHEET 19 FOR -Y1- PROFILE

SEE SHEET 20 FOR -Y1- PROFILE

SEE SHEET 20 FOR -HP- PROFILE

SEE SHEET 24 FOR -Y20- PROFILE

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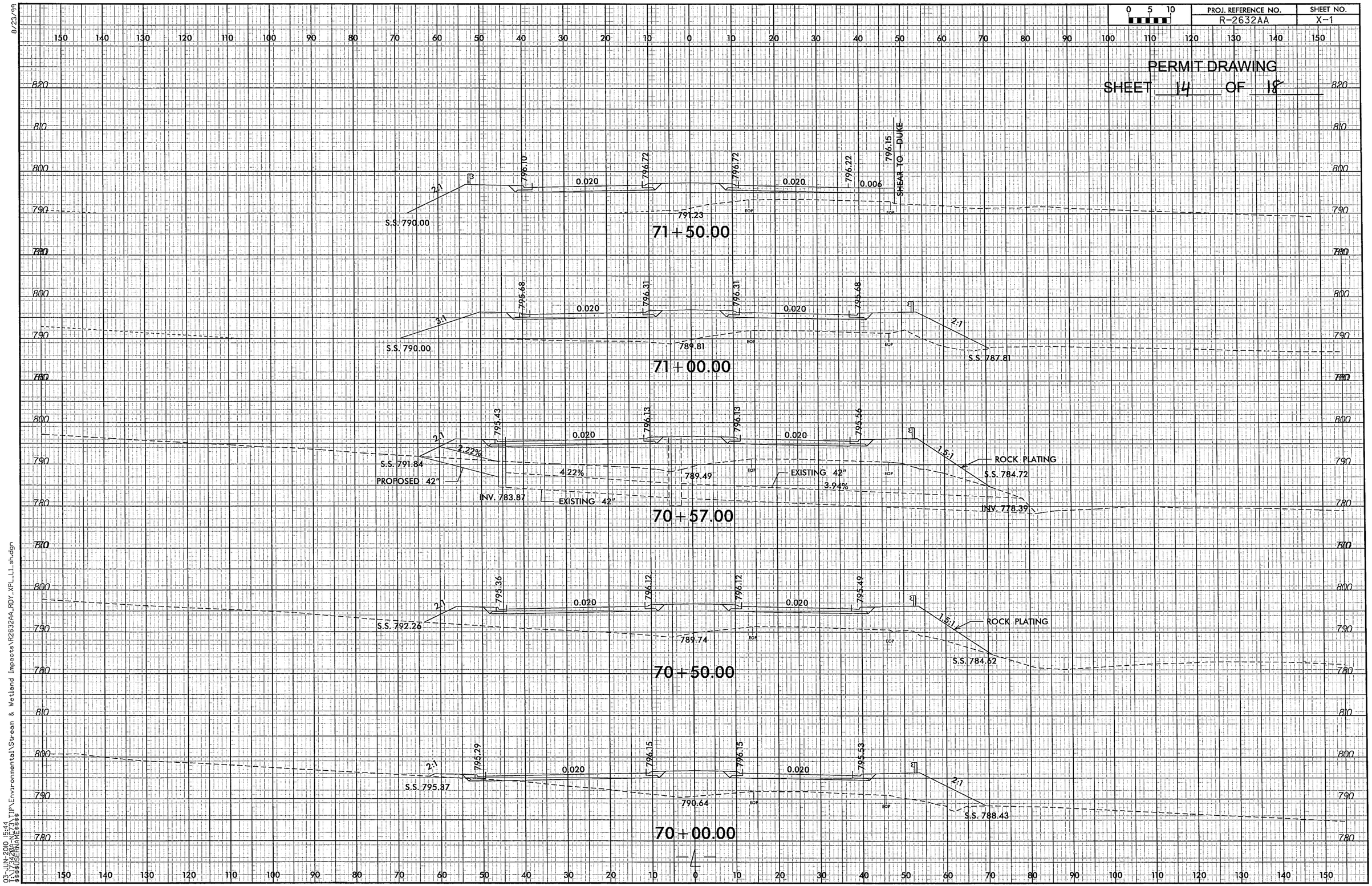

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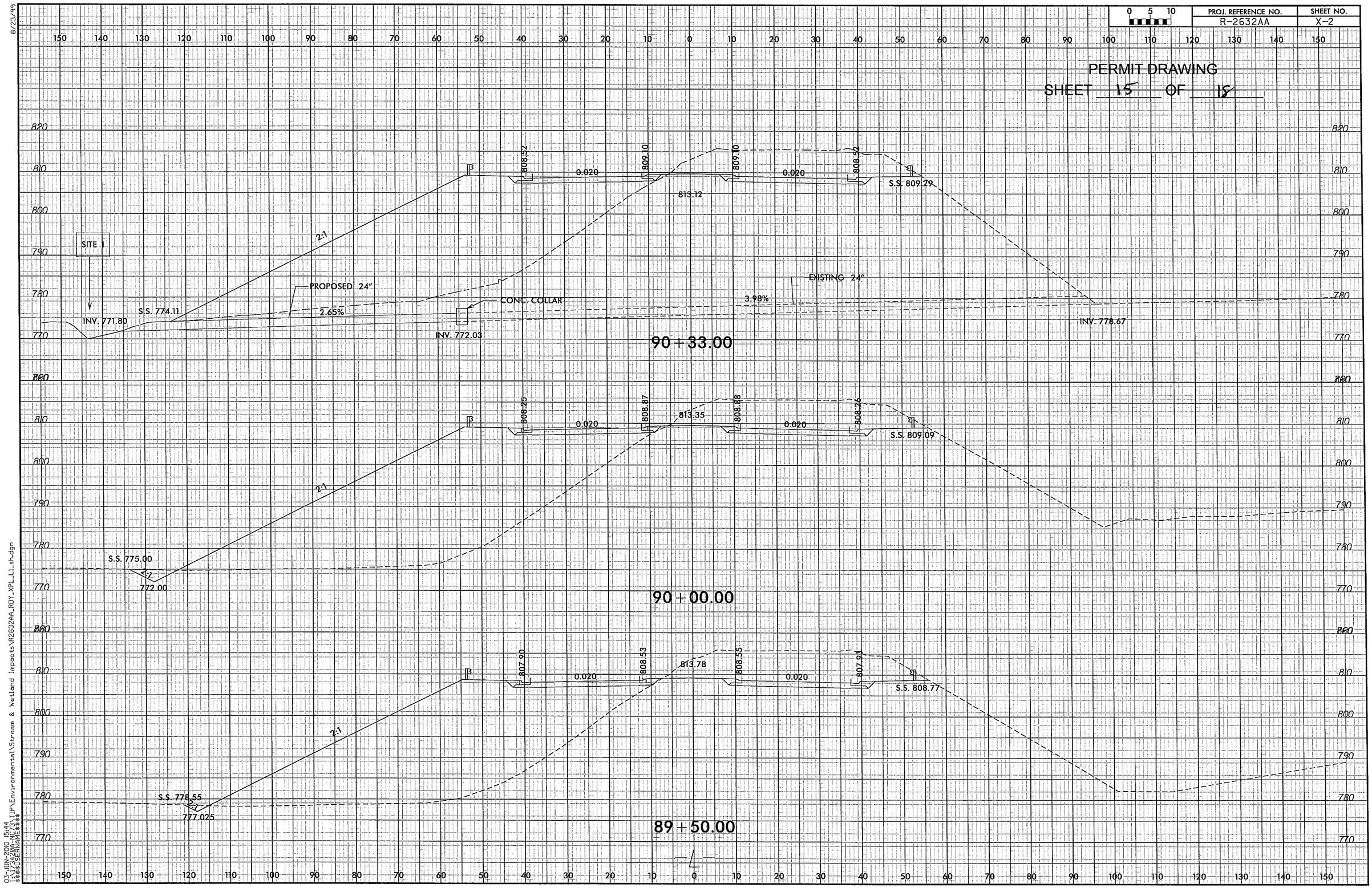

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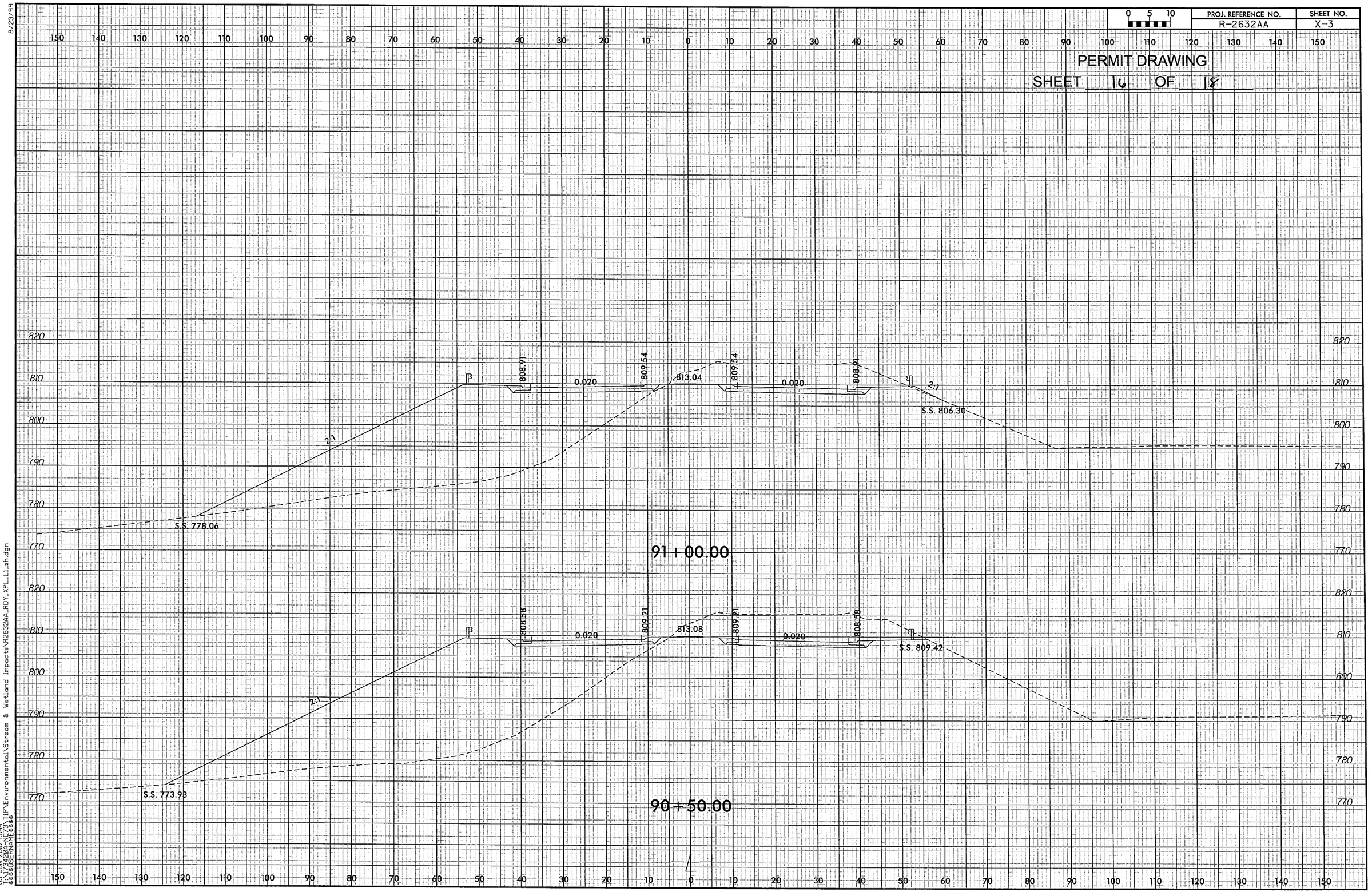

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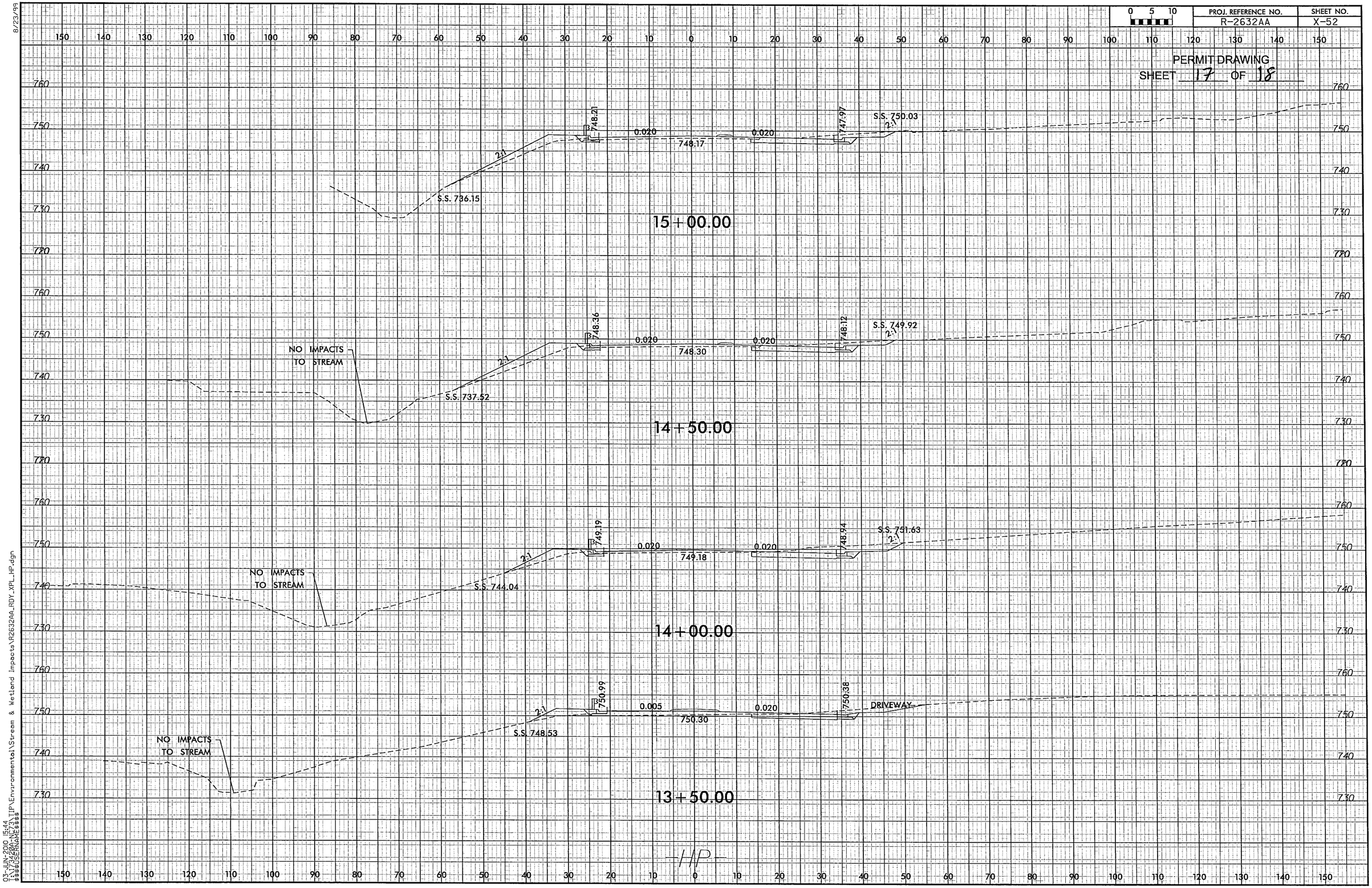

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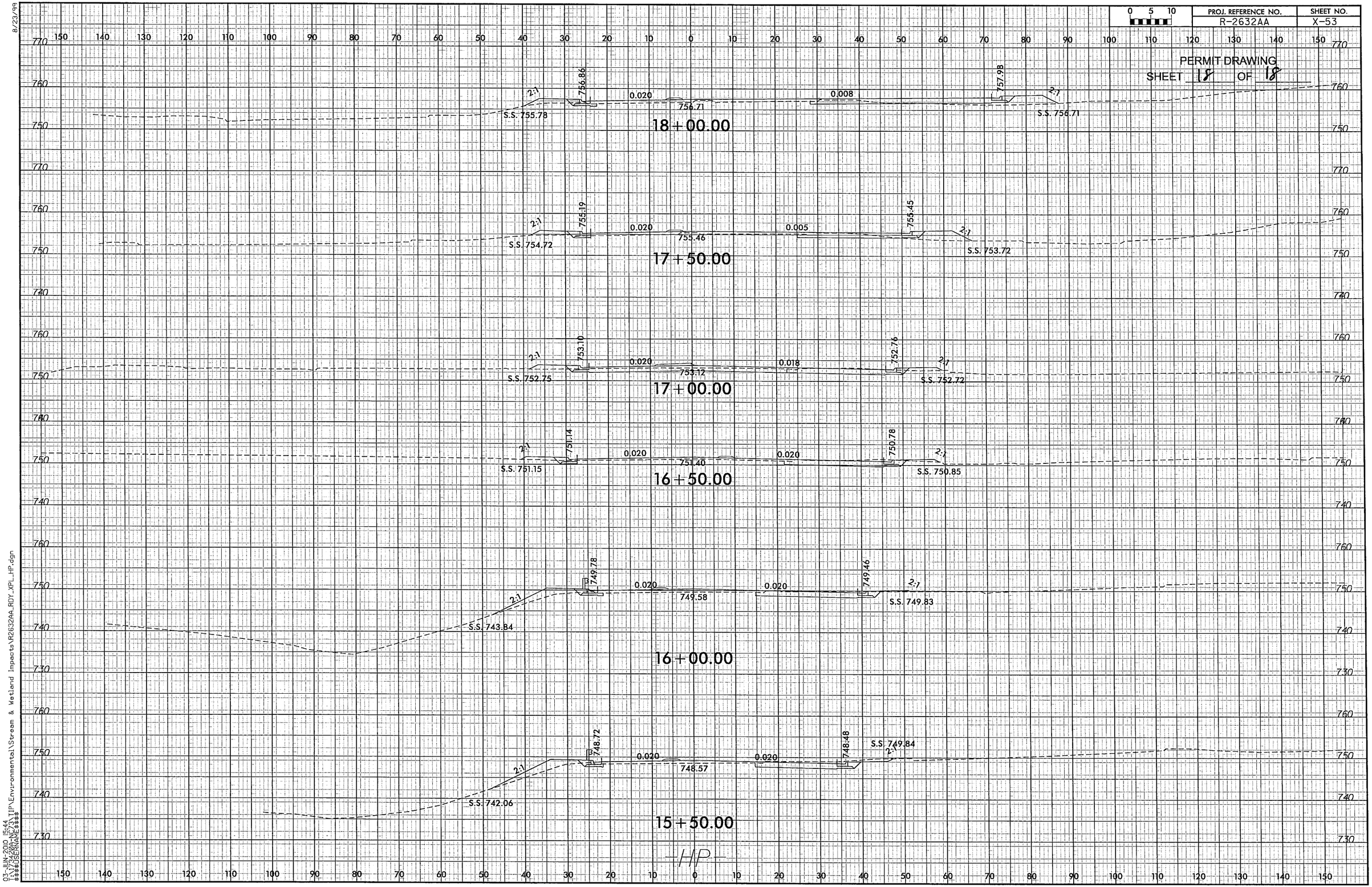

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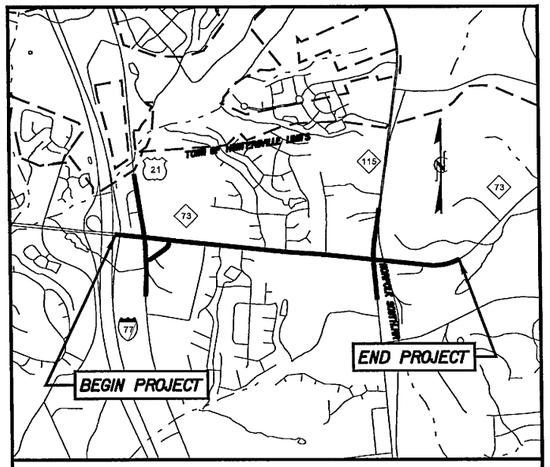
09/08/99

TIP PROJECT: R-2632AA

CONTRACT: C202255

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2632AA	1	24

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38824.3.ST1	STM-0073 (21)	CONST.
38824.3.ST1	STM-0073 (21)	RIGHT OF WAY

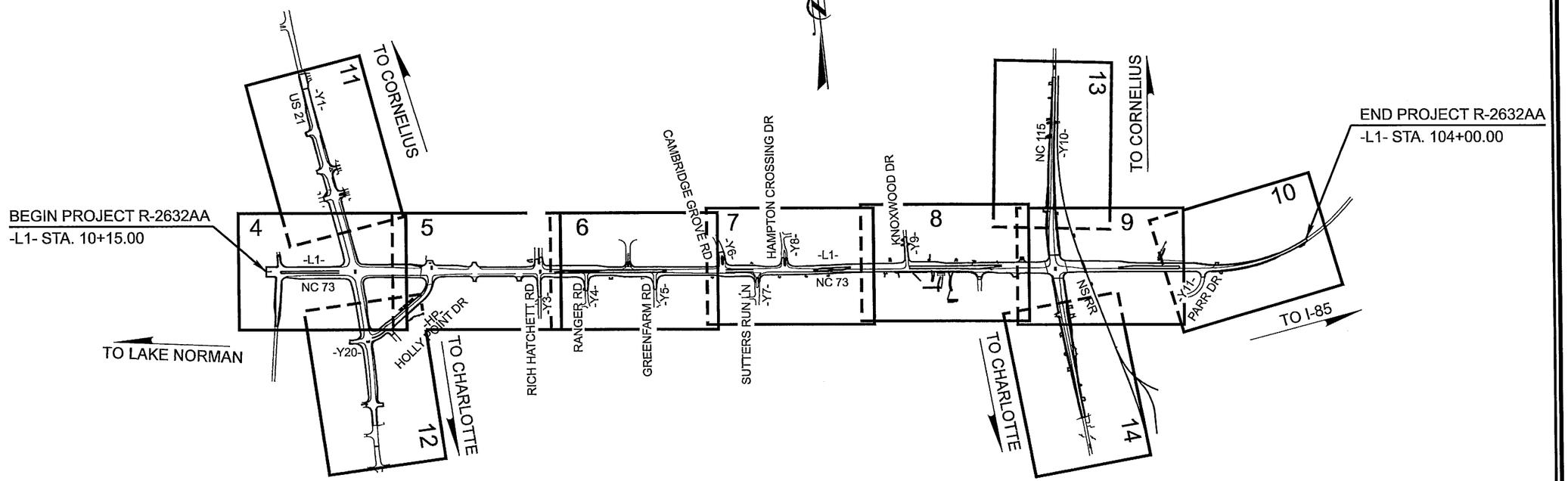
Blythe

PB 100 YEARS

LOCATION: *NC 73 (SAM FURR ROAD)*
FROM WEST OF US 21 TO EAST OF NC 115

TYPE OF WORK: *GRADING, PAVING, GRAVITY WALL, DRAINAGE, SIGNALS, AND SIGNING*

SUBMITTAL B-023 FINAL PLANS
04/28/10



THIS IS A CONTROLLED ACCESS PROJECT FROM STA. 10+50 TO STA. 16+28.20

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 22600
ADT 2030 = 46300
DHV = 10 %
D = 60 %
T = 13 % *
V = 50 MPH

* TTST 10% DUAL 3%

PROJECT LENGTH

LENGTH OF ROADWAY, TIP PROJECT R-2632AA = 1.778 MILES
LENGTH OF STRUCTURE, TIP PROJECT R-2632AA = 0 MILES
TOTAL LENGTH, TIP PROJECT R-2632AA = 1.778 MILES

NCDOT CONTACT: JACQUELINE E. ARMSTRONG, P.E.
DESIGN BUILD SQUAD LEADER

Prepared In the Office of:
PB PARSONS BRINCKERHOFF

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 5, 2009

LETTING DATE: NOVEMBER 5, 2009

DANIEL H. BRIDGES, P.E.
PROJECT ENGINEER

CHRIS DAVIS, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R DAUBER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

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8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	1A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. KRUGER

Blythe

PB 100 YEARS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	COVENTIONAL PLAN SHEET SYMBOLS
2-2G	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2H	ROCK PLATING DETAIL / CONDUIT DETAIL
2I	GRAVITY WALL LAYOUT
3-3G	DRAINAGE SUMMARY
4-14	PLAN SHEETS
15-24	PROFILE SHEETS
X-0	CROSS-SECTION TITLE SHEET
X-1 - X-74	CROSS-SECTIONS

STANDARD DRAWINGS

2006 ROADWAY ENGLISH STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH - N. C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N. C., DATED JULY 18, 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD.NO. TITLE

DIVISION 2 - EARTHWORK

200.02 METHOD OF CLEARING - METHOD II
225.02 GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.03 DECELERATION AND ACCELERATION LANES
225.04 METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
225.05 METHOD OF OBTAINING SUPERELEVATION - DIVIDED HIGHWAYS

DIVISION 3 - PIPE CULVERTS

300.02 METHOD OF PIPE INSTALLATION - METHOD 'B'

DIVISION 8 - INCIDENTALS

840.01 BRICK CATCH BASIN - 12" THRU 54" PIPE
840.02 CONCRETE CATCH BASIN - 12" THRU 54" PIPE
840.03 FRAME, GRATES AND HOOD - FOR USE ON STANDARD CATCH BASIN
840.14 CONCRETE DROP INLET - 12" THRU 30" PIPE
840.15 BRICK DROP INLET - 12" THRU 30" PIPE
840.34 TRAFFIC BEARING JUNCTION BOX - FOR USE WITH PIPES 42" AND UNDER
840.54 MANHOLE FRAME AND COVER
840.66 DRAINAGE STRUCTURE STEPS
840.72 PIPE COLLAR
846.01 CONCRETE CURB, GUTTER AND CURB & GUTTER
848.01 CONCRETE SIDEWALK
848.03 DRIVEWAY TURNOUT - DROP CURB TYPE
848.04 STREET TURNOUT
848.05 WHEELCHAIR RAMP - CURB CUT
852.01 CONCRETE ISLANDS
852.02 CONCRETE MOUNTABLE MEDIAN - FOR USE WITH RIGID OR FLEXIBLE PAVEMENT
852.05 MEDIAN CURB FOR CATCH BASIN - FOR USE WITH 1'-6" CURB AND GUTTER
852.06 METHOD FOR PLACEMENT OF DROP INLETS IN CONCRETE ISLANDS
852.10 MEDIAN CONSTRUCTION - WITH CURB AND GUTTER
862.01 GUARDRAIL PLACEMENT
862.02 GUARDRAIL INSTALLATION
862.04 ANCHORING END OF GUARDRAIL - B-77 AND B-83 ANCHOR UNITS
866.01 CHAIN LINK FENCE - 4', 5' AND 6' HIGH FENCE
876.01 RIP RAP IN CHANNELS
876.02 GUIDE FOR RIP RAP AT PIPE OUTLETS

GENERAL NOTES

GRADING AND SURFACING OR RESURFACING AND WIDENING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

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

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SIDE ROADS:
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

BERM DITCHES:
BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DRIVEWAYS:
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.
DRIVEWAY TIE INS SHALL BE CONSTRUCTED OF MATERIALS TO MATCH EXISTING DRIVEWAY.

STREET TURNOUT:
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE Charlotte-Mecklenburg Utilites Department AT&T, Quest Fiber Optic, Sprint Fiber Optic, Time Warner CATV, Energy United, Town of Hunterville managed by Electrocities, Duke Energy, Piedmont Natural Gas, Spirit Telecom, Duke Net, CSI, Windstream
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

WHEELCHAIR RAMPS:
WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH STD. NO. 848.06

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3/15/06

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	1B

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

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 Marker — RW
- 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 Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- 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 Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — 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 — HH
- 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:

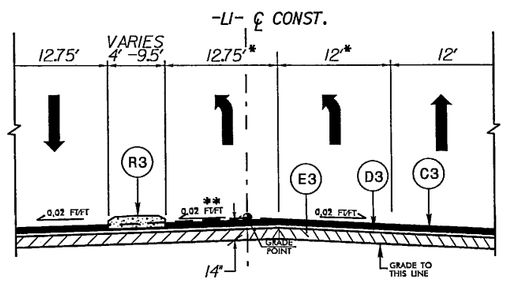
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

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
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

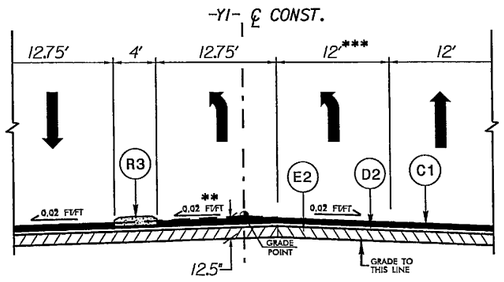
PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. APPROX. 1 1/2 " ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 2 1/2 " ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E3	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 798 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	2'-6" CONC. CURB AND GUTTER
R2	1'-6" CONC. CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS)



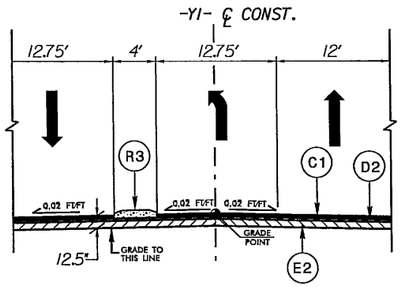
DETAIL A

EASTBOUND -L1- DUAL LEFT TURN LANES SHOWN
(MIRROR FOR WESTBOUND DUAL LEFT TURN LANES)
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1 & 2
*USE 14' TURN LANES FOR WB DUAL LEFT AT HOLLY POINT DRIVE
** SLOPE VARIES, SEE CROSS-SECTIONS



DETAIL B

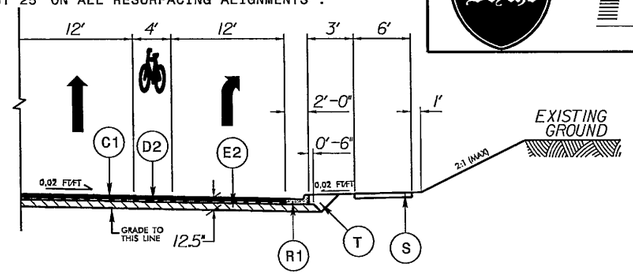
NORTHBOUND -Y1- AND -Y10- DUAL LEFT TURN LANES SHOWN
(MIRROR FOR SOUTHBOUND DUAL LEFT TURN LANES)
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 4 & 5
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 8
**SLOPE VARIES, SEE CROSS-SECTIONS
*** INSIDE LEFT TURN LANE WILL BE REMOVED & STRIPED OUT FOR SB LEFT ON -Y1- AT INTERSECTION W/-L1-



DETAIL C

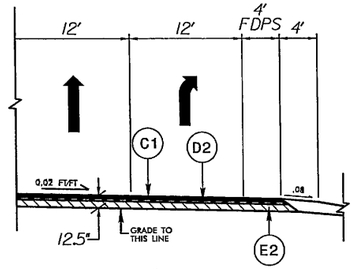
SOUTHBOUND -Y1- LEFT TURN LANES SHOWN
(MIRROR FOR NORTHBOUND LEFT TURN LANES)
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 4 & 5

NOTE:
1. ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.
2. EXISTING PVMT. SHALL BE SAWCUT 1' FROM EXISTING EOP FOR ALL WIDENING SECTIONS.
3. DETAILS DO NOT REFLECT THE USE OF EXISTING PAVEMENT.
4. SEE PLAN VIEW FOR LOCATIONS OF AUXILIARY LANES, TURN LANES, TRANSITION AREAS AND TAPERS.
5. TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS .



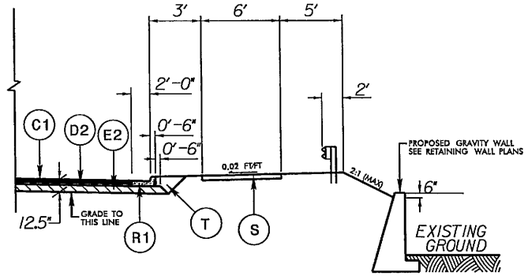
DETAIL D

SOUTHBOUND -Y1- RIGHT TURN LANE
(MIRROR FOR NORTHBOUND RIGHT TURN LANE)
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 4, 5 & 6



DETAIL E

SOUTHBOUND -Y10- RIGHT TURN LANE
(MIRROR FOR NORTHBOUND RIGHT TURN LANE)
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 8



DETAIL F

-L1- STA. 12+50 TO 14+90 GRAVITY WALL
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

PAVEMENT DESIGN ENGINEER

Blythe

PB 100 YEARS

REVISIONS 8/17/99

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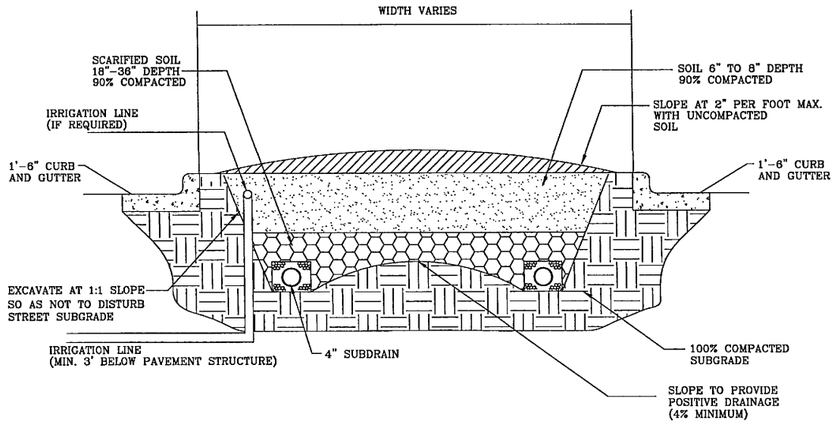
PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

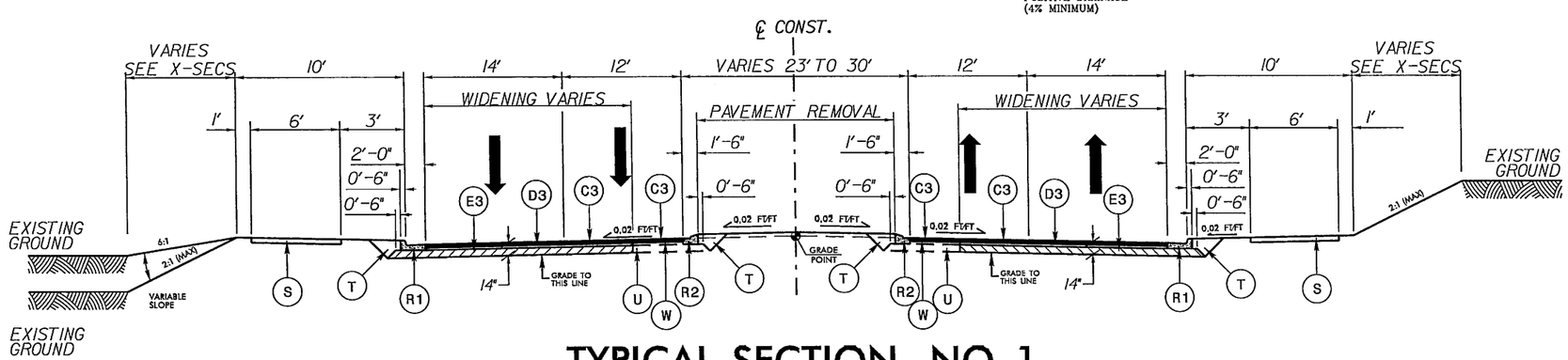
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

Blythe

PB 100 YEARS

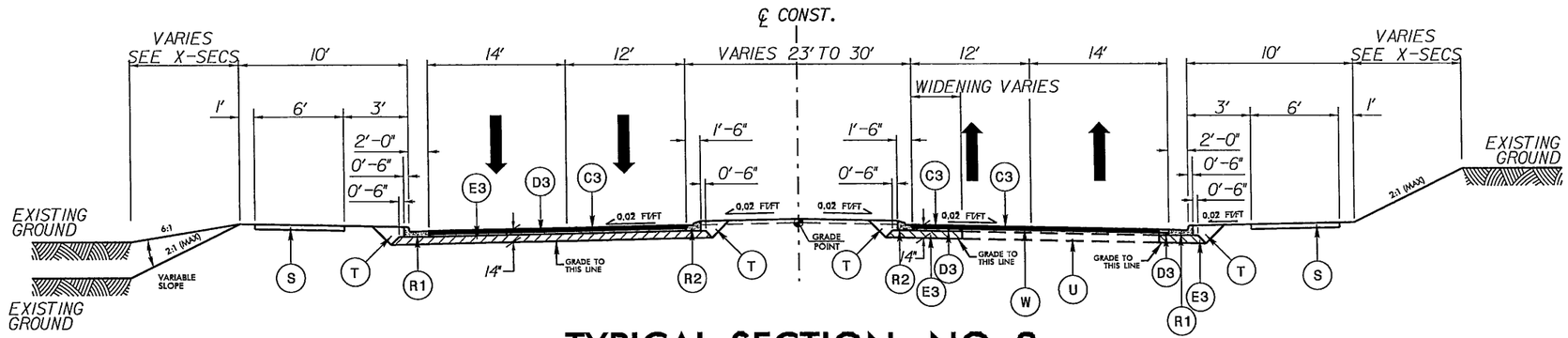
DETAIL G MEDIAN DRAINAGE





TYPICAL SECTION NO. 1

USE IN CONJUNCTION WITH DETAIL A, F & G
-L1- STA. 10+15.00 TO 63+00.00



TYPICAL SECTION NO. 2

USE IN CONJUNCTION WITH DETAIL A & G
-L1- STA. 63+00.00 TO 93+25.00

PAVEMENT SCHEDULE

C1	3" TYPE S9.5B
C2	VARIABLE DEPTH TYPE S9.5B
C3	3" TYPE S9.5C
C4	1 1/2" TYPE S9.5C
C5	2" TYPE S9.5B
C6	VARIABLE DEPTH TYPE S9.5C
D1	2 1/2" TYPE I19.0B
D2	4" TYPE I19.0B
D3	4" TYPE I19.0C
D4	VARIABLE DEPTH TYPE I19.0B
D5	VARIABLE DEPTH TYPE I19.0C
E1	4" TYPE B25.0B
E2	5 1/2" TYPE B25.0B
E3	7" TYPE B25.0C
E4	VARIABLE DEPTH TYPE B25.0B
E5	VARIABLE DEPTH TYPE B25.0C
R1	2'-6" CONC. CURB AND GUTTER
R2	1'-6" CONC. CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE:
1. ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.
2. EXISTING PVMT. SHALL BE SAWCUT 1' FROM EXISTING EOP FOR ALL WIDENING SECTIONS.
3. SEE PLAN VIEW FOR LOCATIONS OF AUXILIARY LANES, TURN LANES, TRANSITION AREAS AND TAPERS.
4. TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS .

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

Blythe

PB 100 YEARS

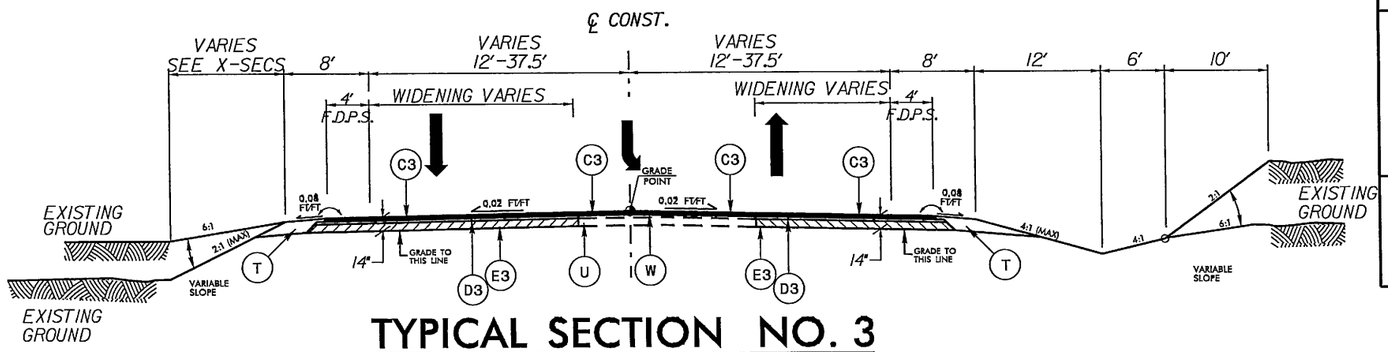
8/17/99

REVISIONS

PAVEMENT SCHEDULE

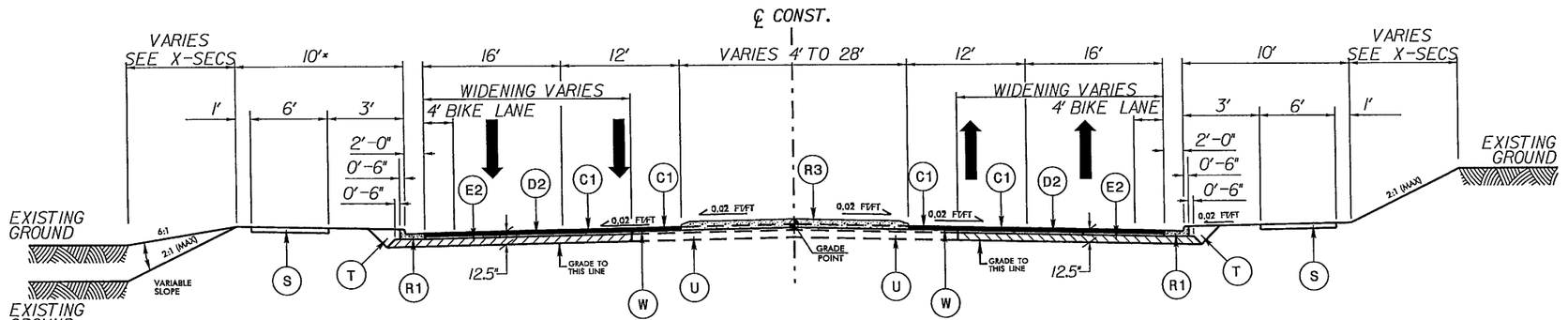
C1	3" TYPE S9.5B
C2	VARIABLE DEPTH TYPE S9.5B
C3	3" TYPE S9.5C
C4	1 1/2" TYPE S9.5C
C5	2" TYPE S9.5B
C6	VARIABLE DEPTH TYPE S9.5C
D1	2 1/2" TYPE I19.0B
D2	4" TYPE I19.0B
D3	4" TYPE I19.0C
D4	VARIABLE DEPTH TYPE I19.0B
D5	VARIABLE DEPTH TYPE I19.0C
E1	4" TYPE B25.0B
E2	5 1/2" TYPE B25.0B
E3	7" TYPE B25.0C
E4	VARIABLE DEPTH TYPE B25.0B
E5	VARIABLE DEPTH TYPE B25.0C
R1	2'-6" CONC. CURB AND GUTTER
R2	1'-6" CONC. CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE:
1. ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.
2. EXISTING PVMT. SHALL BE SAWCUT 1' FROM EXISTING EOP FOR ALL WIDENING SECTIONS.
3. SEE PLAN VIEW FOR LOCATIONS OF AUXILIARY LANES, TURN LANES, TRANSITION AREAS AND TAPERS.
4. TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS .



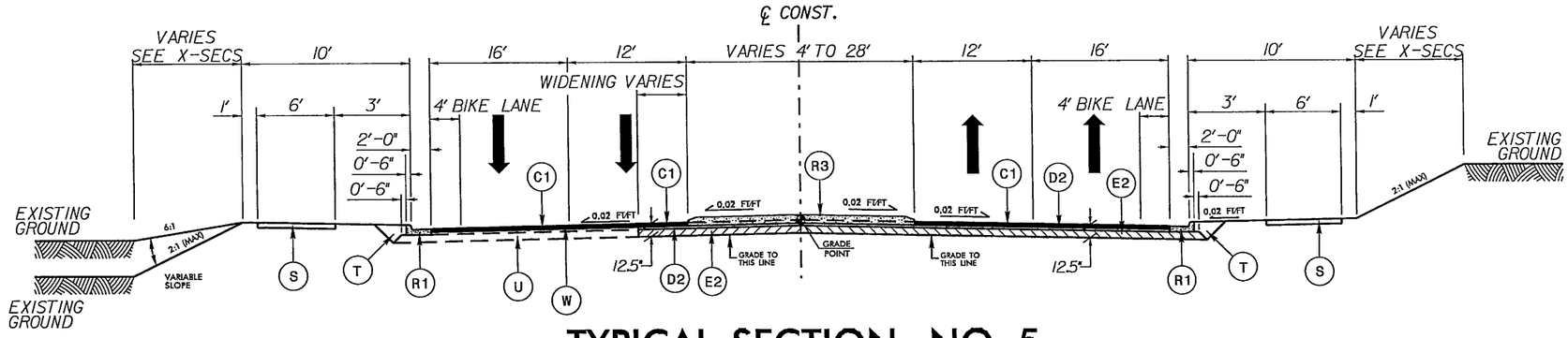
TYPICAL SECTION NO. 3

USE IN CONJUNCTION WITH DETAIL G
–L1– STA. 93+25.00 TO 104+00.00
(OVERLAY ONLY FROM STA. 101+22.98 TO 104+00.00)



TYPICAL SECTION NO. 4

USE IN CONJUNCTION WITH DETAILS B, C, D & H
–Y1– STA. 85+19.14 TO 99+10.15
*BETWEEN STA. 94+00 TO 96+00 LT. USE 4.5' BERM (SEE X-SECS)



TYPICAL SECTION NO. 5

USE IN CONJUNCTION WITH DETAILS B, C, D & H
–Y1– STA. 100+72.73 TO 111+80.00

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PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIGGS

Blythe

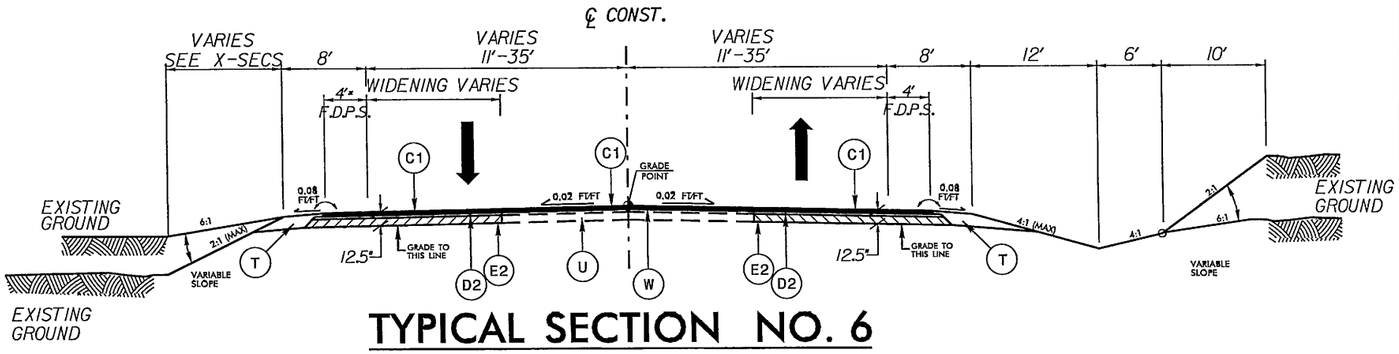
PB 100 YEARS

8/17/99 REVISIONS

PAVEMENT SCHEDULE

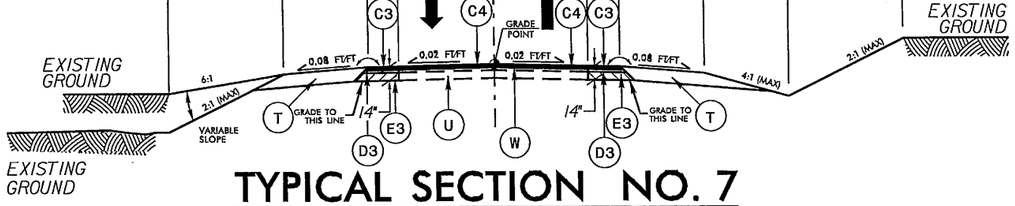
C1	3" TYPE S9.5B
C2	VARIABLE DEPTH TYPE S9.5B
C3	3" TYPE S9.5C
C4	1 1/2" TYPE S9.5C
C5	2" TYPE S9.5B
C6	VARIABLE DEPTH TYPE S9.5C
D1	2 1/2" TYPE I19.0B
D2	4" TYPE I19.0B
D3	4" TYPE I19.0C
D4	VARIABLE DEPTH TYPE I19.0B
D5	VARIABLE DEPTH TYPE I19.0C
E1	4" TYPE B25.0B
E2	5 1/2" TYPE B25.0B
E3	7" TYPE B25.0C
E4	VARIABLE DEPTH TYPE B25.0B
E5	VARIABLE DEPTH TYPE B25.0C
R1	2'-6" CONC. CURB AND GUTTER
R2	1'-6" CONC. CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE:
1. ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.
2. EXISTING PVMT. SHALL BE SAWCUT 1' FROM EXISTING EOP FOR ALL WIDENING SECTIONS.
3. SEE PLAN VIEW FOR LOCATIONS OF AUXILIARY LANES, TURN LANES, TRANSITION AREAS AND TAPERS.
4. TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS .



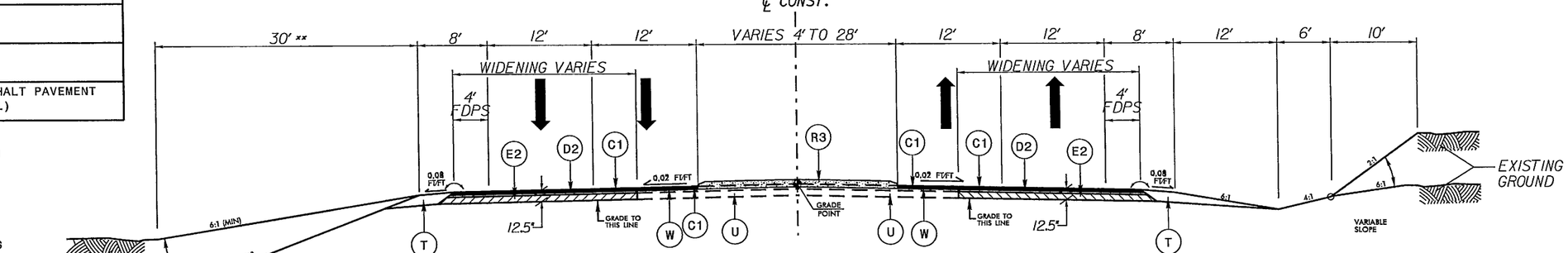
TYPICAL SECTION NO. 6

USE IN CONJUNCTION WITH DETAIL D, H
–Y1– STA. 81+68.53 TO 85+19.14
–Y1– STA. 111+80.00 TO 115+95.89
–Y10– STA. 82+90.74 TO 92+35.00
–Y10– STA. 108+50.00 TO 113+80.00
***NOTE: LEFT SIDE 4' PAVED SHOULDER BEGINS AT –Y10– STA. 86+86**



TYPICAL SECTION NO. 7

USE IN CONJUNCTION WITH DETAIL J
–Y3– STA. 10+41.00 TO 12+30.22
–Y5– STA. 10+87.50 TO 11+64.50
#NOTE: USE 8' SHOULDERS FOR –Y3–



TYPICAL SECTION NO. 8

USE IN CONJUNCTION WITH DETAILS B, E & H
–Y10– STA. 92+35.00 TO 99+35.93
–Y10– STA. 100+67.13 TO 108+50.00
**** NOTE: WIDTH VARIES IN RR RIGHT–OF–WAY TO TIE TO EXIST. DITCH SECTION**

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USER NAME = sssss
PSHEET SETTINGS = sssss

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

Blythe

PB 100 YEARS

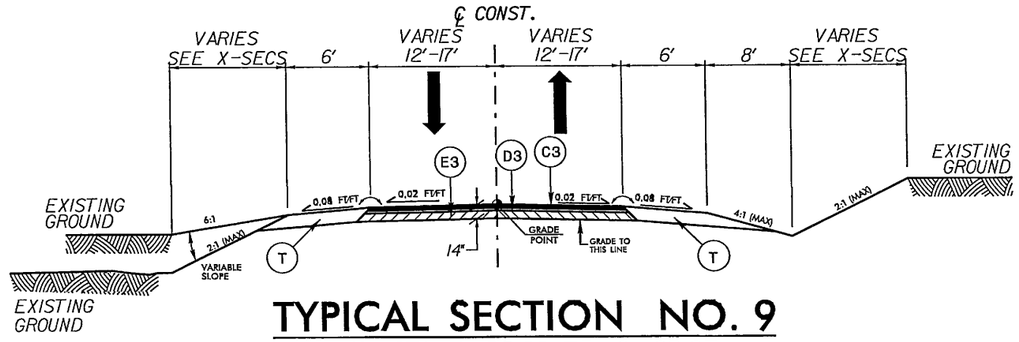
8/17/99

REVISIONS

PAVEMENT SCHEDULE

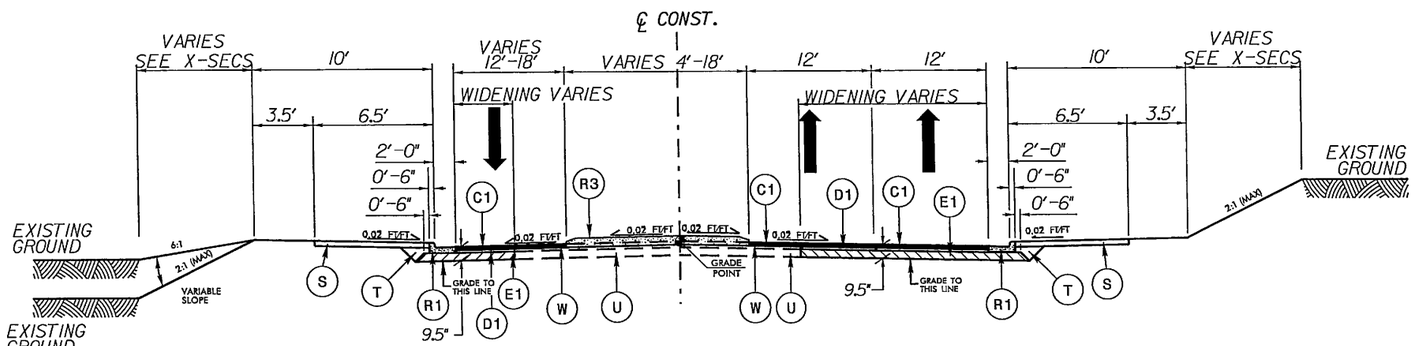
C1	3" TYPE S9.5B
C2	VARIABLE DEPTH TYPE S9.5B
C3	3" TYPE S9.5C
C4	1 1/2" TYPE S9.5C
C5	2" TYPE S9.5B
C6	VARIABLE DEPTH TYPE S9.5C
D1	2 1/2" TYPE I19.0B
D2	4" TYPE I19.0B
D3	4" TYPE I19.0C
D4	VARIABLE DEPTH TYPE I19.0B
D5	VARIABLE DEPTH TYPE I19.0C
E1	4" TYPE B25.0B
E2	5 1/2" TYPE B25.0B
E3	7" TYPE B25.0C
E4	VARIABLE DEPTH TYPE B25.0B
E5	VARIABLE DEPTH TYPE B25.0C
R1	2'-6" CONC. CURB AND GUTTER
R2	1'-6" CONC. CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE:
1. ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.
2. EXISTING PVMT. SHALL BE SAWCUT 1' FROM EXISTING EOP FOR ALL WIDENING SECTIONS.
3. SEE PLAN VIEW FOR LOCATIONS OF AUXILIARY LANES, TURN LANES, TRANSITION AREAS AND TAPERS.
4. TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS.



TYPICAL SECTION NO. 9

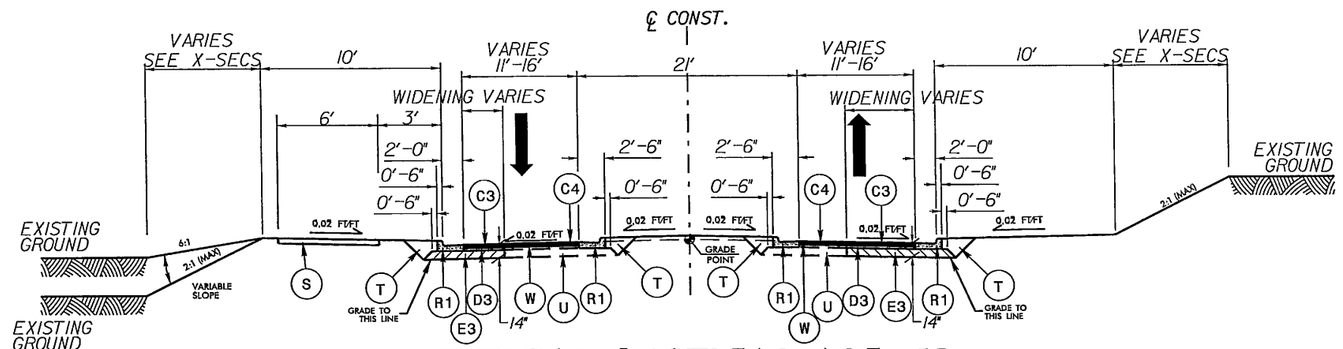
-Y9- STA. 7+25.00 TO 9+02.97



TYPICAL SECTION NO. 10

USE IN CONJUNCTION WITH DETAIL I

-HP- STA. 10+51.28 TO 18+50.00



TYPICAL SECTION NO. 11

USE IN CONJUCTION WITH DETAIL J

-Y7- STA. 10+39.51 TO 11+00.00

27-APR-2010 15:26
I:\1734204-NC73\TIP\Roadway\Proj\R2632AA_RDY_PSH02d.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

Blythe

PB 100 YEARS

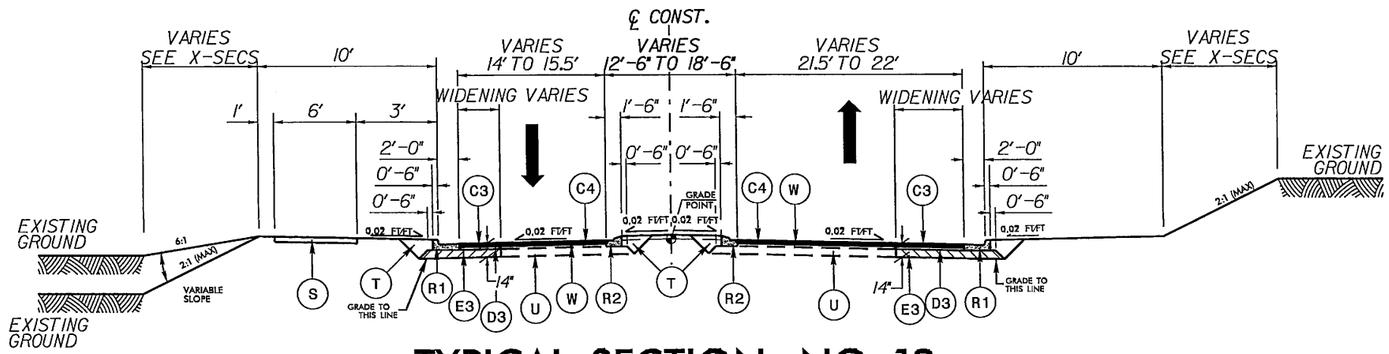
8/17/99

REVISIONS

PAVEMENT SCHEDULE

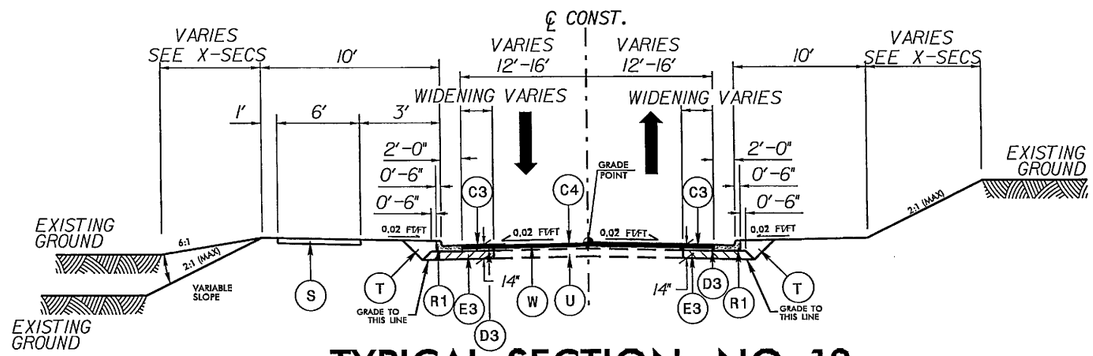
C1	3" TYPE S9.5B
C2	VARIABLE DEPTH TYPE S9.5B
C3	3" TYPE S9.5C
C4	1 1/2" TYPE S9.5C
C5	2" TYPE S9.5B
C6	VARIABLE DEPTH TYPE S9.5C
D1	2 1/2" TYPE I19.0B
D2	4" TYPE I19.0B
D3	4" TYPE I19.0C
D4	VARIABLE DEPTH TYPE I19.0B
D5	VARIABLE DEPTH TYPE I19.0C
E1	4" TYPE B25.0B
E2	5 1/2" TYPE B25.0B
E3	7" TYPE B25.0C
E4	VARIABLE DEPTH TYPE B25.0B
E5	VARIABLE DEPTH TYPE B25.0C
R1	2'-6" CONC. CURB AND GUTTER
R2	1'-6" CONC. CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE:
1. ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.
2. EXISTING PVMT. SHALL BE SAWCUT 1' FROM EXISTING EOP FOR ALL WIDENING SECTIONS.
3. SEE PLAN VIEW FOR LOCATIONS OF AUXILIARY LANES, TURN LANES, TRANSITION AREAS AND TAPERS.
4. TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS.



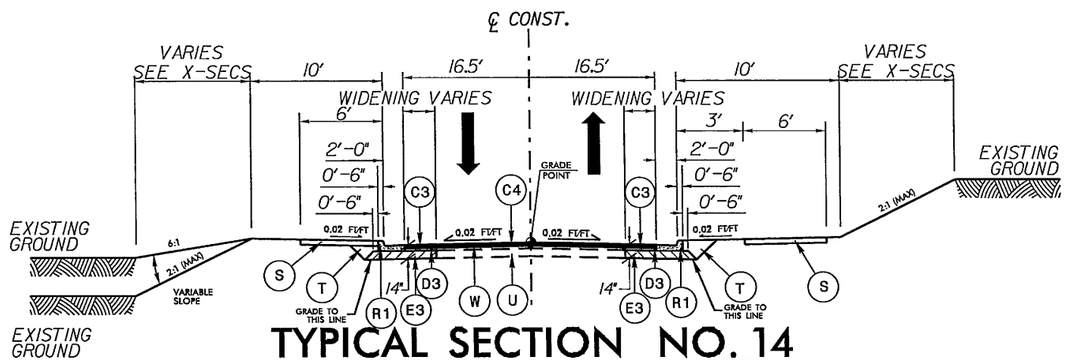
TYPICAL SECTION NO. 12

USE IN CONJUNCTION WITH DETAIL J
-Y6- STA. 8+30.00 TO 9+60.00
-Y8- STA. 8+84.00 TO 9+50.00



TYPICAL SECTION NO. 13

USE IN CONJUNCTION WITH DETAIL J
-Y4- STA. 10+43.00 TO 11+73.00



TYPICAL SECTION NO. 14

USE IN CONJUNCTION WITH DETAIL J
-Y20- STA. 8+50.00 TO 9+50.00

27-APR-2010 15:26
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

Blythe

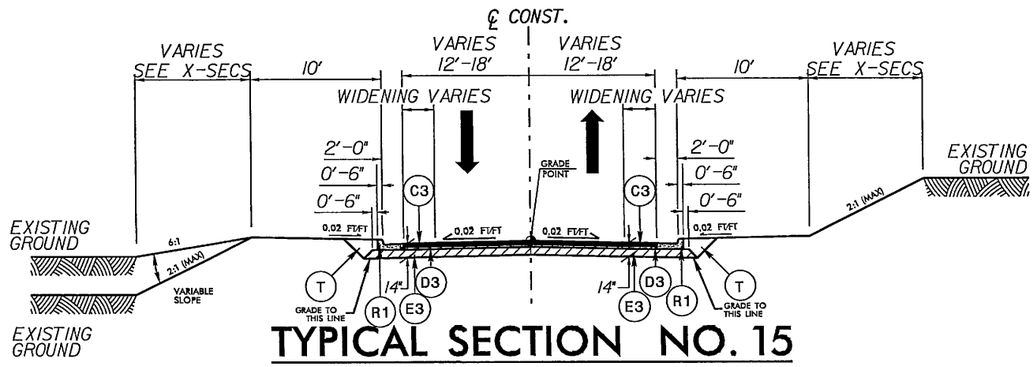
PB 100 YEARS

REVISIONS 8/17/99

PAVEMENT SCHEDULE

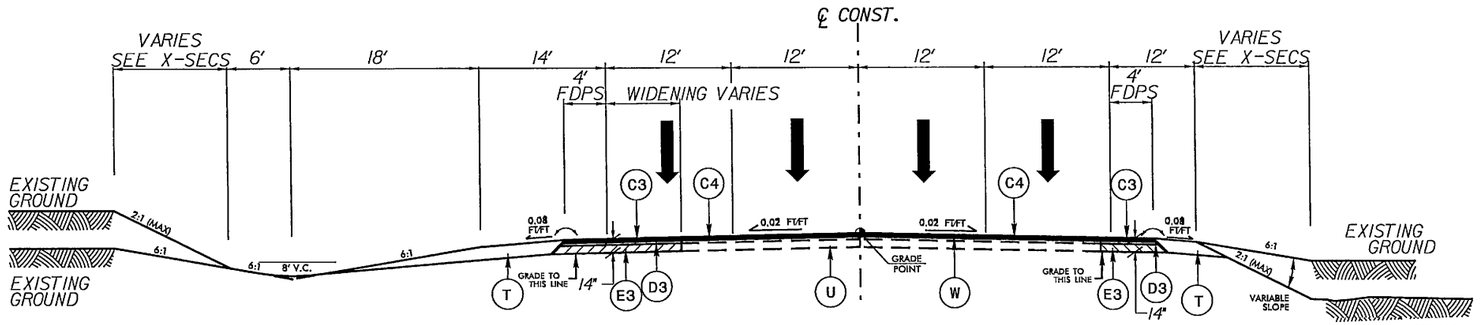
C1	3" TYPE S9.5B
C2	VARIABLE DEPTH TYPE S9.5B
C3	3" TYPE S9.5C
C4	1 1/2" TYPE S9.5C
C5	2" TYPE S9.5B
C6	VARIABLE DEPTH TYPE S9.5C
D1	2 1/2" TYPE I19.0B
D2	4" TYPE I19.0B
D3	4" TYPE I19.0C
D4	VARIABLE DEPTH TYPE I19.0B
D5	VARIABLE DEPTH TYPE I19.0C
E1	4" TYPE B25.0B
E2	5 1/2" TYPE B25.0B
E3	7" TYPE B25.0C
E4	VARIABLE DEPTH TYPE B25.0B
E5	VARIABLE DEPTH TYPE B25.0C
R1	2'-6" CONC. CURB AND GUTTER
R2	1'-6" CONC. CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE:
1. ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.
2. EXISTING PVMT. SHALL BE SAWCUT 1' FROM EXISTING EOP FOR ALL WIDENING SECTIONS.
3. SEE PLAN VIEW FOR LOCATIONS OF AUXILIARY LANES, TURN LANES, TRANSITION AREAS AND TAPERS.
4. TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS.



TYPICAL SECTION NO. 15

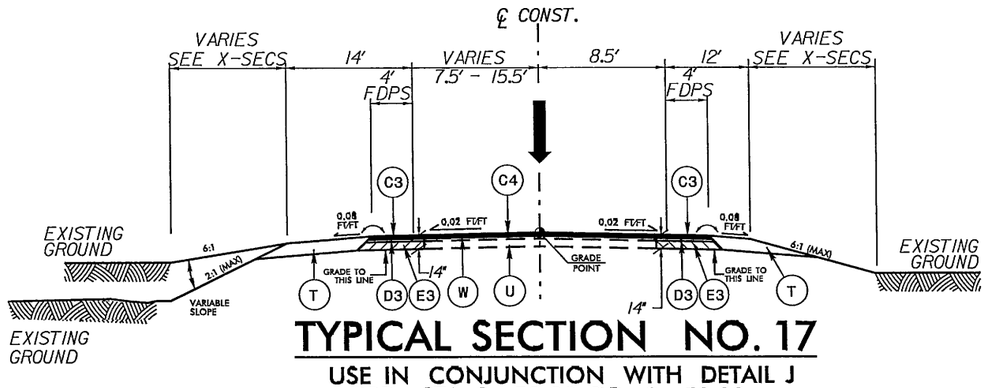
–Y11– STA. 10+37.50 TO 11+70.00



TYPICAL SECTION NO. 16

USE IN CONJUNCTION WITH DETAIL J

–RPC– STA. 10+50.00 TO 14+94.00



TYPICAL SECTION NO. 17

USE IN CONJUNCTION WITH DETAIL J

–RPD– STA. 8+50.00 TO 9+50.00

27-APR-2000 15:26
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2G
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

Blythe PB 100 YEARS

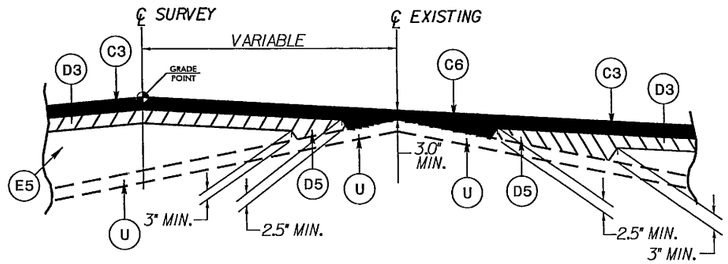
8/17/99

REVISIONS

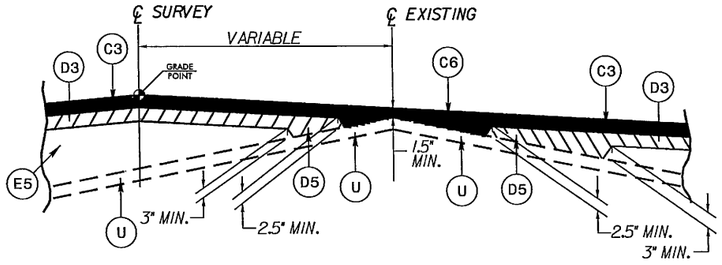
PAVEMENT SCHEDULE

C1	3" TYPE S9.5B
C2	VARIABLE DEPTH TYPE S9.5B
C3	3" TYPE S9.5C
C4	1 1/2" TYPE S9.5C
C5	2" TYPE S9.5B
C6	VARIABLE DEPTH TYPE S9.5C
D1	2 1/2" TYPE I19.0B
D2	4" TYPE I19.0B
D3	4" TYPE I19.0C
D4	VARIABLE DEPTH TYPE I19.0B
D5	VARIABLE DEPTH TYPE I19.0C
E1	4" TYPE B25.0B
E2	5 1/2" TYPE B25.0B
E3	7" TYPE B25.0C
E4	VARIABLE DEPTH TYPE B25.0B
E5	VARIABLE DEPTH TYPE B25.0C
R1	2'-6" CONC. CURB AND GUTTER
R2	1'-6" CONC. CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS)

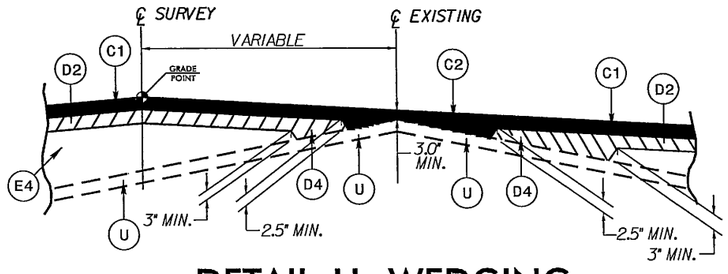
NOTE:
1. ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.
2. EXISTING PVMT. SHALL BE SAWCUT 1' FROM EXISTING EOP FOR ALL WIDENING SECTIONS.
3. SEE PLAN VIEW FOR LOCATIONS OF AUXILIARY LANES, TURN LANES, TRANSITION AREAS AND TAPERS.
4. TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS.



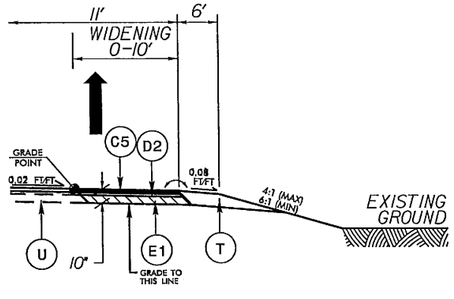
DETAIL G WEDGING
L1



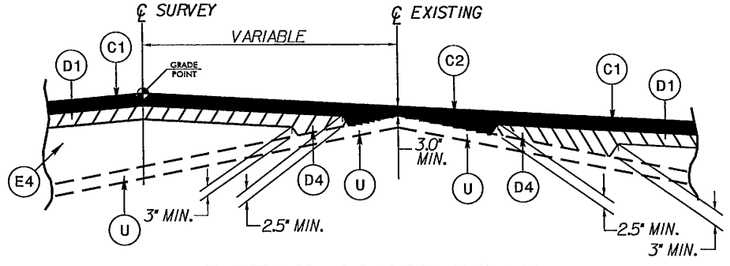
DETAIL J WEDGING
Y3, Y4, Y5, Y7, Y6, Y8, Y11, Y20, RPC & RPD



DETAIL H WEDGING
Y1 & Y10



DETAIL K TEMPORARY PAVEMENT SECTION



DETAIL I WEDGING
HP

27-APR-2010 15:26
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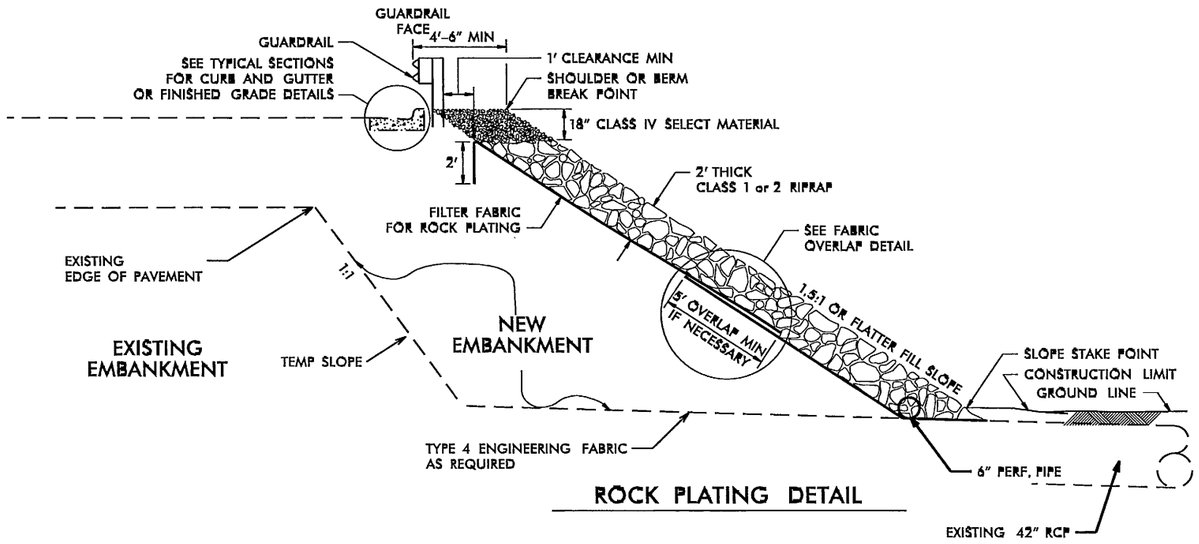
$$$$USERNAME$$$$

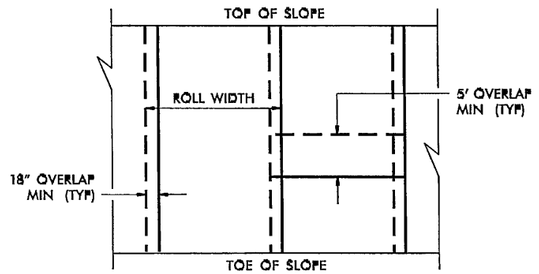
PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	2H
R/W SHEET NO.	
GEOTECHNICAL ENGINEER	



ROCK PLATING DETAIL

USE ROCK PLATING DETAIL NO. 2
AT THE FOLLOWING LOCATIONS:

-L1- STA 70+29.00 TO -L1- STA 70+89.00
EXTEND ROCK PLATING LIMITS TO TIE INTO EXISTING SLOPES.

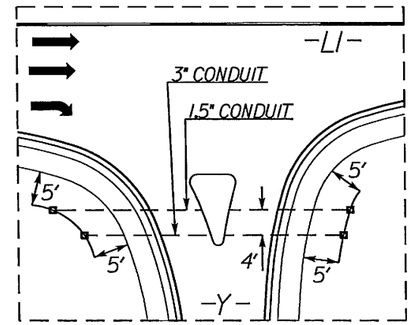


FABRIC OVERLAP DETAIL
(PLAN VIEW)

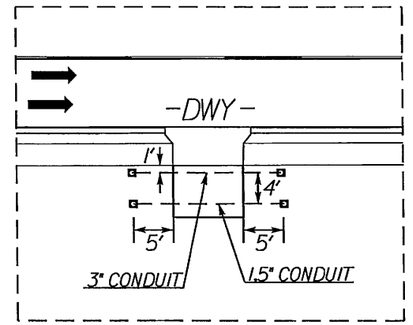
FOR ROCK PLATING,
SEE ROCK PLATING SPECIAL PROVISION.

NOTES:
1. NEW EMBANKMENT SHALL CONSIST OF CLASS II BORROW MATERIAL.
2. NEW EMBANKMENT SHALL BE BENCHED INTO TEMPORARY SLOPE.

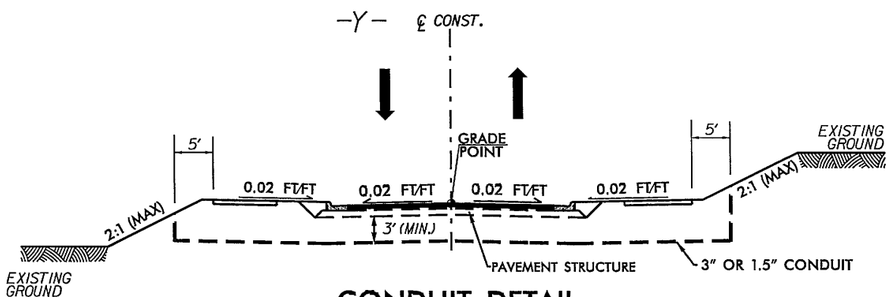
NOTES:
1. AS SHOWN ON PLANS, ALL CONDUITS SHALL BE INSTALLED THREE FEET BELOW THE PAVEMENT STRUCTURE WITH STUB-OUTS, INCLUDING BUT NOT LIMITED TO ELBOWS, VERTICAL PIPE AND REMOVABLE CAP LOCATED FLUSH WITH THE FINISHED ELEVATION.
2. AS SHOWN ON PLANS, 3" PVC PIPE SHALL BE INSTALLED TO ALL PROPOSED GRASS MEDIANS, BEGINNING FIVE FEET BEYOND THE MEDIAN CURB AND GUTTER AND EXTENDING TO JUST BEYOND THE MAINLINE SIDEWALK. FOR GRASS MEDIANS LONGER THAN 800 FEET, A MINIMUM OF TWO 3" PVC PIPES SHALL BE INSTALLED AS NOTED ABOVE, PROVIDING ONE PIPE WITHIN 100 FEET OF EACH MEDIAN END.
3. AS SHOWN ON PLANS, ONE 3" PVC PIPE AND ONE 1.5" CONDUIT SHALL BE INSTALLED ACROSS ALL -Y- LINES AND DRIVEWAYS. THE PIPE SHALL BE LOCATED BEHIND THE MAINLINE SIDEWALK AND COMPLETELY EXTEND ACROSS THE -Y- LINE OR DRIVEWAY, TERMINATING A MINIMUM OF FIVE FEET BEYOND THE OUTER MOST LIMITS OF THE EDGES OF PAVEMENT, CURB AND GUTTER OR SIDEWALK.
4. AS SHOWN ON PLANS, AT ALL -Y- LINE AND DRIVEWAY CROSSINGS NOTED ABOVE, THE DESIGN-BUILD TEAM SHALL PROVIDE A MINIMUM FOUR-FOOT HORIZONTAL SEPARATION BETWEEN THE AFOREMENTIONED 3" PVC PIPE AND 1.5" CONDUIT.



CONDUIT DETAIL PLAN VIEW
-Y LINE- TYPICAL (NTS)



CONDUIT DETAIL PLAN VIEW
DRIVEWAY TYPICAL (NTS)



CONDUIT DETAIL
ELEVATION TYPICAL (NTS)

REVISIONS

8/17/99

27-APR-2010 15:26
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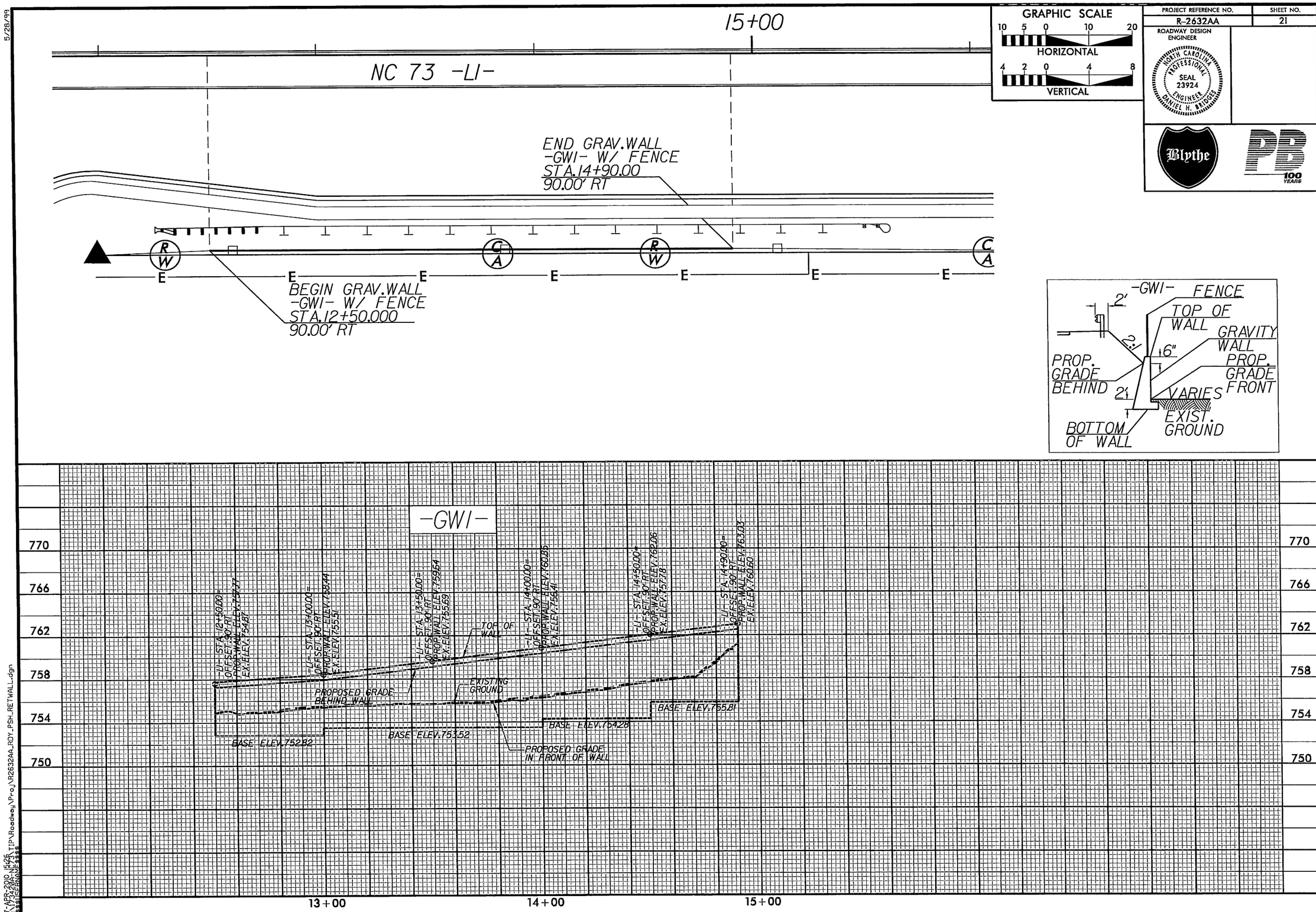
$$$$USERNAME$$$$



PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	21

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

Blythe

PB 100 YEARS

5/28/99

27-APR-2010 15:26
T:\17342OA-NC73\TIP\Roadway\Proj\R2632AA_RDY_PSH_RETWALL.dgn
$$$$USERNAME$$$$

COMPUTED BY: R. Brumfield DATE: 2/24/2009

CHECKED BY: D. Gourley DATE: 2/24/2009

PROJECT NO.	SHEET NO.
R-2632AA	3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
-L1- 12+15.39	LT	0401		759.762			
		0401	0415		755.8	753.9	
-L1- 12+01.33	RT	0402		759.159			
		0402	0416		755.329	754	
-Y1- 101+50.00	RT	0412		769.25			
		0412	0413		766	764.085	
-Y1- 102+50.00	RT	0411		766.543			
		0411	0413		763.293	763.13	X
-Y1- 102+50.00	RT	0413		767.335			
		0413	0414		763.13	762.025	X
-Y1- 103+50.00	RT	0414		765.275			
		0414	1227		762.025	760.64	
-Y1- 104+15.00	RT	1227		763.89			
		1227	1201		760.64	758.941	X
-Y1- 104+98.00	RT	1201		762.191			
		1201	1202		758.941	758.049	
-Y1- 104+98.00	RT	1202		761.299			
		1202	1208		758.049	752.247	X
-Y1- 107+95.00	RT	1208		755.497			
		1208	1209		752.247	749.341	X
-Y1- 110+50.00	RT	1224		749.39			
		1224	1207		746.14	745.89	X
-Y1- 109+47.40	RT	1203		753.57			
		1203	1209		750.32	749.341	
-Y1- 109+64.05	RT	1209		752.591			
		1209	1207		748.59	747.7	X
-Y1- 111+67.47	RT	1206		751			
		1206	1207		748.65	748.263	X
-Y1- 110+95.50	RT	1207		751.703			
		1207	1204		745.8	745.596	X
-Y1- 110+95.50	LT	1204		752.495			
		1204	1212		745.584	745.382	X
-Y1- 111+98.79	LT	1228		753.056			
		1228	1212		746.36	745	
-Y1- 110+95.51	LT	1212		751.501			
		1212	1211		744.9	744.732	X
-Y1- 108+00.00	LT	1210		755.011			
		1210	1211		751.761	748.28	
-Y1- 110+62.00	LT	1211		751.53			
		1211	1213		741	740	
SHEET TOTALS							

SIZE / THICKNESS OR GAUGE

FROM	TO	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	PIPE REMOVAL LIN. FT.	REMARKS
0401	0415																						52																					
0402	0416																						60																					
0412	0413																						100																					
0411	0413																						32																					
0413	0414																						100																					
0414	1227																						64																					
1227	1201																						80																					
1201	1202																						32																					
1202	1208																						296																					
1208	1209																						168																					
1224	1207																						52																					
1203	1209																						36																					
1209	1207																								132																			
1206	1207																						76																					
1207	1204																								44																			
1204	1212																								44																			
1228	1212																							104																			45	Remove 18" RCP
1212	1211																								32																			
1210	1211																						264																					
1211	1213																								20																			Tie to Exist. Structure
SHEET TOTALS																							1412	104	272																		45	

STATION	STRUCTURE NO.	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. STD. 840.54			DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	REMARKS
-L1- 12+15.39	0401			1			1		1																						
-L1- 12+01.33	0402			1			1			1																					
-Y1- 101+50.00	0412			1							1		1	1																	
-Y1- 102+50.00	0411			1			1		1																						
-Y1- 102+50.00	0413			1							1		1	1																	
-Y1- 103+50.00	0414			1							1		1	1																	
-Y1- 104+15.00	1227			1							1		1	1																	
-Y1- 104+98.00	1201			1							1		1	1																	
-Y1- 104+98.00	1202			1			1		1																						
-Y1- 107+95.00	1208			1			1		1																						
-Y1- 110+50.00	1224			1									1	1																	
-Y1- 109+47.40	1203			1							1		1	1																	
-Y1- 109+64.05	1209			1			1		1																						
-Y1- 111+67.47	1206			1																			1		1						
-Y1- 110+95.50	1207			1	0.9		1	1																							
-Y1- 110+95.50	1204			1	1.9						1		1	1																	
-Y1- 111+98.79	1228			1	1.7																			1	1						Replace Exist MH with T.B.J.B.M.H.
-Y1- 110+95.51	1212			1	1.6		1	1																							
-Y1- 108+00.00	1210			1			1			1																					
-Y1- 110+62.00	1211			1	5.0	0.5	1			1																					
SHEET TOTALS				20.0	11.1	0.5	10	2	5	3	7		8	8									1	1	2						

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

W-AMCHL-D-00002

COMPUTED BY: R. Brumfield DATE: 2/24/2009

CHECKED BY: D. Gourley DATE: 2/24/2009

PROJECT NO.	SHEET NO.
R-2632AA	3A

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	R.C. PIPE CLASS III 15"	R.C. PIPE CLASS III 18"	R.C. PIPE CLASS III 24"	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. FT. A 5.0' THRU 10.0'	C.B. STD. 840.01 OR STD. 840.02	TYPE OF GRATE E	TYPE OF GRATE F	TYPE OF GRATE G	CONCRETE TRANSITIONAL SECTION DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	J.B. STD. 840.31 OR 840.32	M.H. STD. 840.54	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-Y1- 97+98.25	LT	0409		768.766							1						1	1	1					
		0409	0410		764.876	764.533	X	68															140	Remove 12" CMP
-Y1- 97+98.25	RT	0410		767.831							1		1			1								
		0410	0408		764.533	761.963		148																
-Y1- 96+10.58	LT	0405		766							1									1	1			Tie Exist 18" HDPE to Structure
		0405	0406		763.35	762.271			40															
-Y1- 96+45.99	LT	0406		765.771							1		1		1									
		0406	0408		762.271	761.713	X		112														79	Remove 18" RCP
-Y1- 96+50.51	RT	0408		765.851							1		1			1								
		0408	1123		761.713	758.449			148															
-Y1- 95+01.00	LT	1119		762.964							1						1	1	1					
		1119	1123		759.714	758.699		68																
-Y1- 95+01.00	RT	1123		761.949							1		1			1								
		1123	1112		758.449	753.167			136															
-Y1- 93+65.92	RT	1112		756.667							1		1			1								
		1112	1114		752.667	743.746				252													89	Remove 18" RCP
-Y1- 91+15.20	RT	1114		747.746							1		1			1								
		1114	1116		743.746	730.793				360													130	Remove 18" RCP
-Y1- 93+67.80	LT	1101		756.741							1		1		1									
		1101	1104		753.491	748.62		136															191	Remove 15" RCP
		EX. 2	1102		758.2	752.96		60																Tie to Exist. Structure
-Y1- 93+28.78	LT	1102		757.983							1	0.1	1			1								
		1102	1103		752.9	751.95		56																
-Y1- 92+70.80	LT	1103		757.283							1	0.3	1		1									
		1103	1104		751.95	748.62		68																
-Y1- 92+31.76	LT	1104		751.873							1		1		1									
		1104	1105		747.87	743.7				116														
-Y1- 91+15.51	LT	1105		747.757							1		1		1									
		1105	1108		743.6	739.6				116													177	Remove 15", 18" and 24" RCP
		EX. 1	1106		747.48	745.733		20																Tie to Exist. Structure
-Y1- 90+79.72	LT	1106		749.183							1		1			1								
		1106	1107		745.5	745.233	X	36																
-Y1- 90+43.71	LT	1107		748.983							1	2.3	1		1									
		1107	1108		741.68	740.369		64																
-Y1- 89+98.80	LT	1108		743.619							1		1		1									
		1108	1109		739.6	729.15				232														
-Y1- 87+66.81	LT	1109		735.284							1	1.1	1		1									
		1109	1117		729.138	728.23																0.5526		Exist. 24" RCP
		1117	1116		728.23	728.2				4														
-Y1- 87+55.14	RT	1116		734.793							1	1.7	1			1								
		1116	1118		728.1	727.5				28														
-Y1- 87+50.72	RT	1118		733							1	0.5					1	1	1					
		1118	1121		727.5	721.63				92													78	Tie to Exist. Structure, Remove 24" RCP
-Y1- 85+34.31	LT	1110		727.25							1		1		1									
		1110	1111		723.25	715.368		228																
-Y1- 83+06.24	LT	1111		719.408							1	1.9	1		1									
		1111	1122		712.5	709.092		24																Tie to Exist. Structure
SHEET TOTALS								976	436	1200	22.0	8.0	18		10	8	3	3	3	1	1	0.6	884	

Other columns on the sheet (no entries on this sheet):

- SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC): 12", 15", 18", 24", 30", 36", 42", 48"; DO NOT USE RCP; DO NOT USE CSP; DO NOT USE CAAP; DO NOT USE HDPE
- C.S. PIPE: 12" (.064), 15" (.064), 18" (.064), 24" (.064), 30" (.079), 36" (.079), 42" (.109), 48" (.109)
- R.C. PIPE CLASS III: 12", 30", 36", 42", 48"
- R.C. PIPE CLASS IV: 12", 15", 18", 24", 30", 36", 42", 48"
- ** " R.C. PIPE (CLASS V); ***" RC PIPE CULVERTS, CONTRACTOR DESIGN; ***" RC PIPE CULVERTS, CONTRACTOR DESIGN; 15" SIDE DRAIN PIPE; 18" SIDE DRAIN PIPE
- ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS: R.C.P.; C.S.P.
- *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B'): LIN. FT. B 10.0' AND ABOVE
- FRAME, GRATES, AND HOOD STANDARD 840.03
- CONCRETE TRANSITIONAL SECTION: CATCH BASIN
- G.D.I. TYPE "A" STD. 840.17 OR 840.26; G.D.I. TYPE "B" STD. 840.18 OR 840.27; G.D.I. TYPE "D" STD. 840.19 OR 840.28; G.D.I. FRAME WITH GRATE STD. 840.20; G.D.I. FRAME WITH TWO GRATES STD. 840.22; G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24; G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24; T.B.J.B. STD. 840.34
- DRAINAGE PIPE ELBOWS NO. & SIZE; CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: R. Brumfield DATE: 2/24/2009

CHECKED BY: D. Gourley DATE: 2/24/2009

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2632AA	3B

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE											
-HP- 12+81.78	LT	0524		753.185															
		0524	0519		746.87	746.47													
-HP- 12+60.00	RT	0519		752.838															
		0519	0521		745.683	745.112	X												
-HP- 13+74.50	RT	0521		749.605															
		0521	0523		745.112	744.195													
-HP- 14+39.30	RT	0522		752.444															
		0522	0523		749.421	745.195	X												
-HP- 14+41.59	RT	0523		748.195															
		0523	1219		744.195	743.622													
-HP- 16+26.70	LT	1214		750.396															
		1214	1215		745.75	743.864													
-HP- 15+37.19	LT	1215		748.51															
		1215	1216		743.864	743.614	X												
-HP- 16+40.93	RT	1217		750.502															
		1217	1218		747.252	745.064													
-HP- 15+28.24	RT	1221		748.176															
		1221	1218		745.176	745.064	X												
-HP- 15+39.18	RT	1218		748.314															
		1218	1219		745.064	744.372	X												
-HP- 14+87.00	RT	1219		747.942															
		1219	1220		740	739.85	X												
-HP- 14+87.19	LT	1220		748.452															
		1220	1216		739.85	739.68													
-HP- 14+87.19	LT	1216		748.182															
		1216	1222		733.32	732.52													
-L1- 21+05.40	LT	0404		769.414															
		0404	0501		766.106	763.901	X												
-L1- 22+30.61	LT	0501		767.151															
		0501	0534		763.901	762.063	X												
-L1- 23+03.00	LT	0534		765.313															
		0534	0503		762.063	760.041	X												
-L1- 23+90.00	LT	0503		763.291															
		0503	0506		759.791	756.85													
-L1- 24+18.32	LT	0502		764.45															
		0502	0504		761.1	759.86													
-L1- 24+42.53	LT	0504		763.113															
		0504	0505		759.7	758.5													
-L1- 25+01.02	LT	0505		762.083															
		0505	0506		758.4	757.1													
-L1- 25+40.00	LT	0506		760.094															
		0506	0529		756.35	755													
-L1- 26+30.00	LT	0529		759.247															
		0529	0507		755	753.6													
-L1- 26+42.66	LT	0532		764.66															
		0532	0507		753.342	752.565													
-L1- 26+75.79	LT	0507		759.139															
		0507	0510		752.5	751.9	X												
		0508																	
SHEET TOTALS																			

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	C.S. PIPE SIZE 12"	15"	18"	24"	30"	36"	42"	48"	.064	.064	.064	.079	.079	.109	.109
				THICKNESS OR GAUGE														
-HP- 12+81.78	LT	0524																
		0524	0519			40												
-HP- 12+60.00	RT	0519																
		0519	0521				112											
-HP- 13+74.50	RT	0521																
		0521	0523				68											
-HP- 14+39.30	RT	0522																
		0522	0523			44												
-HP- 14+41.59	RT	0523																
		0523	1219				44											
-HP- 16+26.70	LT	1214																
		1214	1215			88												
-HP- 15+37.19	LT	1215																
		1215	1216			48												
-HP- 16+40.93	RT	1217																
		1217	1218			100												
-HP- 15+28.24	RT	1221																
		1221	1218			20												
-HP- 15+39.18	RT	1218																
		1218	1219			52												
-HP- 14+87.00	RT	1219																
		1219	1220				44											
-HP- 14+87.19	LT	1220																
		1220	1216															
-HP- 14+87.19	LT	1216																
		1216	1222				32											
-L1- 21+05.40	LT	0404																
		0404	0501			124												
-L1- 22+30.61	LT	0501																
		0501	0534			72												
-L1- 23+03.00	LT	0534																
		0534	0503			88												
-L1- 23+90.00	LT	0503																
		0503	0506				148											
-L1- 24+18.32	LT	0502																
		0502	0504			28												
-L1- 24+42.53	LT	0504																
		0504	0505			56												
-L1- 25+01.02	LT	0505																
		0505	0506			52												
-L1- 25+40.00	LT	0506																
		0506	0529				88											
-L1- 26+30.00	LT	0529																
		0529	0507				44											
-L1- 26+42.66	LT	0532																
		0532	0507					52										
-L1- 26+75.79	LT	0507																
		0507	0510						72									
		0508																
SHEET TOTALS				44	768	148	356	76	52	72								

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	R.C. PIPE CLASS III SIZE 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV SIZE 12"	15"	18"	24"	30"	36"	42"	48"
-HP- 12+81.78	LT	0524																	
		0524	0519																
-HP- 12+60.00	RT	0519																	
		0519	0521																
-HP- 13+74.50	RT	0521																	
		0521	0523																
-HP- 14+39.30	RT	0522																	
		0522	0523																
-HP- 14+41.59	RT	0523																	
		0523	1219																
-HP- 16+26.70	LT	1214																	
		1214	1215																
-HP- 15+37.19	LT	1215																	
		1215	1216																
-HP- 16+40.93	RT	1217																	
		1217	1218																
-HP- 15+28.24	RT	1221																	
		1221	1218																
-HP- 15+39.18	RT	1218																	
		1218	1219																
-HP- 14+87.00	RT	1219																	
		1219	1220																
-HP- 14+87.19	LT	1220																	
		1220	1216																
-HP- 14+87.19	LT	1216																	
		1216	1222																
-L1- 21+05.40	LT	0404																	
		0404	0501																
-L1- 22+30.61	LT	0501																	
		0501	0534																
-L1- 23+03.00	LT	0534																	
		0534	0503																
-L1- 23+90.00	LT	0503																	
		0503	0506																
-L1- 24+18.32	LT	0502																	
		0502	0504																
-L1- 24+42.53	LT	0504																	
		0504	0505																
-L1- 25+01.02	LT	0505																	
		0505	0506																
-L1- 25+40.00	LT	0506																	
		0506	0529																
-L1- 26+30.00	LT	0529																	
		0529	0507																
-L1- 26+42.66	LT	0532																	
		0532	0507																
-L1- 26+75.79	LT	0507																	
		0507	0510																
		0508																	
SHEET TOTALS																			

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	* " R.C. PIPE (CLASS V)	** " RC PIPE CULVERTS, CONTRACTOR DESIGN	*** RC PIPE CULVERTS, CONTRACTOR DESIGN	**** RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS OTHERWISE) CU. YARDS R.C.P.	C.S.P.
-HP- 12+81.78	LT	0524									
		0524	0519								
-HP- 12+60.00	RT	0519									
		0519	0521								
-HP- 13+74.50	RT	0521									
		0521	0523								
-HP- 14+39.30	RT	0522									
		0522	0523								
-HP- 14+41.59	RT	0523									
		0523	1219								
-HP- 16+26.70	LT	1214									
		1214	1215								
-HP- 15+37.19	LT	1215									
		1215	1216								
-HP- 16+40.93	RT	1217									
		1217	1218								
-HP- 15+28.24	RT	1221									
		1221	1218								
-HP- 15+39.18	RT	1218									
		1218	1219								
-HP- 14+87.00	RT	1219									
		1219	1220								
-HP- 14+87.19	LT	1220									
		1220	1216								
-HP- 14+87.19	LT	1216									
		1216	1222								
-L1- 21+05.40	LT	0404									
		0404	0501								
-L1- 22+30.61	LT	0501									
		0501	0534								
-L1- 23+03.00	LT	0534									
		0534	0503								
-L1- 23+90.00	LT	0503									
		0503	0506								
-L1- 24+18.32	LT	0502									
		0502	0504								
-L1- 24+42.53	LT	0504									
		0504	0505								
-L1- 25+01.02	LT	0505									
		0505	0506								
-L1- 25+40.00	LT	0506									
		0506	0529								
-L1- 26+30.00	LT	0529									
		0529	0507								
-L1- 26+42.66	LT	0532									
		0532	0507								
-L1- 26+75.79	LT	0507									
		0507	0510								
		0508									
SHEET TOTALS											

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	QUANTITIES FOR DRAINAGE STRUCTURES: PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. FT. A: 5.0' THRU 10.0'	B: 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
-HP- 12+81.78	LT	0524		1	1.3						1	
		0524	0519									
-HP- 12+60.00	RT	0519		1	2.2		1		1			
		0519	0521									
-HP- 13+74.50	RT	0521		1			1		1			
		0521	0523									
-HP- 14+39.30	RT	0522		1								
		0522	0523									
-HP- 14+41.59	RT	0523		1			1		1			
		0523	1219									
-HP- 16+26.70	LT	1214		1			1		1			
		1214	1215									
-HP- 15+37.19	LT	1215		1			1		1			
		1215	1216									
-HP- 16+40.93	RT	1217		1			1			1		
		1217	1218									
-HP- 15+28.24	RT	1221		1			1	1				
		1221	1218									
-HP- 15+39.18	RT	1218		1			1			1		
		1218	1219									
-HP- 14+87.00	RT	1219		1	2.9		1	1				
		1219	1220									
-HP- 14+87.19	LT	1220		1	3.6					1		1
		1220	1216									
-HP- 14+87.19	LT	1216		1	5.0	4.9	1	1				
		1216	1222									
-L1- 21+05.40	LT	0404		1			1			1		
		0404	0501									
-L1- 22+30.61	LT	0501		1			1			1		
		0501	0534									
-L1- 23+03.00	LT	0534		1			1			1		
		0534	0503									
-L1- 23+90.00	LT	0503		1			1			1		
		0503	0506									
-L1- 24+18.32	LT	0502		1			1	1				
		0502	0504									
-L1- 24+42.53	LT	0504		1			1			1		
		0504	0505									
-L1- 25+01.02	LT	0505		1			1			1		
		0505	0506									
-L1- 25+40.00	LT	0506		1			1			1		
		0506	0529									
-L1- 26+30.00	LT	0529		1			1			1		
		0529	0507									
-L1- 26+42.66	LT	0532		1	5.0	1.3	1	1				
		0532	0507									
-L1- 26+75.79	LT	0507		1	1.6		1	1				
		0507	0510									
		0508										
SHEET TOTALS				24.0	21.7	6.2	21	6	5	10	2	

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. STD. 840.54	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-HP- 12+81.78	LT	0524		1																
		0524	0519																	
-HP- 12+60.00	RT	0519			1															
		0519	0521																143	Remove 24" RCP
-HP- 13+74.50	RT	0521																		
		0521	0523																63	Remove 18" RCP
-HP- 14+39.30	RT	0522											1		1					
		0522	0523																	
-HP- 14+41.59	RT	0523																		
		0523	1219																50	Remove 18" RCP
-HP- 16+26.70	LT	1214																		
		1214	1215																	
-HP- 15+37.19	LT	1215																		
		1215	1216																	
-HP- 16+40.93	RT	1217																		
		1217	1218																	
-HP- 15+28.24	RT	1221																		
		1221	1218																	
-HP- 15+39.18	RT	1218																		
		1218	1219																	
-HP- 14+87.00	RT	1219																		
		1219	1220																	
-HP- 14+87.19	LT	1220																		
		1220	1216																37	Remove 24" RCP
-HP- 14+87.19	LT	1216																		Tie to Exist 30" RCP
		1216	1222																	Existing 30" RCP
-L1- 21+05.40	LT	0404																		Tie Exist 15" RCP to Structure
		0404	0501																18	Partially Remove 15" RCP
-L1- 22+30.61	LT	0501																		Tie Exist CMP to Structure
		0501	0534																13	Partially Remove 12" CMP
-L1- 23+03.00	LT	0534																		
		0534	0503																	
-L1- 23+90.00	LT	0503																		
		0503	0506																154	Remove 15" RCP
-L1- 24+18.32	LT	0502																		Remove CB
		0502	0504																	
-L1- 24+42.53	LT	0504																		Remove CB
		0504	0505																	
-L1- 25+01.02	LT	0505																		
		0505	0506																	
-L1- 25+40.00	LT	0506																		Remove CB
		0506	0529																	
-L1- 26+30.00	LT	0529																		
		0529	0507																	
-L1- 26+42.66	LT	0532																		Remove CB, Tie Exist. Pipes to 0532
		0532	0507																117	Remove 36" RCP
-L1- 26+75.79	LT	0507																		
		0507	0510																335	Remove 24" and 36" RCP
		0508																		
SHEET TOTALS													1	1					930	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: R. Brumfield DATE: 2/24/2009

CHECKED BY: D. Gourley DATE: 2/24/2009

PROJECT NO.	SHEET NO.
R-2632AA	3C

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	R.C. PIPE CLASS III 15"	R.C. PIPE CLASS III 18"	R.C. PIPE CLASS III 24"	R.C. PIPE CLASS III 48"	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	TYPE OF GRATE E	TYPE OF GRATE F	TYPE OF GRATE G	CONCRETE TRANSITIONAL SECTION DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	T.B.J.B. STD. 840.34	M.H. STD. 840.54	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
		0508	0525		773.92	767.041		196																	92	Remove 24" RCP
-L1- 31+50.00	LT	0525		770.291								1			1		1									
		0525	0509		767.041	761.785		148																		
-L1- 30+01.75	LT	0526		765.798								1							1	1	1					
		0526	0509		762.547	761.785		32																		
-L1- 30+01.75	LT	0509		765.036								1			1		1									
		0509	0535		761.785	758.895		148																		
-L1- 28+55.62	LT	0535		762.145								1										1	1			Tie Exist. RCP to Structure
		0535	0510		758.145	753.83				108															160	Remove 24" RCP
-L1- 27+48.17	LT	0510		759.509								1	2.7		1		1									
		0510	0533		751.83	751.455																				
		0533	0518		751.455	742.998					92													1.0126		Exist. 48" RCP
-L1- 23+90.12	RT	0511		763.398								1			1		1									
		0511	0512		760.148	755.5		208																		
-L1- 24+31.00	LT	0528		763.308								1							1	1	1					
		0528	0527		758.627	757.161	X	164																		
-L1- 25+98.00	LT	0527		760.411								1							1	1	1					
		0527	0512		757.1	755.5		64																		
-L1- 25+98.00	RT	0512		759.771								1			1		1									
		0512	0514		755.5	754.95	X	76																		
-L1- 26+75.79	RT	0513		760.216								1							1	1	1					
		0513	0514		755.5	754.95		28																		
-L1- 26+75.79	RT	0514		759.499								1			1	1										
		0514	0518		754.95	754.15	X	80																		
-L1- 41+65.00	LT	0601		797.123								1			1		1								162	Remove 24" 18" and 15" CMP
		0601	0614		793.873	788.135		204																		
-L1- 39+60.10	RT	0602		791.848								1			1			1							104	Remove 18" RCP
		0602	0614		788.598	788.135	X	92																		
-L1- 39+60.00	LT	0614		791.535								1			1		1								28	Remove 15" HDPE
		0614	0515		788.135	778.936		428																		
-L1- 35+30.00	LT	0515		782.186								1			1		1								113	Remove 24" RCP
		0515	0516		778.936	777	X	104																		
-L1- 35+09.00	RT	0516		781.91								1			1			1							45	Remove 18" RCP
		0516	0530		776.93	768.745			304																	
-L1- 32+05.00	RT	0530		772.245								1			1			1								
		0530	0517		768.744	759.31			276																	
-L1- 29+27.85	RT	0517		762.812								1			1			1								
		0517	0518		759.3	756	X		168																	Tie Structure to Exist. RCP
-L1- 27+58.08	RT	0518		759.855								1	5.0	7.0	1			1								Exist. 48" RCP
		0518	0536		742.814	739.41					40															
-L1- 45+63.65	LT	0603		799.533								1			1	1										
		0603	0604		796.283	795.583		72																		
-L1- 51+93.00	LT	0701		810.266								1			1		1									
		0701	0605		807.016	800.073		344																	148	Remove 24" and 15" RCP
-L1- 48+50.00	LT	0605		803.323								1			1		1									
		0605	0604		800.073	795.583		212																	28	Remove 15" RCP
-L1- 46+35.28	LT	0604		799.805								1			1		1									
		0604	0609		794.833	794.45				16																
		0609	0613		794.45	794.022																		0.5526		Exist 24" RCP
SHEET TOTALS								2600	748	124	132	23.0	7.7	7.0	18	2	11	5	4	4	4	1	1	1.6	880	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: R. Brumfield DATE: 2/24/2009

CHECKED BY: D. Gourley DATE: 2/24/2009

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2632AA	3D

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE	SIDE DRAIN PIPE THICKNESS OR GAUGE	C.S. PIPE SIZE	C.S. PIPE THICKNESS OR GAUGE	R.C. PIPE CLASS III	R.C. PIPE CLASS IV	** R.C. PIPE (CLASS V)	*** RC PIPE CULVERTS, CONTRACTOR DESIGN	**** RC PIPE CULVERTS, CONTRACTOR DESIGN	***** RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS R.C.P.	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A (5.0' THRU 10.0')	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. B (10.0' AND ABOVE)	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE F	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE G	CONCRETE TRANSITIONAL SECTION DROP INLET	CONCRETE TRANSITIONAL SECTION CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. STD. 840.16	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. STD. 840.54	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-L1- 46+21.75	LT	0611		800.457																		1						1																
		0611	0613		795.559	795.376						12																																		
-L1- 46+34.05	LT	0613		800.626																		1	1.7																						
		0613	0608		793.924	792.68																																							Exist. 24" RCP
-L1- 45+63.80	RT	0607		799.533																		1				1	1																		
		0607	0608		796.283	793.424						68																																		65	Remove 18" RCP
-L1- 46+50.00	RT	0606		803.323																		1				1		1																
		0606	0608		800.073	793.424						216																																		86	Remove 15" RCP
-L1- 46+31.91	RT	0608		799.764																		1	2.1			1		1																
		0608	0610		792.674	792.55	X						16																																	
-L1- 46+26.13	RT	0610		800.5																		1	3.0																						Tie Structure to 24" RCP
		0610	0615		792.51	791.96																																							Exist. 24" RCP
-L1- 55+45.00	LT	0702		812.271																		1				1		1																
		0702	0703		809.021	799.731						412																																		183	Remove 18" RCP
-L1- 59+60.00	LT	0703		802.981																		1				1		1																
		0703	0705		799.731	790.93						212																																			
-L1- 65+66.00	LT	0815		797.838																		1				1		1																
		0815	0801		794.588	792.883						112																																			
-L1- 64+54.00	LT	0801		796.133																		1				1		1																
		0801	0708		792.883	792.399	X					96																																			
		0717	0708		795.92	792.403	X					44																																		55	Remove 15" HDPE, Tie to Exist. Structure
-L1- 63+57.41	LT	0708		795.653																		1				1		1																
		0708	0709		791.649	791.572	X						16																																	
-L1- 63+42.00	LT	0710		796.528																		1							1		1	1											
		0710	0709		793.278	792.322						32																																		
-L1- 63+42.01	LT	0709		795.641																		1				1	1																	
		0709	0704		791.572	790.806	X						152																																	
-L1- 61+89.36	LT	0704		796.841																		1	1.0			1			1															Tie Exist. 15" HDPE to 0704
		0704	0705		790.806	790.18							16																																	
-L1- 61+74.03	LT	0705		796.941																		1	1.8			1			1															
		0705	0706		790.18	789.58							24																																	
		0706	0713		789.58	788.05																																					0.5526		Exist. 24" RCP
-L1- 55+90.00	RT	0715		811.95																		1				1		1																
		0715	0711		808.7	802.534						296																																		82	Remove 15" RCP
-L1- 58+84.50	RT	0714		805.694																		1							1		1	1											
		0714	0711		803.444	802.534						32																																		
-L1- 58+84.50	RT	0711		805.784																		1				1		1																
		0711	0713		802.534	788.75						280																																		25	Remove 15" RCP
-L1- 64+60.00	RT	0802		796.205																		1				1		1																
		0802	0712		792.955	792.238	X					116																																		
-L1- 63+42.09	RT	0712		795.488																		1				1	1																	
		0712	0713		792.238	788.75						176																																		
-L1- 61+64.44	RT	0713		797.111																		1				1		1																
		0713	0720		788	787.38																																							Exist. 24" RCP
SHEET TOTALS												2104	224									21.0	9.6			16	3	6	7	3		3	3								1	1	2						0.6	496	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
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COMPUTED BY: R. Brumfield DATE: 2/24/2009

CHECKED BY: D. Gourley DATE: 2/24/2009

PROJECT NO.	SHEET NO.
R-2632AA	3E

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
-L1- 67+22.00	RT	0824		799.332			
		0824	0826		796.082	794.85	X
-L1- 68+48.50	LT	0826		798.1			
		0826	0817		794.85	793.492	
-Y9- 9+10.00	RT	0822		797			
		0822	0823		793.75	793.1	
-Y9- 9+10.00	LT	0823		797			
		0823	0817		793	792.5	X
-L1- 68+48.50	LT	0817		796.742			
		0817	0816		792.4	791.6	
-L1- 69+31.00	LT	0816		795.687			
		0816	0804		791.5	790.8	X
-L1- 70+04.50	LT	0804		795.26			
		0804	0808		788.5	787.594	X
		0805	0808		787.3	786.384	
-L1- 79+00.08	LT	0916		806.939			
		0916	0917		803.689	803.602	X
-L1- 79+04.98	LT	0917		806.941			
		0917	0820		803.602	800.074	X
-L1- 76+05.00	LT	0819		804.146			
		0819	0820		800.896	800.074	
-L1- 76+05.00	LT	0821		803.616			
		0821	0820		800.366	800.074	
-L1- 76+05.00	LT	0820		803.324			
		0820	0806		800.074	798.559	X
-L1- 74+68.00	LT	0806		801.809			
		0806	0807		798.559	793.616	X
-L1- 72+10.00	LT	0825		796.887			
		0825	0807		793.531	793.4	X
-L1- 72+10.00	LT	0807		796.866			
		0807	0808		793.2	792.222	X
-L1- 71+11.78	LT	0808		795.744			
		0808	0827		784.007	783.87	
		0827	0809		783.87	782.74	
-L1- 70+74.97	LT	0809		796.66			
		0809	0814		782	780.25	
-L1- 69+11.34	RT	0810		796.123			
		0810	0811		792.873	792.214	X
-L1- 70+32.73	RT	0811		795.464			
		0811	0814		792.214	792.067	X
-L1- 77+80.00	RT	0818		804.903			
		0818	0803		801.653	799.709	X
-L1- 75+81.00	RT	0803		802.959			
		0803	0812		799.709	798.801	X
-L1- 74+82.00	RT	0812		802.051			
		0812	0813		798.801	793.454	X
-L1- 71+99.25	RT	0831		792.82			
		0831	0813		790.07	789.978	X
SHEET TOTALS							

STATION	FROM	TO	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
-L1- 67+22.00	0824																					
	0824	0826																				
-L1- 68+48.50	0826																					
	0826	0817																				
-Y9- 9+10.00	0822																					
	0822	0823																				
-Y9- 9+10.00	0823																					
	0823	0817																				
-L1- 68+48.50	0817																					
	0817	0816																				
-L1- 69+31.00	0816																					
	0816	0804																				
-L1- 70+04.50	0804																					
	0804	0808																				
	0805	0808																				
-L1- 79+00.08	0916																					
	0916	0917																				
-L1- 79+04.98	0917																					
	0917	0820																				
-L1- 76+05.00	0819																					
	0819	0820																				
-L1- 76+05.00	0821																					
	0821	0820																				
-L1- 76+05.00	0820																					
	0820	0806																				
-L1- 74+68.00	0806																					
	0806	0807																				
-L1- 72+10.00	0825																					
	0825	0807																				
-L1- 72+10.00	0807																					
	0807	0808																				
-L1- 71+11.78	0808																					
	0808	0827																				
	0827	0809																				
-L1- 70+74.97	0809																					
	0809	0814																				
-L1- 69+11.34	0810																					
	0810	0811																				
-L1- 70+32.73	0811																					
	0811	0814																				
-L1- 77+80.00	0818																					
	0818	0803																				
-L1- 75+81.00	0803																					
	0803	0812																				
-L1- 74+82.00	0812																					
	0812	0813																				
-L1- 71+99.25	0831																					
	0831	0813																				
SHEET TOTALS																						

STATION	FROM	TO	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
-L1- 67+22.00	0824																	
	0824	0826		128														
-L1- 68+48.50	0826																	
	0826	0817		44														
-Y9- 9+10.00	0822																	
	0822	0823		64														
-Y9- 9+10.00	0823																	
	0823	0817		76														
-L1- 68+48.50	0817																	
	0817	0816			80													
-L1- 69+31.00	0816																	
	0816	0804			72													
-L1- 70+04.50	0804																	
	0804	0808			108													
	0805	0808							36									
-L1- 79+00.08	0916																	
	0916	0917		16														
-L1- 79+04.98	0917																	
	0917	0820		300														
-L1- 76+05.00	0819																	
	0819	0820		32														
-L1- 76+05.00	0821																	
	0821	0820		12														
-L1- 76+05.00	0820																	
	0820	0806		136														
-L1- 74+68.00	0806																	
	0806	0807		256														
-L1- 72+10.00	0825																	
	0825	0807		24														
-L1- 72+10.00	0807																	
	0807	0808			96													
-L1- 71+11.78	0808																	
	0808	0827							8									
	0827	0809																
-L1- 70+74.97	0809																	
	0809	0814																
-L1- 69+11.34	0810																	
	0810	0811		120														
-L1- 70+32.73	0811																	
	0811	0814		28														
-L1- 77+80.00	0818																	
	0818	0803		200														
-L1- 75+81.00	0803																	
	0803	0812		100														
-L1- 74+82.00	0812																	
	0812	0813		280														
-L1- 71+99.25	0831																	
	0831	0813		16														
SHEET TOTALS				1832	356				44									

STATION	FROM	TO	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
-L1- 67+22.00	0824									1							1	
	0824	0826																
-L1- 68+48.50	0826									1								
	0826	0817																
-Y9- 9+10.00	0822									1								
	0822	0823																
-Y9- 9+10.00	0823									1								
	0823	0817																
-L1- 68+48.50	0817									1			1			1		
	0817	0816																
-L1- 69+31.00	0816									1			1			1		
	0816	0804																
-L1- 70+04.50	0804									1	1.8		1	1				
	0804	0808																
	0805	0808																
-L1- 79+00.08	0916									1								
	0916	0917																
-L1- 79+04.98	0917									1			1		1			
	0917	0820																
-L1- 76+05.00	0819									1							1	
	0819	0820																
-L1- 76+05.00	0821									1								
	0821	0820																
-L1- 76+05.00	0820									1			1		1			
	0820	0806																
-L1- 74+68.00	0806									1			1		1			
	0806	0807																
-L1- 72+10.00	0825									1								
	0825	0807																
-L1- 72+10.00	0807									1			1		1			
	0807	0808																
-L1- 71+11.78	0808									1	5.0	1.7	1		1			
	0808	0827																
	0827	0809																
-L1- 70+74.97	0809									1	3.6							
	0809	0814																
-L1- 69+11.34	0810									1			1		1			
	0810	0811																
-L1- 70+32.73	0811									1			1	1				
	0811	0814																
-L1- 77+80.00	0818									1			1			1		
	0818	0803																
-L1- 75+81.00	0803									1			1			1		
	0803	0812																
-L1- 74+82.00	0812									1			1			1		
	0812	0813																
-L1- 71+99.25	0831									1								
	0831	0813																
SHEET TOTALS										23.0	10.4	1.7	13	2	6	5	2	

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. STD. 840.54			DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-L1- 67+22.00	0824		1	1																	
	0824	0826																		215	Remove 18" RCP
-L1- 68+48.50	0826											1		1							
	0826	0817																			
-Y9- 9+10.00	0822		1	1																	
	0822	0823																			
-Y9- 9+10.00	0823		1	1																	
	0823	0817																			
-L1- 68+48.50	0817																				
	0817	0816																			
-L1- 69+31.00	0816																				
	0816	0804																		140	Remove 24" RCP
-L1- 70+04.50	0804																				
	0804	0808																			
	0805	0808																			
-L1- 79+00.08	0916		1	1																	
	0916	0917																			
-L1- 79+04.98	0917																				
	0917	0820																		39	Remove 15" RCP
-L1- 76+05.00	0819		1	1																	
	0819	0820																		29	Remove 15" RCP
-L1- 76+05.00	0821		1	1																	
	0821	0820																			
-L1- 76+05.00	0820																				
	0820	0806																			
-L1- 74+68.00	0806																				
	0806	0807																		28	Remove 15" RCP
-L1- 72+10.00	0825		1	1																	
	0825	0807																			
-L1- 72+10.00	0807																				
	0807	0808																		16	Remove 15" RCP
-L1- 71+11.78	0808																				
	0808	0827																			
	0827	0809																	0.8856		Exist. 42" RCP
-L1- 70+74.97	0809											1		1							Convert DI to JBw/MH
	0809	0814																			Exist. 42" RCP
-L1- 69+11.34	0810																				
	0810	0811																		26	Remove 15" RCP
-L1- 70+32.73	0811																				
	0811	0814																			
-L1- 77+80.00	0818																				
	0818	0803																			
-L1- 75+81.00	0803																				
	0803	0812																			
-L1- 74+82.00	0812																				
	0812	0813																			
-L1- 71+99.25	0831		1	1																	
	0831	0813																			
SHEET TOTALS			8	8								2		2					0.9	493	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: R. Brumfield DATE: 2/24/2009

CHECKED BY: D. Gourley DATE: 2/24/2009

PROJECT NO.	SHEET NO.
R-2632AA	3F

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
-L1- 71+99.25	RT	0813		796.704			
		0813	0814		789.728	789.043	X
-L1- 70+62.21	RT	0814		795.503			
		0814	0850		780.25	778.39	
-Y10- 94+79.14	RT	1301			811.496	810.702	
-Y10- 88+33.32	RT	1302			813.47	813.375	
-Y10- 86+70.85	RT	1303			813.947	813.872	
-Y10- 84+79.38	RT	1304			814.516	814.452	
-Y10- 83+46.25	RT	1305			814.95	814.817	
-Y10- 87+09.11	RT	1306			813.94	813.75	
-Y10- 99+00.00	RT	0918		805.52			
		0918	0919		802.02	801.17	X
-L1- 80+17.27	LT	0919		809.643			
		0919	0920		801.17	796.44	
-Y10- 101+00.00	RT	0920		804.5			
		0920	0921		793.007	791.15	
-Y10- 96+00.00	LT	0922		814.433			
		0922	0903		811.183	809.903	
-Y10- 97+00.00	LT	0903		813.153			
		0903	0904		809.903	805.613	
-Y10- 99+00.00	LT	0904		810.613			
		0904	0905		805.613	798.5	
-L1- 82+00.00	LT	0905		802.2			
		0905	0906		797.75	797.239	X
-L1- 81+93.98	RT	0906		807.279			
		0906	0907		797.239	797.025	X
-L1- 82+04.78	RT	0907		807.644			
		0907	0923		797.025	796.5	
		0923	0925		796.5	796	X
-Y10- 102+27.00	LT	0925		796			
		0925	0924		792.3	791.2	X
-Y10- 104+20.50	RT	1401		801.227			
		1401	0930		797.977	795.13	
-Y10- 103+98.55	RT	0930		798.38			
		0930	0924		795.13	793.2	
-Y10- 102+45.17	RT	0924		797.2			
		0924	0921		791.2	790.7	X
-Y10- 101+89.37	RT	0921		797			
		0921	0926		790.7	790.14	X
-Y10- 103+76.91	LT	0929			797.734	797.189	
SHEET TOTALS							

STATION	FROM	TO	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	SIDE DRAIN 15"	SIDE DRAIN 18"	SIDE DRAIN 24"	SIDE DRAIN 30"	SIDE DRAIN 36"	SIDE DRAIN 42"	SIDE DRAIN 48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	C.S. 15" .064	C.S. 18" .064	C.S. 24" .064	C.S. 30" .079	C.S. 36" .079	C.S. 42" .109	C.S. 48" .109	R.C. PIPE CLASS III 12"	III 15"	III 18"	III 24"	III 30"	III 36"	III 42"	III 48"	R.C. PIPE CLASS IV 12"	IV 15"	IV 18"	IV 24"	IV 30"	IV 36"	IV 42"	IV 48"	** " R.C. PIPE (CLASS V)	**** RC PIPE CULVERTS, CONTRACTOR DESIGN	*** RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE
	0813	0814																							136																		
-Y10- 94+79.14	1301																								52																		
-Y10- 88+33.32	1302																								32																		
-Y10- 86+70.85	1303																								28																		
-Y10- 84+79.38	1304																								24																		
-Y10- 83+46.25	1305																																44										
-Y10- 87+09.11	1306																																32										
	0918	0919																							60																		
	0920	0921																								92																	
	0922	0903																						100																			
	0903	0904																						200																			
	0904	0905																						112																			
	0905	0906																								100																	
	0906	0907																								44																	
	0907	0923																								36																	
	0925	0924																								160																	
	1401	0930																						64																			
	0930	0924																						152																			
	0924	0921																								56																	
	0921	0926																									60																
-Y10- 103+76.91	0929																								52																		
SHEET TOTALS																								628	384	488	60						76										

STATION	FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	ENDWALLS C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CONCRETE TRANSITIONAL SECTION CATCH BASIN
-L1- 71+99.25	0813				1	2.0		1			1		
-L1- 70+62.21	0814				1	5.0	5.3	1			1		
-Y10- 99+00.00	0918				1								
-L1- 80+17.27	0919				1	3.5							
-Y10- 101+00.00	0920				1	5.0	1.5						
-Y10- 96+00.00	0922				1							1	
-Y10- 97+00.00	0903				1							1	
-Y10- 99+00.00	0904				1	0.0						1	
-L1- 82+00.00	0905				1								
-L1- 81+93.98	0906				1	5.0	0.0					1	
-L1- 82+04.78	0907				1	5.0	0.6	1		1			
-Y10- 102+27.00	0925				1								
-Y10- 104+20.50	1401				1							1	
-Y10- 103+98.55	0930				1								
-Y10- 102+45.17	0924				1	1.0							
-Y10- 101+89.37	0921				1	1.3							
SHEET TOTALS					16.0	27.7	7.4	3		1	2	5	

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. STD. 840.54			DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
	0813	0814																		21	Remove 15" RCP
-L1- 70+62.21	0814																				Tie to Exist. 42" RCP
	0814	0850																			Exist. 42" RCP
-Y10- 94+79.14	1301																			41	Remove 15" RCP
-Y10- 88+33.32	1302																			42	Remove 18" RCP
-Y10- 86+70.85	1303																			21	Remove 15" RCP
-Y10- 84+79.38	1304																			41	Remove 15" RCP
-Y10- 83+46.25	1305																			49	Remove 15" RCP
-Y10- 99+00.00	0918					1			1												
-L1- 80+17.27	0919												1	1							Tie to Exist. 24" RCP
	0919	0920																			Exist. 24" RCP
-Y10- 101+00.00	0920											1		1						22	Tie to Exist. 24" RCP
	0920	0921																			Partially Remove 24" RCP
-Y10- 96+00.00	0922		1	1																	
-Y10- 97+00.00	0903		1	1																	
	0903	0904																		40	Remove 15" RCP
-Y10- 99+00.00	0904		1	1																	
-L1- 82+00.00	0905				1				1												
	0905	0906																		121	Remove 18" RCP
-L1- 81+93.98	0906		1	1																	
	0923	0925																			Proposed Ditch
-Y10- 102+27.00	0925						1		1												
	0925	0924																		75	Remove 24" RCP
-Y10- 104+20.50	1401		1	1																	
-Y10- 103+98.55	0930		1	1																	Remove DI
-Y10- 102+45.17	0924				1				1												
	0924	0921																		56	Remove 15" RCP and DI
-Y10- 101+89.37	0921				1				1												
	0921	0926																		72	Remove 24" RCP and DI
																					Tie to Exist. Structure
SHEET TOTALS			6	6	3	1	1		5			1	1	2						601	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: R. Brumfield DATE: 2/24/2009

CHECKED BY: D. Gourley DATE: 2/24/2009

PROJECT NO.	SHEET NO.
R-2632AA	3G

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
-Y10- 105+43.63	LT	1403	1404		798.961	798.44	
-Y10- 105+41.68	LT	1404	1405		798.44	797.45	
-Y10- 105+39.54	RT	1405	1406		797.45	796.733	
-Y10- 109+44.90	LT	1407	1408		800.914	800.66	
-Y10- 109+45.88	LT	1408	1409		800.66	800.13	
-Y10- 109+47.71	RT	1409	1410		800.13	799.652	
-L1- 85+00.00	LT	0915		809.41			
		0915	0908		806.41	803.995	
-L1- 86+58.00	LT	0908		807.245			
		0908	0909		803.995	803.283	X
-L1- 91+00.00	LT	0927		808.896			
		0927	0901		805.646	804.129	X
-L1- 89+00.02	LT	0901		807.379			
		0901	0909		804.129	803.629	X
-L1- 88+00.00	LT	0909		806.981			
		0909	0933		797.978	795.5	
-L1- 90+20.89	LT	0928			772.03	771	
-L1- 87+00.00	RT	0911		807.53			
		0911	0912		804.28	803.78	X
-L1- 91+67.00	RT	0913		809.336			
		0913	0914		806.086	804.989	X
-L1- 90+00.00	RT	0914		808.239			
		0914	0912		804.989	803.953	X
-L1- 88+00.00	RT	0912		807.203			
		0912	0932		801.46	798.3	
-L1- 95+76.04	RT	1001			806.25	805.56	
-Y9- 7+52.95	RT	0828			808.077	806.264	
-Y9- 7+96.52	RT	0829			804.996	803.701	
-Y9- 7+91.21	LT	0830			805.813	804.445	
-Y10- 110+89.50	LT	1411			796.11	794.92	
-Y10- 112+19.57	LT	1412			790.44	788.02	
SHEET 3G TOTALS							
SHEET 3F TOTALS							
SHEET 3E TOTALS							
SHEET 3D TOTALS							
SHEET 3C TOTALS							
SHEET 3B TOTALS							
SHEET 3A TOTALS							
SHEET 3 TOTALS							
SHEET TOTALS							

SIZE / THICKNESS OR GAUGE	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109

STATION	FROM	TO	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 18"
-Y10- 105+43.63	1403	1404		32							
-Y10- 105+41.68	1404	1405									
-Y10- 105+39.54	1405	1406		40							
-Y10- 109+44.90	1407	1408		20							
-Y10- 109+45.88	1408	1409									
-Y10- 109+47.71	1409	1410		36							
-L1- 85+00.00	0915										
	0915	0908		156							
-L1- 86+58.00	0908										
	0908	0909		140							
-L1- 91+00.00	0927										
	0927	0901		200							
-L1- 89+00.02	0901										
	0901	0909		100							
-L1- 88+00.00	0909										
	0909	0933		28							
-L1- 90+20.89	0928				80						
-L1- 87+00.00	0911										
	0911	0912		100							
-L1- 91+67.00	0913										
	0913	0914		168							
-L1- 90+00.00	0914										
	0914	0912		200							
-L1- 88+00.00	0912										
	0912	0932		40							
-L1- 95+76.04	1001				36						
-Y9- 7+52.95	0828										32
-Y9- 7+96.52	0829				24						
-Y9- 7+91.21	0830				24						
-Y10- 110+89.50	1411										24
-Y10- 112+19.57	1412										48
SHEET 3G TOTALS				1260	164						104
SHEET 3F TOTALS				628	384	488	60				76
SHEET 3E TOTALS				1832	356				44		
SHEET 3D TOTALS				2104		224					
SHEET 3C TOTALS				2600	748	124				132	
SHEET 3B TOTALS			44	768	148	356	76	52	72		
SHEET 3A TOTALS				976	436	1200					
SHEET 3 TOTALS				1412	104	272					
SHEET TOTALS			44	11580	2340	2664	136	52	116	132	180

Other column headings (no entries on this sheet): R.C. PIPE CLASS IV 12", 15", 24", 30", 36", 42", 48"; ** " R.C. PIPE (CLASS V); ***" RC PIPE CULVERTS, CONTRACTOR DESIGN; ***" RC PIPE CULVERTS, CONTRACTOR DESIGN; 15" SIDE DRAIN PIPE; 18" SIDE DRAIN PIPE; ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. / C.S.P.; CONCRETE TRANSITIONAL SECTION

STATION	FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	DROP INLET	CATCH BASIN
-L1- 85+00.00	0915		1			1			1		
-L1- 86+58.00	0908		1			1			1		
-L1- 91+00.00	0927		1			1		1			
-L1- 89+00.02	0901		1			1		1			
-L1- 88+00.00	0909		1	4.0		1	1				
-L1- 87+00.00	0911		1			1		1			
-L1- 91+67.00	0913		1			1			1		
-L1- 90+00.00	0914		1			1			1		
-L1- 88+00.00	0912		1	0.7		1	1				
SHEET 3G TOTALS			9.0	4.7		9	2	3	4		
SHEET 3F TOTALS			16.0	27.7	7.4	3		1	2	5	
SHEET 3E TOTALS			23.0	10.4	1.7	13	2	6	5	2	
SHEET 3D TOTALS			21.0	9.6		16	3	6	7	3	
SHEET 3C TOTALS			23.0	7.7	7.0	18	2	11	5	4	
SHEET 3B TOTALS			24.0	21.7	6.2	21	6	5	10	2	
SHEET 3A TOTALS			22.0	8.0		18		10	8	3	
SHEET 3 TOTALS			20.0	11.1	0.5	10	2	5	3	7	
SHEET TOTALS			158.0	100.9	22.9	108	17	47	44	26	

STATION	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. STD. 840.54
SHEET 3G TOTALS												
SHEET 3F TOTALS	6	6	3	1	1		5			1	1	2
SHEET 3E TOTALS	8	8								2		2
SHEET 3D TOTALS	3	3								1	1	2
SHEET 3C TOTALS	4	4									1	1
SHEET 3B TOTALS	2	2								1		1
SHEET 3A TOTALS	3	3								1		1
SHEET 3 TOTALS	8	8								1	1	2
SHEET TOTALS	34	34	3	1	1		5			7	4	11

Other column headings (no entries on this sheet): DRAINAGE PIPE ELBOWS NO. & SIZE; CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71

STATION	FROM	TO	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-Y10- 105+43.63	1403	1404		356	Remove 15" RCP, 15" CPP, 3-MH, DI
-Y10- 105+41.68	1404	1405	0.399		Existing 15" RCP
-Y10- 105+39.54	1405	1406	0.399		Existing 15" RCP
-Y10- 109+45.88	1408	1409	0.399		Existing 15" RCP
-Y10- 109+47.71	1409	1410	0.399		Existing 15" RCP
-L1- 90+20.89	0928		0.5526		Tie to Exist. 24" RCP
-L1- 95+76.04	1001			130	Remove 18" and 24" RCP
-Y9- 7+52.95	0828			25	Remove 15" RCP
-Y9- 7+96.52	0829			21	Remove 15" RCP
-Y9- 7+91.21	0830			25	Remove 15" RCP
-Y10- 110+89.50	1411			21	Remove 15" RCP
-Y10- 112+19.57	1412			40	Remove 15" RCP
SHEET 3G TOTALS			2.1	618.0	
SHEET 3F TOTALS				601	
SHEET 3E TOTALS			0.9	493	
SHEET 3D TOTALS			0.6	496	
SHEET 3C TOTALS			1.6	880	
SHEET 3B TOTALS				930	
SHEET 3A TOTALS			0.6		
SHEET 3 TOTALS				45	
SHEET TOTALS			5.7	4063	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	4
R/W SHEET NO.	

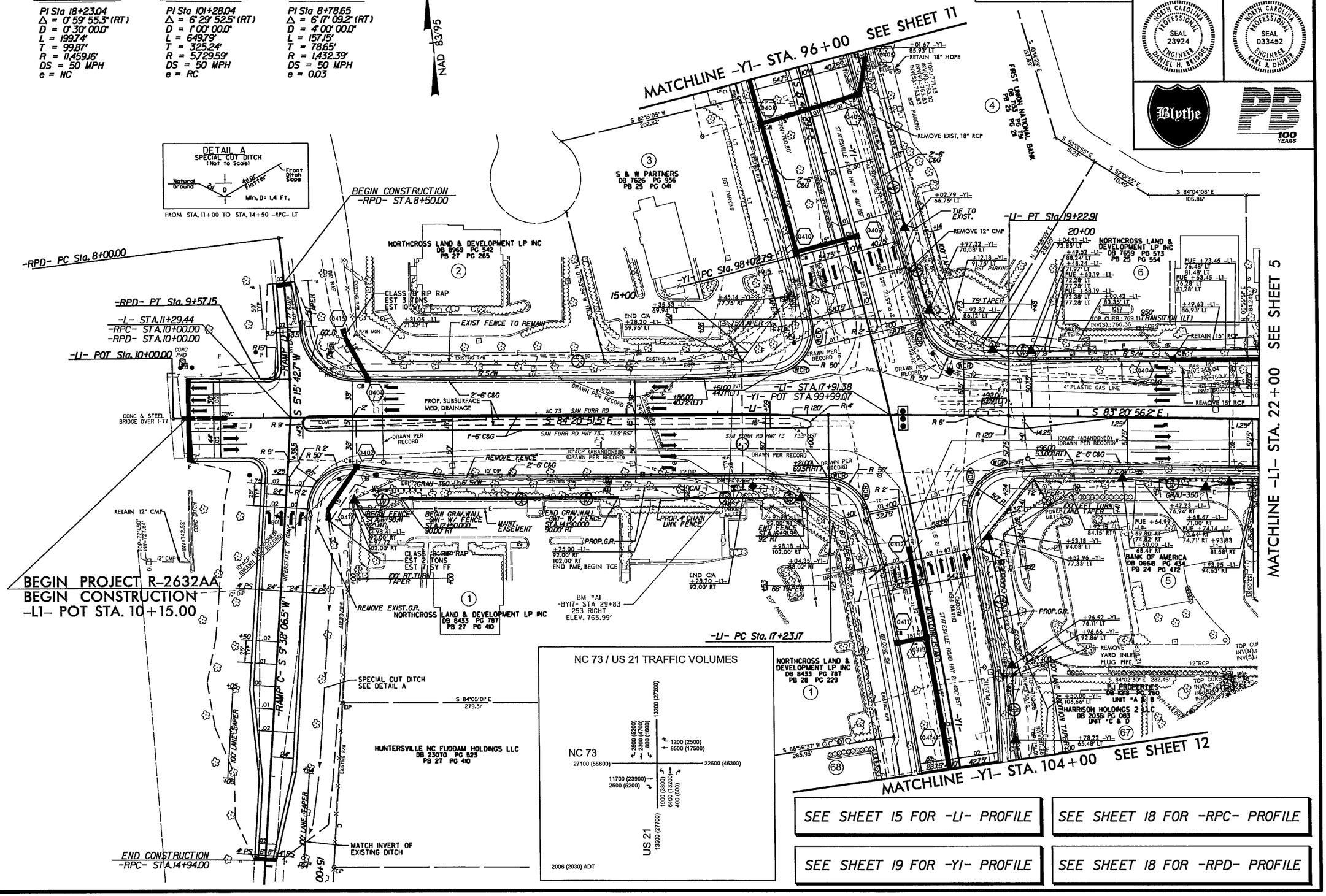
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER

Blythe — PB 100 YEARS

GRAPHIC SCALE 50 25 0 50 100 PLANS

-L1-	-Y1-	-RPD-
PI Sta 18+23.04	PI Sta 101+28.04	PI Sta 8+78.65
Δ = 0° 59' 55.3" (RT)	Δ = 6° 29' 52.5" (RT)	Δ = 6° 17' 09.2" (RT)
D = 0° 30' 00.0"	D = 1° 00' 00.0"	D = 4° 00' 00.0"
L = 199.74'	L = 649.79'	L = 157.15'
T = 99.87'	T = 325.24'	T = 78.65'
R = 11,459.16'	R = 5,729.59'	R = 1,432.39'
DS = 50 MPH	DS = 50 MPH	DS = 50 MPH
e = NC	e = RC	e = 0.03



SEE SHEET 15 FOR -L1- PROFILE

SEE SHEET 18 FOR -RPC- PROFILE

SEE SHEET 19 FOR -Y1- PROFILE

SEE SHEET 18 FOR -RPD- PROFILE

REVISIONS

8/17/99

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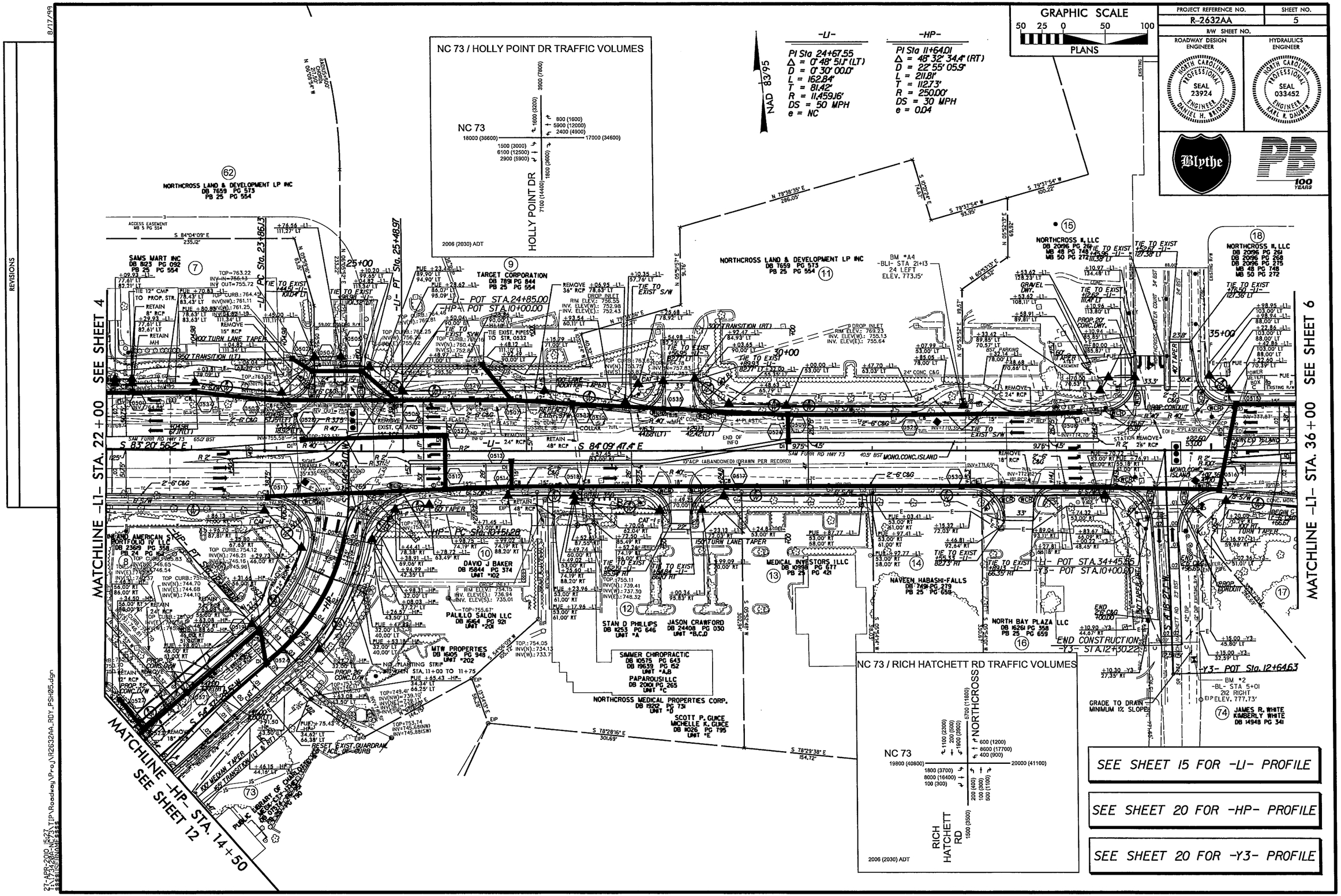

GRAPHIC SCALE
50 25 0 50 100
PLANS
PROJECT REFERENCE NO.
R-2632AA
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER
Blythe
PB 100 YEARS
-L1-
PI Sta 24+67.55
Δ = 0° 48' 51.1" (LT)
D = 0° 30' 00.0"
L = 162.84'
T = 81.42'
R = 11,459.16'
DS = 50 MPH
e = NC
-HP-
PI Sta 11+64.01
Δ = 48° 32' 34.4" (RT)
D = 22° 55' 05.9"
L = 211.81'
T = 112.73'
R = 250.00'
DS = 30 MPH
e = 0.04
NAD 83/95
NC 73 / HOLLY POINT DR TRAFFIC VOLUMES
NC 73
HOLLY POINT DR
2006 (2030) ADT
NC 73 / RICH HATCHETT RD TRAFFIC VOLUMES
NC 73
NORTHCROSS
RICH HATCHETT RD
2006 (2030) ADT
MATCHLINE -L1- STA. 22+00 SEE SHEET 4
MATCHLINE -L1- STA. 36+00 SEE SHEET 6
MATCHLINE -HP- STA. 14+50 SEE SHEET 12
NORTHCROSS LAND & DEVELOPMENT LP INC
SAMS MART INC
TARGET CORPORATION
NORTHCROSS II, LLC
DAVID J BAKER
PALILLO SALON LLC
MTW PROPERTIES
STAN D PHILLIPS
JASON CRAWFORD
SIMMER CHIROPRACTIC
PAPAROUSI LLC
NORTHCROSS MEDICAL PROPERTIES CORP.
SCOTT P. GUICE
MICHELLE K. GUICE
MEDICAL INVESTORS LLC
NAVEEN HABASHI-FALLS
NORTH BAY PLAZA LLC
JAMES R. WHITE
KIMBERLY WHITE
END CONSTRUCTION -Y3- STA.12+30.22
-Y3- POT Sta. 12+64.63
SEE SHEET 15 FOR -L1- PROFILE
SEE SHEET 20 FOR -HP- PROFILE
SEE SHEET 20 FOR -Y3- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER

Blythe

PB 100 YEARS

REVISIONS 8/17/99

MATCHLINE -L1- STA. 36+00 SEE SHEET 5

MATCHLINE -L1- STA. 50+00 SEE SHEET 7

NAD 83/95

NORTHCROSS II, LLC
DB 20196 PG 261
DB 20196 PG 268
DB 20196 PG 275
MB 48 PG 148
MB 50 PG 272

KNOCKANDO LANE

EXISTING R/W

-L1- POC STA.38+68.90
-Y4- POT STA.10+00.00

-L1- POC STA.44+89.73
-Y5- POT STA.10+00.00

SIDE TRIM EXIST. TREES

TIE TO EXIST C&G

100' LT./RT. TURN LANE TAPER

175' TRANSITION (LT.)

BM "A6"
-BL- STA 11+06
93 LEFT
ELEV. 796.60'

KAUFINGER STREET

REMOVE 24" RCP

REMOVE 15" CMP

PROP. SUBSURFACE MED. DRAINAGE

PROP. CONDUIT

PROP. 3" CONDUIT

REMOVE 18" RCP

REMOVE 15" RCP

RETAIN 24" RCP

PROP. 20' CONC. D/W

6' S/W

8' S/W

2'-6" C&G

4" PLASTIC

10" ACP

8" VCP

JAMES B. CAMPBELL
REBECCA A. CAMPBELL
DB 19267 PG 428

CHRISTOPHER A. CKEZEPIS
DB 18668 PG 520

WESLEY JAYNE PETHEL
DB 20097 PG 0476

CHRISTINE GIRALDO
DB 21050 PG 783

VICTOR M. DEPOALO
SANDRA A. DEPOALO
DB 20671PG 983

JASON HARTMAN
DB 19681 PG 303

CAVERIDGE GROVE HOMEOWNERS ASSOCIATION, INC.
DB 8239 PG 461

THE HOWEY COMPANY, INC.
DB 6230 PG 395

BLYTHE LACKEY CLAN, LLC
DB 12660 PG 516

GREGORY M. BATTLE
CATHY L.N. BATTLE
DB 13167 PG 221

JAMES E. BREWER
SHARRON BREWER
DB 18076 PG 584

PATSY KIMBALL PHILLIPS
WILLIAM HENRY PHILLIPS
DB 12705 PG 0511

ROMME L. HAWKINS
EMMA JEAN HAWKINS
DB 17454 PG 854

PAUL D. BRODLAND
MEREDITH C. BRODLAND
DB 15834 PG 641

THOMAS MOEN
BARRIE MOEN
DB 20684 PG 469

KONSTANTINOS T. KAZAKOS
EVANGELIA KAZAKOS
DB 13521 PG 668

JOHN DAVID BLANTON
DB 9066 PG 599

JAMES M. PETTIS
FLORITTA M. PETTIS
DB 12842 PG 010

JEFFREY M. POPE
CHRISTY C. POPE
DB 8486 PG 293

NANCY P. PERALTA
DB 23847 PG 157

JAMES M. HOPKINS, JR.
DESNA K. HOPKINS
DB 7706 PG 738
DB 23504 PG 735

TIMOTHY K. HOFF
KATHRYN L. HOFF
DB 19659 PG 120

END CONSTRUCTION -Y4- STA.11+73.00

END CONSTRUCTION -Y5- STA.11+64.50

SEE SHEET 21 FOR -Y4- PROFILE

SEE SHEET 16 FOR -L1- PROFILE

SEE SHEET 21 FOR -Y5- PROFILE

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GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBEN

Blythe

PB 100 YEARS

REVISIONS 8/17/99

-Y6-
PI Sta 8+64.65
Δ = 16° 20' 59.5" (RT)
D = 12° 43' 56.6"
L = 128.41'
T = 64.65'
R = 450.00'
DS = 30 MPH
e = NC

-LI-
PI Sta 58+15.67
Δ = 2° 42' 21.7" (LT)
D = 0° 30' 00.0"
L = 541.20'
T = 270.65'
R = 11,459.16'
DS = 50 MPH
e = NC

-LI-
PI Sta 63+62.64
Δ = 2° 45' 49.1" (RT)
D = 0° 30' 00.0"
L = 552.73'
T = 276.42'
R = 11,459.16'
DS = 50 MPH
e = NC

NAD 83/95

99.00' (D)
S 83°43'04" E 112.00' (TOTAL)

CAMBRIDGE GROVE HOMEOWNERS ASSOCIATION, INC. DB 8239 PG 461 (29)

THERESA D. PISELLI
RICH PISELLI
NELDA B. WAGNER
STEPHEN M. WAGNER
STEFANIE W. KIPP
ERIC T. KIPP
DB 17993 PG 093 (31)

DOUGLAS J. RUNYON
TRACY L. RUNYON
DB 13874 PG 205

HANSEL B. MEAD
ALMA JEAN MEAD
DB 13874 PG 086

PEGGY K. McCONNELL

GEOFFREY ALLEN WARD
VICTORIA ANNE WARD
DB 18746 PG 144

MICHAEL F. SLAVIK
LISA R. SLAVIK
DB 12954 PG 909

HAMPTON RIDGE HOMEOWNERS ASSOCIATION OF CHARLOTTE, INC.
DB 9054 PG 026

TOWN OF HUNTERSVILLE
DB 23554 PG 422

HAMPTON RIDGE HOMEOWNERS ASSOCIATION OF CHARLOTTE, INC.
DB 9054 PG 026 (38)

HAMPTON AT NORTHCROSS HOMEOWNER ASSOCIATION, INC.
DB 8647 PG 544 (28)

JAMES H. SIFFORD
EVANGELINE F. SIFFORD
DB 1574 PG 178 (30)

RODERICK BARNES
MA F. BARNES
DB 13875 PG 582

DONALD HARGRO, JR.
DB 2554 PG 493 (35)

THOMAS CRAVEN LAMBERT
WANDA HUDSON LAMBERT
DB 3661 PG 820 (37)

HAMPTON AT NORTHCROSS HOMEOWNERS ASSOCIATION, INC.
DB 8647 PG 544 (34)

DAVID WILLIS
DEBRA WILLIS
DB 17487 PG 894 (32)

ALORED E. WILLIAMS, JR.
DAPHNE D. WILLIAMS
DB 15261 PG 618

JOSEPH D. PEAK, ■
JANE P. PEAK
DB 12670 PG 737

ALAN DOVE
MISTY DOVE
DB 18869 PG 032

MARYLIA D. HAGER
DB 6334 PG 1866 (39)

-Y6- PC Sta. 8+00.00
BEGIN CONSTRUCTION
-Y6- STA. 8+30.00

-Y6- POT Sta. 8+00.29
BEGIN CONSTRUCTION
-Y8- STA. 8+84.00

-LI- PRC Sta. 60+86.22

-LI- PC Sta. 55+45.02

-LI- POT STA. 50+94.34
-Y6- POT STA. 10+00.00
-LI- POT STA. 54+07.81
-Y7- POT STA. 10+00.00

-LI- POC STA. 56+58.46
-Y8- POT STA. 10+00.00

END CONSTRUCTION
-Y7- STA. 11+00.00

-Y7- POT Sta. 12+00.00

MATCHLINE -LI- STA. 50+00 SEE SHEET 6

MATCHLINE -LI- STA. 64+00 SEE SHEET 8

SEE SHEET 16 FOR -LI- PROFILE

SEE SHEET 21 FOR -Y6- PROFILE

SEE SHEET 21 FOR -Y7- PROFILE

SEE SHEET 22 FOR -Y8- PROFILE

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8/17/99

REVISIONS

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. RIDGICS

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER CARL R. DAUBEN

Blythe

PB 100 YEARS

-LI-
PI Sta 63+62.64
Δ = 2° 45' 49.1" (RT)
D = 0° 30' 00.0"
L = 552.73'
T = 276.42'
R = 11,459.16'
DS = 50 MPH
e = NC

-DUKE-
PI Sta 11+81.55
Δ = 37° 50' 52.8" (LT)
D = 47° 44' 47.3"
L = 79.27'
T = 41.14'
R = 120.00'
e = NC

NAD 83/95

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2H, D, Front Ditch Slope, Fill or Flatter
Min. D= 1.1 Ft.
FROM STA. 7+25 TO STA. 9+10 -Y9- LT, RT

-Y9- POT Sta. 5+98.00
BEGIN CONSTRUCTION -Y9- POT STA.7+25.00
END CONSTRUCTION -DUKE- STA.12+15.00
-LI- POT STA.67+57.17 -Y9- POT STA.10+00.00
-LI- PT Sta. 66+38.95
-DUKE- PT Sta. 12+19.68
-DUKE- POT Sta. 12+23.79
-DUKE- PC Sta. 11+40.41
-DUKE- POT Sta. 11+09.14
-DUKE- POT STA.10+00.00
-DUKE- PI Sta. 10+49.99
-LI- POT STA.71+42.10

MATCHLINE -LI- STA. 64+00 SEE SHEET 7

MATCHLINE -LI- STA. 78+00 SEE SHEET 9

GARY DALE MARSHALL (75) LINDY MARSHALL DB 7098 PG 075
MELVIN WAYNE TAYLOR PENNY RICHARDS TAYLOR DB 1228 PG 068 (76)
BRIAN L. BURGE STACEY ROBINETTE BURGE DB 1628 PG 643 (46)
WILLIAM L. KITCHEL THOMAS D. SELF, SR. DEBORAH B. SELF THOMAS D. SELF, JR. DB 1460 PG 155 DB 22336 PG 169 (40)
MARK C. BRAGG DB 9486 PG 69 (41)
EVELYN P. DUTY DB 4618 PG 065 (42)
HAROLD TRUMAN HUBBARD SHARON J. HUBBARD DB 3802 PG 188 (44)
PATRICIA S. AUTEN JAMES LITTLE AUTEN, JR. CHERYL BREVARD A ROBINETTE DB 2415 PG 284 (48)
RAYMER FUNERAL HOME, INC. (FORMERLY ALMOND FUNERAL HOME) DB 5373 PG 808 (49)
HAMPTON RIDGE HOMEOWNERS ASSOCIATION OF CHARLOTTE, INC. DB 9054 PG 026 (38)
DONALD R. KNOX DORIS C. KNOX DB 2563 PG 241
CRESCENT ELECTRIC MEMBERSHIP CORP. DB 3200 PG 255
KATHY KNOX FREEZE DB 5148 PG 004 (43)
DUKE POWER COMPANY DB 3465 PG 195 (45)
HUNTERSVILLE CROSSING REAL ESTATE, LLC DB 18217 PG 053 DB 19888 PG 610 DB 20095 PG 094 (47)

CEDAR TREE

SEE SHEET 17 FOR -LI- PROFILE

SEE SHEET 22 FOR -Y9- PROFILE

SEE SHEET 24 FOR -DUKE- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. KRIDER

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER

Blythe

PB 100 YEARS

GRAPHIC SCALE
50 25 0 50 100
PLANS

REVISIONS 8/17/99

MATCHLINE -Y10- STA. 96+00 SEE SHEET 13

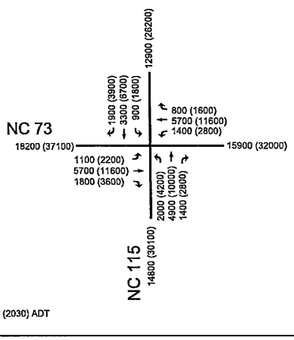
-Y10-
PI Sta 93+50.50
Δ = 10° 17' 05.6" (LT)
D = 0° 57' 17.7"
L = 1,077.03'
T = 539.97'
R = 6,000.00'
DS = 50 MPH
e = RC

-Y10-
PI Sta 103+10.84
Δ = 4° 50' 50.9" (LT)
D = 0° 34' 22.6"
L = 846.04'
T = 423.27'
R = 10,000.00'
DS = 50 MPH
e = NC

-LI-
PI Sta 83+01.68
Δ = 0° 45' 44.2" (RT)
D = 0° 15' 00.0"
L = 304.91'
T = 152.46'
R = 22,918.31'
DS = 50 MPH
e = See Plans

-LI-
PI Sta 86+06.59
Δ = 0° 45' 44.2" (LT)
D = 0° 15' 00.0"
L = 304.91'
T = 152.46'
R = 22,918.31'
DS = 50 MPH
e = NC

NC 73 / NC 115 TRAFFIC VOLUMES



2006 (2030) ADT

NAD 83/95

N 06°30'03" E

MATCHLINE -LI- STA. 78+00 SEE SHEET 8

MATCHLINE -LI- STA. 92+00 SEE SHEET 10

MATCHLINE -Y10- STA. 104+00 SEE SHEET 14

RAYMER FUNERAL HOME, INC. (FORMERLY ALMOND FUNERAL HOME) DB 5373 PG 808

KNOX-KELLY DB 13605 PG 92

HUNTERSVILLE CROSSING REAL ESTATE, LLC DB 16217 PG 053, DB 15888 PG 610, DB 20015 PG 094

SOTIRIOS TSILIMOS DB 6448 PG 52

RYLAND A. WINSTON, JR. DB 9760 PG 871

LCV INVESTMENTS, LLC DB 9107 PG 594

EDWARDS ENTERPRISES, INC. DB 10742 PG 441

SWEETGRASS LLC DB 24767 PG 232

CHARLES E. KNOX MURRAY G. KELLY JAMES LITTLE AUTEN, JR. DB 24274 PG 530

SPECIAL CUT DITCH SEE DETAIL C

SPECIAL LATERAL 'V' DITCH SEE DETAIL D

SPECIAL LATERAL 'V' DITCH SEE DETAIL F
CLASS 'I' RIP RAP EST 90 TONS EST 150 SY FF

10 LF OF CLASS 'I' RIP RAP ON BANKS ONLY, EST. 16 TONS SEE DETAIL G

-Y10- POC Sta. 98+87.56

-LI- STA. 83+41.98 NS RAILROAD

-LI- PT Sta. 87+59.05

-LI- PRC Sta. 84+54.14

-LI- PC Sta. 81+49.23

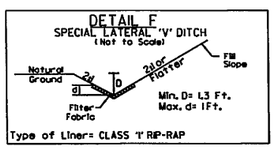
-Y10- POT STA. 80+89.38

-Y10- POC STA. 100+02.86

-LI- POT STA. 80+89.38

-LI- POC STA. 100+02.86

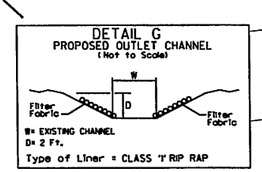
DETAIL F
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CLASS 'I' RIP-RAP

FROM STA. 88+00 TO STA. 90+22 -LI- LT

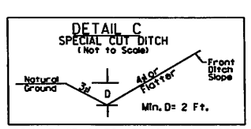
DETAIL G
PROPOSED OUTLET CHANNEL
(Not to Scale)



W= EXISTING CHANNEL
D= 2 Ft.
Type of Liner = CLASS 'I' RIP RAP

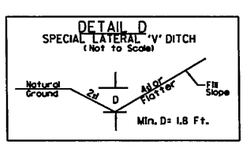
FROM STA. 90+33 -LI- LT

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 82+90 TO STA. 99+00 -Y10- RT
FROM STA. 102+28 TO STA. 104+25 -Y10- LT

DETAIL D
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 101+00 TO STA. 102+28 -Y10- LT

SEE SHEET 17 FOR -LI- PROFILE

SEE SHEET 23 FOR -Y10- PROFILE

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GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL K. DAUBER

Blythe

PB 100 YEARS

REVISIONS 8/17/99

-YII-
PI Sta 12+30.78
Δ = 80° 03' 34.3" (RT)
D = 32° 44' 25.6"
L = 244.53'
T = 147.00'
R = 175.00'
DS = 30 MPH
e = NC

-LI-
PI Sta 98+13.27
Δ = 21° 12' 47.4" (LT)
D = 4° 14' 38.9"
L = 499.82'
T = 252.81'
R = 1,350.00'
DS = 50 MPH
e = 0.06

-LI-
PI Sta 104+11.50
Δ = 24° 13' 05.6" (LT)
D = 3° 30' 00.0"
L = 691.95'
T = 351.22'
R = 1,637.02'
DS = 50 MPH
e = 0.08 (EXIST.)

NAD 83/95

N 372577.11
724.39

105+00

LOUISE G. HOWARD FAMILY INVESTMENTS, LLC
DB 8939 PG 409

END WIDENING
-L1- STA. 101+22.98
BEGIN RESURFACING

END PROJECT R-2632AA
END CONSTRUCTION
-L1- POC STA. 104+00.00

REMOVE CONCRETE CHANNEL TO -L1- STA. 101+50 TIE STANDARD DITCH TO EXISTING CONCRETE CHANNEL USING TOE WALL

REMOVE CONCRETE CHANNEL TO -L1- STA. 100+45 TIE STANDARD DITCH TO EXISTING CONCRETE CHANNEL USING TOE WALL

100+00

-L1- POC Sta. 100+60.28

95+00

-L1- PC Sta. 95+60.46

-YII- POT STA. 94+11.74

-YII- POT STA. 01+00.00

STA. 92+00 SEE SHEET 9

MATCHLINE -L1- STA. 92+00

-YII- PT Sta. 13+28.31

-YII- PC Sta. 10+83.79

CHARLES E. KNOX
MERRAY G. KELLY
JAMES LITTLE AUTEN, JR.
DB 24274 PG 530
54

SWEETGRASS, LLC
DB 7917 PG 232
53

DONCO PROPERTIES, LLC
DB 11846 PG 384
55

DEWHURST PROPERTIES, LLC
DB 8951 PG 805
56

MAXIM INVESTMENTS, LLC
DB 23466 PG 949

DEWHURST INVESTMENT CO.
DB 5529 PG 375
57

DEWHURST PROPERTIES, LLC
DB 8951 PG 805
58

THE TOWN OF HUNTERSVILLE
DB 7379 PG 84

HUNTERSVILLE HARDWOODS, INC.
DB 4098 PG 231

275' LANE TRANSITION (LT & RT)
150' ADD. LANE TAPER
600' LANE DROP TAPER
300' LANE SHIFT TAPER (LT & RT)
40' SHDR TAPER (LT & RT)
PROPOSED GR
PP-W9-08
GRAU-350
CAT 5
TIE TO EXIST C&G +89.80 -YII- 16.00 RT AND LT
END 2'-6 C&G +25.51 -D- 41.41 LT
END 2'-6 C&G +87.43 -LI- 41.19 RT
END CONSTRUCTION -YII- POC STA. 10+89.80
REMOVE 24" RCP
REMOVE 18" CMP
24" RCP
18" RCP
15" RCP
INV: 805.62
INV: 804.51
INV: 805.27
INV: 804.28
ASPHALT DRIVEWAY
ASPHALT DRIVEWAY +14.37 -LI- 64.43 RT
+49.91 -LI- 67.29 RT
+03.50 -LI- 68.53 RT
+02.36 -LI- 76.91 RT
+72.67 -LI- 76.09 RT
+40.20 -LI- 61.86 RT
+45.32 -LI- 49.19 RT
+76.56 -LI- 64.89 LT
+87.91 -LI- 49.26 LT
+00.00 -L1- 45.43 LT
+25.00 -L1- 55.50 LT
+78.28 -L1- 56.00 LT
+78.00 -L1- 36.00 LT
+90.70 -L1- 58.00 LT
+90.92 -L1- 58.00 LT
+05.24 -L1- 36.00 LT
+40.44 -L1- 36.00 LT
+29.79 -L1- 80.58 RT
+29.12 -L1- 72.51 RT
+96.06 -YII- 29.18 RT
BM #10 STA 67+29 96 RIGHT ELEV. 814.53'
CONC MON
EIP
FLAG POLE
TEST STATION
GAS VALVE
SIZE & TYPE UNKNOWN
SHRUB
ISMTLBUS
48" WD RAIL
MTL GATE
SAW FURR RD
NC 73
APH 35.17
S 87°09'40" E 1767.21'
S 87°09'40" E 1767.21'
S 07°04'41" E 218.25'
S 49°57'09" W 335.51'
S 69°42'04" E 165.61'
S 69°42'04" E 152.23' (D)
S 10°29'49" W 208.88' (D)
S 10°29'49" W 274.33'
S 10°29'49" W 341.85' (D)
S 04°29'09" W 552.18'
S 04°05'04" W 656.63' (D)

SEE SHEET 18 FOR -LI- PROFILE

SEE SHEET 24 FOR -YII- PROFILE

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8/17/99

REVISIONS

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBEN

Blythe

PB 100 YEARS

-Y1-
PI Sta 85+23.61
Δ = 1° 46' 30.9" (LT)
D = 0° 15' 00.0"
L = 710.10'
T = 355.08'
R = 22,918.31'
DS = 50 MPH
e = NC

NAD 83/95

N 88°31'20" E 673.92'

N 88°31'20" E 626.56'

85+00

90+00

95+00

-Y1- PT Sta. 88+78.63

TIE TO EXIST +47.89 -Y1- 130.18' LT

TIE TO EXIST +47.47 -Y1- 129.92' LT

26' R 2' R 50' R 50' 195.8 16' 16' 357.8 168' 40.75' 195.8 51.75' 127.5'

DWY1

BM #A2
BY17- STA 14+14
65 LEFT
ELEV. 728.25'

(60) VENTURES LLC NORTHCROSS LAND & DEVELOPMENT LIMITED PARTNERSHIP DB 07659 PG 580

(62) NORTHCROSS LAND & DEVELOPMENT LP INC DB 07659 PG 575 PB 25 PG 554

(65) FIRST-CITIZENS BANK & TRUST DAC 50 DB 8949 PG 454 PB 25 PG 554

WCR TO REMAIN

RETAIN 54" RCP

RETAIN 30" RCP INV=711.78

RIR ONLY INV=713.30'

INV=720.87'

24" BK RETAINING WALL (TYP)

6.5' BK WALL INV=712.33'

RETAIN 42" RCP

MATCH EXISTING C&G +7.55 42.52

TIE TO EXIST. STR. +00.01 -Y1- 64.03' LT

+71.63 -Y1- 54.03' LT

+60.87 -Y1- 45.99' LT

+47.43 -Y1- 65.15' LT

LANDSCAPED AREA

HEDGE ROW

48" CMP

8' CONC RETAINING WALL

437.5' LANE SHIFT TAPER (LT & RT)

12' MASONRY RETAINING WALL

48" CABLE

BIKE LANE

NORTHCROSS CENTER DR

STATESVILLE ROAD HWY 21

MONOLITHIC CONC. ISLAND

625 (LT) 600 (RT)

2400 600 (RT)

2500 852 (RT)

3900 1078 (RT)

5900 1098 (RT)

RETAIN 24" RCP

COLLAR

SIGHT TRIANGLE 70'X10' 35'X35'

BEGIN 2'-6" C&G

100' LANE ADDITION TAPER

+20.88 -Y1- 60.74' RT

+01.29 -Y1- 67.96' RT

+35.17 -Y1- 61.98' RT

+48.88 -Y1- 64.99' RT

174.99'

96.24' RT

+77.90 -Y1- 112.04' RT

+65.50 -Y1- 119.58' RT

TIE 24" RCP TO EXIST. DI

+70.66 -Y1- 128.13' RT

+80.28 -Y1- 122.27' RT

+34.68 -Y1- 90.98' RT

+97.45 -Y1- 46.85' RT

+60.58 -Y1- 50.29' RT

BEGIN CONSTRUCTION -Y1- PCC STA. 81+68.53

S 24°23'38" W 229.58'

HD DEVELOPMENT OF MARYLAND, INC AND % HOME DEPOT USA, INC DEED BOOK, PAGE 708 PARCEL #: 005-044-06

(59)

WILLIAM BROCK WAINSCOTT DB 14576 PG 236 PB 28 PG 761

(61)

CALDWELL CREEK DR

DROP INLET RIM EL.=728.61 INV. EL.(W)=: 720.61 INV. EL.(S)=: 721.61

DESIRE 8.4

TIE TO EXIST +8.99 -Y1- 87.54' RT

TIE TO EXIST +8.69 -Y1- 92.01' RT

N 10°45'16" W 47.78'

S 55°09'55" E 378.65'

-Y1- REMOVE 18" RCP

REMOVE ISLAND

MONO. CONC. ISLAND

2'-6" C&G TOP=745.70 INV=740.65

2' PLASTIC GAS LINE

1275'

TIE TO EXIST +47.89 -Y1- 130.18' LT

TIE TO EXIST +47.47 -Y1- 129.92' LT

+40.00 -Y1- 135.00' LT

+25.44 -Y1- 75.00' LT

REMOVE 24" RCP

+00.04 -Y1- 67.45' LT

+00.13 -Y1- 65.67' LT

+95.84 -Y1- 54.75' LT

DWY1

+85.13 -Y1- 135.00' LT

TIE TO EXIST. STR. +93.85 -Y1- 135.00' LT

REMOVE 15" RCP

+24.64 -Y1- 67.45' LT

REMOVE 18" RCP

PUE +95.22 -Y1- 54.75' LT 67.75' LT

PUE +17.22 -Y1- 54.75' LT 67.75' LT

BST PARKING

100' TURN LANE TAPER

RETAINING WALL

+42.17 -Y1- 111.51' LT

+33.77 -Y1- 67.75' LT

+30.22 -Y1- 54.75' LT 66.75' LT

TOP=754.86 INV=749.86 INV=749.36

TIE TO EXIST +47.49 -Y1- 105.58' LT

TIE TO EXIST +47.76 -Y1- 101.76' LT

REMOVE 15" RCP

ACCESS EASEMENT MB 5 PG 554

TOP=755.86 INV=751.89 INV=751.39 INV=752.00

N 80°00'59" E 200.00'

N 80°00'14" E 191.00'

+44.99 -Y1- 113.88' LT

+46.99 -Y1- 66.75' LT

INV=748.67' TOP=757.91'

REMOVE 15" RCP

REMOVE EXIST S/W

TOP=765.97 INV=758.20 INV=762.18

TIE TO EXIST. STR. TIE TO EXIST S/W +20.10 -Y1- 83.97' LT

BEGIN SE INC. (TYP.) +52.5' LT

BST PARKING

BIKE LANE

RETAINING WALL

S 10°14'50" E 218.5'

S 46° 29' E

REMOVE BRICK PAVER 15" RCP

INV=749.34 TOP=754.62 INV=748.22'

REMOVE 18" RCP

INV=743.95'

INV=750.34'

TOP=755.48 INV=751.48 INV OUT=755.02

STATESVILLE ROAD HWY 21 ALT BST

MONO. CONC. ISLAND

2'-6" C&G

6' S/W

BIKE LANE

RETAINING WALL

+41.01 -Y1- 66.75' LT

+53.50 -Y1- 81.48' LT

SIGHT TRIANGLE 35'X35' TO'X10'

+40.03 -Y1- 66.75' RT

+05.07 -Y1- 66.75' RT 80.37' RT

+85.07 -Y1- 66.75' RT 80.52' RT

+46.59 -Y1- 101.62' RT

TIE TO EXIST S/W

TIE TO EXIST +47.88 -Y1- 82.38' RT

+15.29 -Y1- 62.94' RT

+37.34 -Y1- 80.47' RT

+35.23 -Y1- 92.52' RT

TIE TO EXIST +47.88 -Y1- 87.56' RT

(63) CHICK-FIL-A INC DB 9329 PG 319 PB 34 PG 175

(64) GOLDEN ARCH LP DB 8642 PG 845 PB 34 PG 175

(66) SAMS MART INC DB 8808 PG 517 PB 25 PG 041

BST PARKING

TIE TO EXIST +87.34 -Y1- 86.59' RT

+38.71 -Y1- 93.32' RT

TIE TO EXIST +42.42 -Y1- 84.28' RT

+84.45 -Y1- 65.15' RT

+84.26 -Y1- 65.61' RT

RETAIN EXIST S/W

TIE TO EXIST S/W

TIE TO EXIST S/W

40'R INV=727.91'

EIPC

S 08°01'46" E 23.35'

S 82°06'02" W 169.41'

ACCESS EASEMENT 33' BST

S 82°06'58" E 40.59'

EXISTING R/W

60.00' EXISTING R/W

SIGHT TRIANGLE 35'X35'

INV=734.03'

TOP=745.53'

CALDWELL CREEK DR

EXISTING R/W

60.00' EXISTING R/W

SEE SHEET 19 FOR -Y1- PROFILE

MATCHLINE -Y1- STA. 96+00 SEE SHEET 4

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PROJECT REFERENCE NO. R-2632AA
SHEET NO. 12
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER
Blythe
PB 100 YEARS
GRAPHIC SCALE
50 25 0 50 100
PLANS
NAD 83/95
-Y1-
PI Sta 101+28.04
Δ = 6° 29' 52.5" (RT)
D = 1° 00' 00.0"
L = 649.79'
T = 325.24'
R = 5,729.59'
DS = 50 MPH
e = RC
-Y1-
PI Sta 109+31.80
Δ = 4° 47' 21.8" (RT)
D = 0° 30' 00.0"
L = 957.88'
T = 479.22'
R = 11,459.16'
DS = 50 MPH
e = NC
-Y1-
PI Sta 117+44.03
Δ = 5° 52' 32.0" (LT)
D = 0° 52' 53.3"
L = 666.56'
T = 333.57'
R = 6,500.00'
DS = 50 MPH
e = RC
-HP-
PI Sta 18+03.16
Δ = 33° 05' 19.8" (RT)
D = 28° 38' 52.4"
L = 115.50'
T = 59.41'
R = 200.00'
DS = 30 MPH
e = NC
-Y20-
PI Sta 8+49.70
Δ = 19° 33' 07.9" (LT)
D = 20° 27' 46.0"
L = 95.55'
T = 48.24'
R = 280.00'
DS = 30 MPH
e = 0.04
MATCHLINE -HP- STA. 14+50 SEE SHEET 5
MATCHLINE -Y1- STA. 104+00 SEE SHEET 4
PUBLIC LIBRARY OF CHARLOTTE & MECK CTY (THE) DB 07574 PG 951 PB 25 PG 790
KP LAND HOLDINGS LLC DB 24490 PG 020 PB 26 PG 529
NOVANT HEALTH INC DB 10534 PG 910 PB 26 PG 529
NORTHCROSS MARKET LLC DB 13691 PG 215 PB 39 PG 859
FIRST STATES INVESTORS 3028 LLC DB 14552 PG 072 PB 28 PG 008
LANADA RESTAURANT PARTNERS LLC DB 10853 PG 243 PB 27 PG 410
CHARLOTTE-MECKLENBURG HOSPITAL AUTHORITY DB 8845 PG 270 PB 27 PG 571
JS & TS LLC DB 8616 PG 718 PB 27 PG 571
STATESVILLE ROAD HWY 21 40.0' BST
-HP- PC Sta. 17+43.76
-HP- PT Sta. 18+59.26
-Y1- POC STA.106+24.08
-HP- POT STA.18+97.87
-Y1- PT Sta. 114+10.46
END CONSTRUCTION
-Y1- PRC STA.115+95.89
-Y1- PCC Sta. 104+52.59
N 89° 00' 10.8" E
-Y1- POC STA.108+33.57
-Y20- POT STA.10+00.00
-Y20- PT Sta. 8+97.01
-Y20- PC Sta. 8+01.46
BEGIN CONSTRUCTION
-Y20- POC STA.8+50.00
100' RIGHT TURN LANE TAPER
100' LEFT TURN TAPER
100' LT TURN LANE TAPER
300' TRANSITION (RT & LT)
137.5' SHIFT TAPER (LT & RT)
BM #A3 -BY17- STA 44+74 S 9°10'22" W 46' ELEV. 762.28'
US 21 / HOLLY POINT TRAFFIC VOLUMES
HOLLY POINT
US 21
-Y20-
6400 (13200)
3100 (6900)
<100 (100)
2500 (5100)
800 (1600)
4300 (8800)
300 (700)
10600 (21800)
10900 (22400)
2500 (5200)
700 (1400)
500 (1000)
1500 (3200)
2006 (2030) ADT
SEE SHEET 19 FOR -Y1- PROFILE
SEE SHEET 20 FOR -Y1- PROFILE
SEE SHEET 20 FOR -HP- PROFILE
SEE SHEET 24 FOR -Y20- PROFILE
REVISIONS
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8/17/99

REVISIONS

NAD 83/95

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	13
RW SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBEN

Blythe

PB 100 YEARS

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 3H, D, Adj or Flatter, Front Ditch Slope
Min. D= 2 Ft.
FROM STA. 80+90 TO STA. 99+00 -Y10- RT

SARAH M. KNOX & EVELYN KNOX WASHAM & HAZELINE KNOX PEOPLES & SHIRLEY KNOX BROWN
DB 13006 PG 114

-Y10-
PI Sta 84+73.80
Δ = 2° 37' 18.3" (RT)
D = 0° 42' 58.3"
L = 366.07'
T = 183.06'
R = 8,000.00'
DS = 50 MPH
e = NC

-Y10-
PI Sta 93+50.50
Δ = 10° 17' 05.6" (LT)
D = 0° 57' 17.7"
L = 1,077.03'
T = 539.97'
R = 6,000.00'
DS = 50 MPH
e = RC

-Y10- PC Sta. 88+10.53

JAMES L AUTEN & KAREN Z AUTEN, TRUSTEES OF THE JAMES L AUTEN & KAREN Z AUTEN LIVING TRUST
DB 24766 PG 937

KNOX-KELLY
DB 13605 PG 92
(52)

MARTIN D CAIN & FAYE H CAIN
DB 4571 PG 739

BEGIN CONSTRUCTION
-Y10- PC STA.82+90.74

EXISTING INVERT OF DITCH TO BE MAINTAINED

50' NORFOLK SOUTHERN RR/ RW

600' LANE DROP TAPER

BEGIN PAVED SHLDR. 4.00' 187.4'(LT)

737.5' SHIFT TAPER (LT)

737.5' SHIFT TAPER (RT)

50' RAILROAD R/W

BM #8 -BL- STA 5+10 SET CUT CROSS ELEV. 681.51'

MATCHLINE -Y10- STA. 96+00 SEE SHEET 9

NC 115

S 7° 35' 47.2" W

S 10° 13' 05.5" W

-Y10-

REMOVE 18" RCP

RETAIN 18" CMP

REMOVE 15" RCP

EXIST EOP

GRAVEL DRIVEWAY

ASPHALT DRIVEWAY

4" PLASTIC

24" DIP

EXISTING R/W

SPECIAL CUT DITCH SEE DETAIL C

150' LANE ADDITION TAPER

300' LT TURN LANE TAPER

100' RT TURN LANE TAPER

TIE TO EXIST -Y10- 1553' RT 662.8' RT

TIE TO EXIST -Y10- 1470' RT 1435' RT

CONC. ISLAND

FENCE

LANDSCAPE AREA

-Y10- PC Sta. 82+90.74

-Y10- PT Sta. 86+56.80

TIMOTHY J ROY & BRENDA H ROY
DB 8674 PG 572
(77)

TIMOTHY J ROY & BRENDA H ROY
DB 8674 PG 572
(79)

TIMOTHY J ROY & BRENDA H ROY
DB 8674 PG 572
(78)

GLORY CHURCH WORLD OUTREACH MINISTRIES, INC
DB 20515 PG 443
(81)

GLORY CHURCH WORLD OUTREACH MINISTRIES, INC
DB 20515 PG 443
(82)

DALTON EDWARD KNOX
DB 2747 PG 426
(80)

PARKWOOD ENTERPRISES, LLC
DB 15995 PG 825
(84)

PARKWOOD ENTERPRISES, LLC
DB 15995 PG 825
(85)

PARKWOOD ENTERPRISES, LLC
DB 15995 PG 825

PARKWOOD ENTERPRISES, LLC
DB 15995 PG 825

GARY SCOTT CARLTON
DB 5459 PG 183
(83)

JOHN MCLAIN RAYMER, JR.
DB 1065 PG 651
(86)

RAYMER FUNERAL HOME, INC. (FORMERLY ALMOND FUNERAL HOME)
DB 5373 PG 808
(49)

N 58°06'06" E 958.97'

S 85°20'37" W 844.62'

SEE SHEET 22 FOR -Y10- PROFILE

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REVISIONS

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NOTE: TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS

APPROXIMATE AREA WITH ALLUVIAL, SOFT RESIDUAL, ARTIFICIAL FILL, AND/OR DEBRIS LADEN SOILS AT/NEAR SUBGRADE

APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE

-L1-

SEE SHEET 4 FOR -L1- PLAN

GRAPHIC SCALE
50 25 0 50 100
HORIZONTAL
10 5 0 10 20
VERTICAL

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	15

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL K. DAUBER

Blythe

PB 100 YEARS

BEGIN PROJECT -R-2632AA-
BEGIN CONSTRUCTION
-L1- STA. 10+11.00
-L1- STA. 10+75.85

INTERSECTION
-L1- STA. 11+29.44=
-RPC- STA. 10+00.00
-RPC- ELEV. 774.62

PROPOSED GRADE

PI = 16+00.00
EL = 770.00
VC = 250'
K = 181
DS = 50 MPH

(+)2.4182%

(+)1.0800%

EXISTING GROUND

-L1- STA. 12+50.00=
OFFSET 90' RT
ELEV. 757.77

EXISTING GROUND AT WALL

PROPOSED GRAVITY WALL

-L1- STA. 14+90.00=
OFFSET 90' RT
ELEV. 763.03

INTERSECTION
-L1- STA. 17+91.36=
-Y5- STA. 99+98.07
ELEV. 771.91

PI = 18+50.00
EL = 772.70
VC = 250'
K = 142
DS = 50 MPH

(+)1.0800%

(-)0.6833%

(-)0.6833%

(-)2.5217%

PI = 21+50.00
EL = 770.65
VC = 200'
K = 109
DS = 50 MPH

BM #A) (R-2632AA)
L1 STA 16 + 18.05
81.05 RIGHT
ELEV. 765.99
CHISELED SQUARE IN CONCRETE LIGHT BASE

-L1-

SEE SHEET 5 FOR -L1- PLAN

POTENTIAL UNSUITABLE SUBGRADE SOILS - FIELD INVESTIGATE

APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE

INTERSECTION
-L1- STA. 24+85.00=
-TAP- STA. 10+00.00
ELEV. 762.33

PI = 27+25.00
EL = 756.35
VC = 584'
K = 96
DS = 50 MPH

(-)2.5217%

(+)3.5524%

PROPOSED GRADE

EXISTING GROUND

BM #A4 (R-2632AA)
-L1- STA. 32 + 07.25
57.88' LEFT
ELEV. 773.15
SW CORNER 6X6 CONC WATER METER VAULT

INTERSECTION
-L1- STA. 34+50.55=
-L3- STA. 10+00.00
ELEV. 781.81

PI = 34+40.00
EL = 781.55
VC = 150'
K = 99
DS = 50 MPH

(+)3.5524%

(+)2.0366%

BM #2 (R-2632AA)
L1 STA. 34 + 17.37
247.49' RIGHT
ELEV. 773.73
RR SPIKE IN POWER POLE

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NOTE: TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS

APPROXIMATE AREA WITH ALLUVIAL, SOFT RESIDUAL, ARTIFICIAL FILL, AND/OR DEBRIS LADEN SOILS AT/NEAR SUBGRADE

APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE

-L1-

SEE SHEET 6 FOR -L1- PLAN

GRAPHIC SCALE
50 25 0 50 100
HORIZONTAL
10 5 0 10 20
VERTICAL

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	16

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER EARL R. DAUBER

Blythe

PB 100 YEARS

PROPOSED GRADE

EXISTING GROUND

PI = 38+50.00
EL = 789.90'
VC = 150'
K = 279
DS = 50 MPH

(+)2.0366%

(+)2.5747%

INTERSECTION
-L1- STA. 38+86.90=
-Y4- STA. 10+99.00
ELEV. 790.44

BM #A6 (R-2632AA)
-L1- STA. 40+87.06
49.43' LEFT
ELEV. 796.60
RR SPIKE IN POWER POLE

PI = 43+25.00
EL = 802.13'
VC = 300'
K = 87
DS = 50 MPH

(+)2.5747%

(-)0.8800%

INTERSECTION
-L1- STA. 44+89.73=
-Y5- STA. 10+00.00
ELEV. 800.65

PI = 46+25.00
EL = 799.49'
VC = 300'
K = 101
DS = 50 MPH

(-)0.8800%

(+)2.0979%

-L1-

SEE SHEET 7 FOR -L1- PLAN

POTENTIAL UNSUITABLE SUBGRADE SOILS - FIELD INVESTIGATE

APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE

PROPOSED GRADE

EXISTING GROUND

PI = 53+50.00
EL = 814.70'
VC = 350'
K = 125
DS = 50 MPH

(+)2.0979%

(-)0.7125%

INTERSECTION
-L1- STA. 50+94.34=
-Y6- STA. 10+00.00
ELEV. 809.14

INTERSECTION
-L1- STA. 51+07.01=
-Y7- STA. 10+00.00
ELEV. 810.74

PI = 51+50.00
EL = 811.85'
VC = 300'
K = 100
DS = 50 MPH

(-)0.7125%

(-)3.7280%

INTERSECTION
-L1- STA. 56+50.96=
-Y8- STA. 10+00.00
ELEV. 811.53

PI = 62+50.00
EL = 793.21'
VC = 340'
K = 97
DS = 50 MPH

(-)3.7280%

(+)1.8325%

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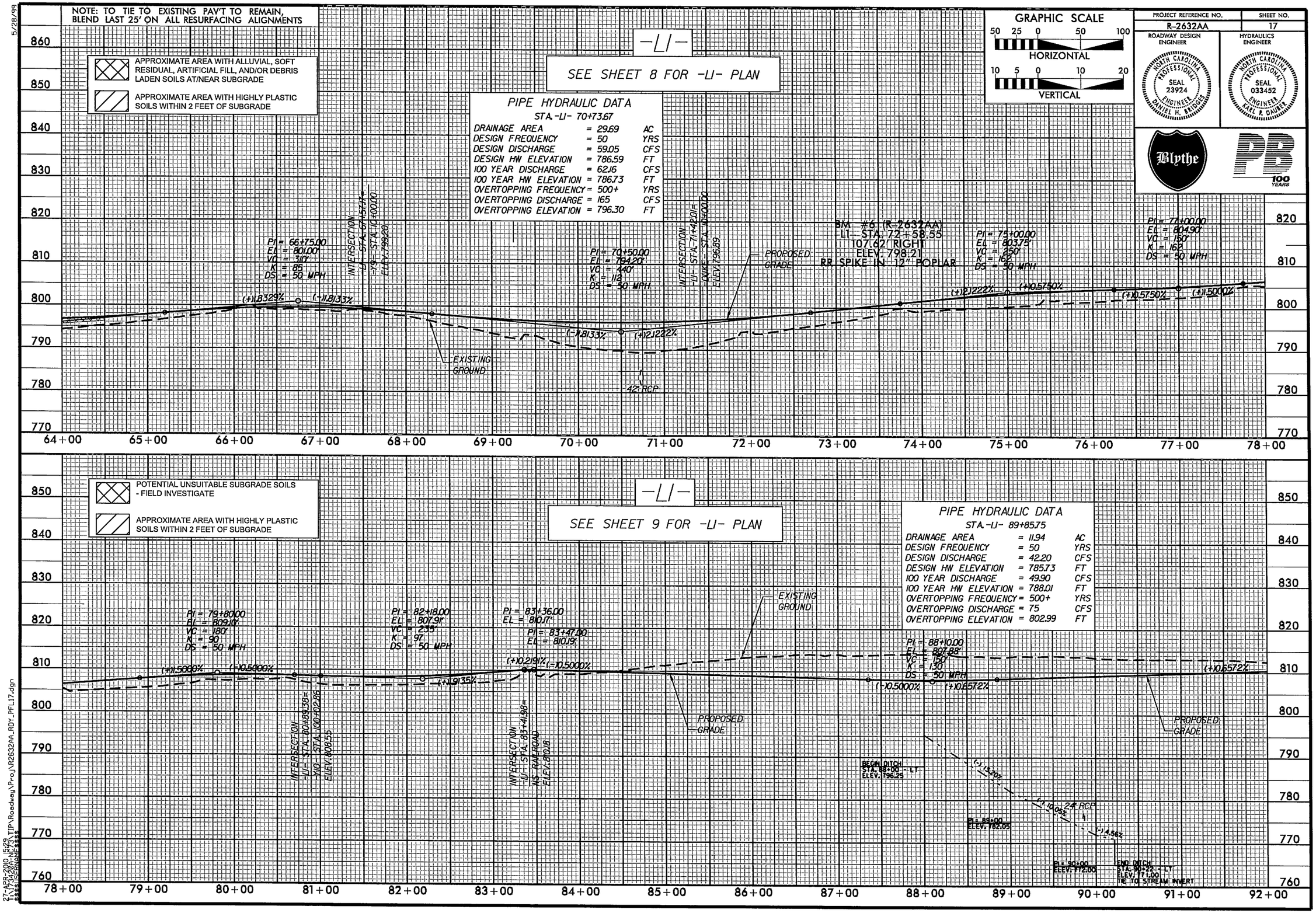
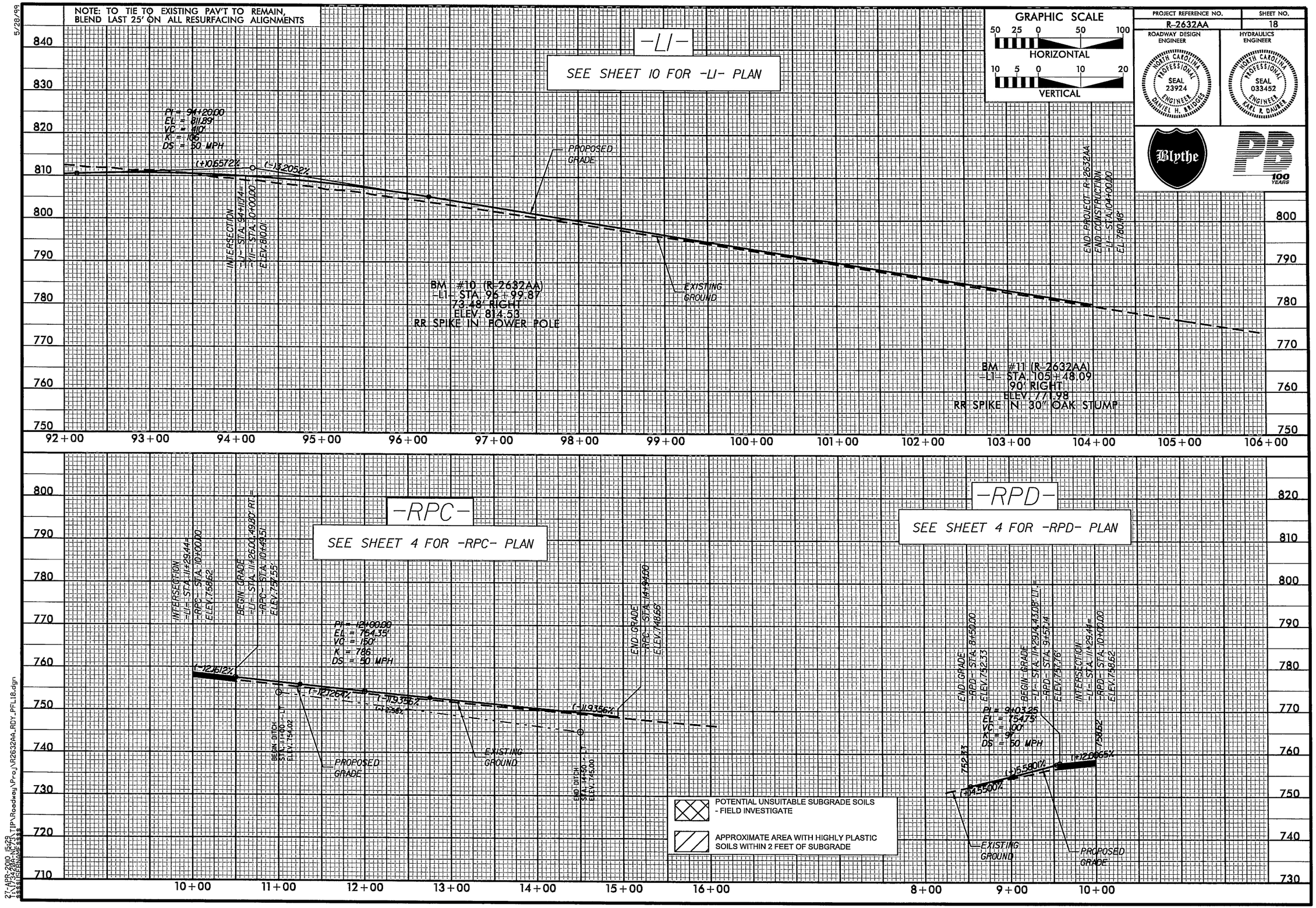
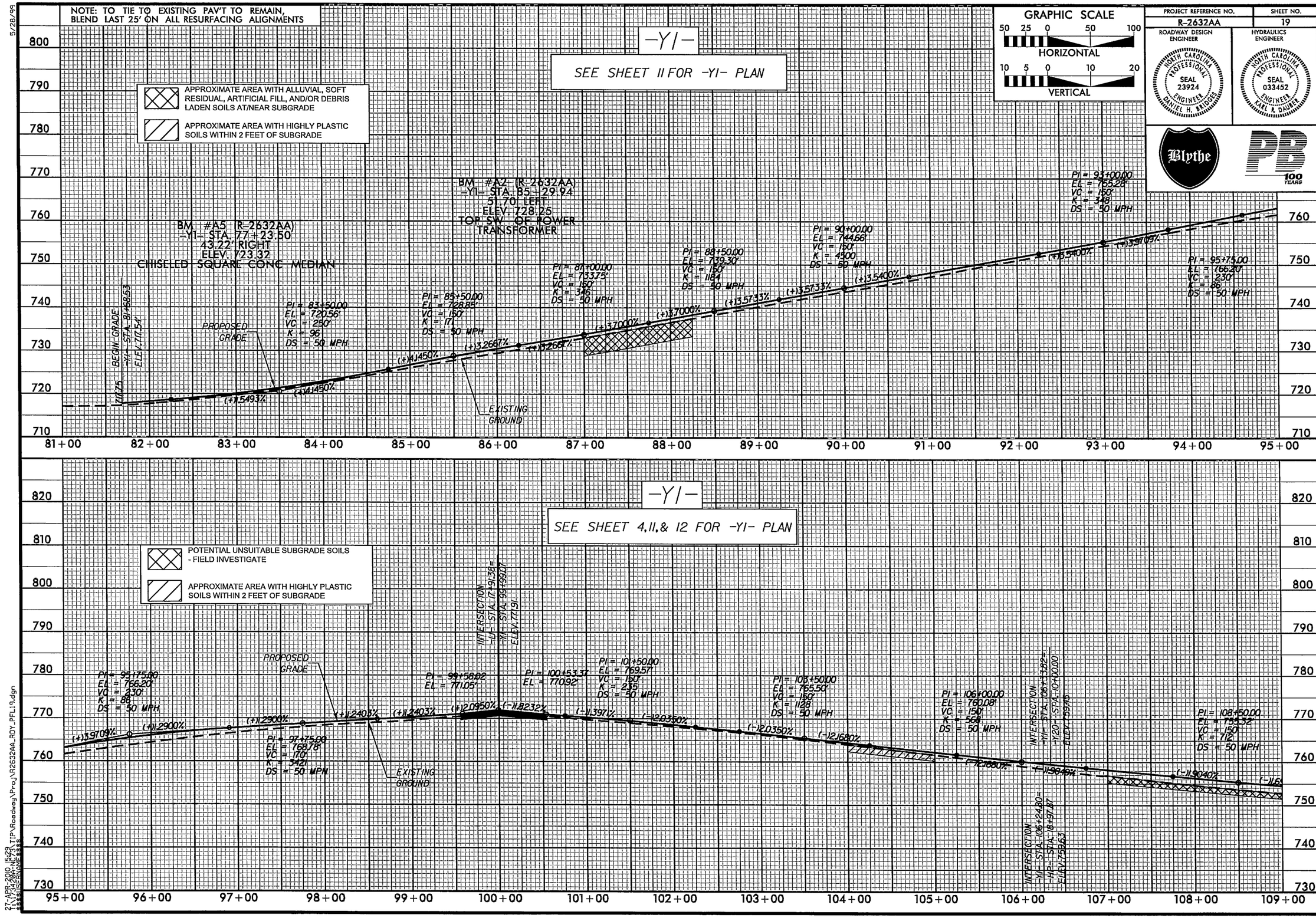


NOTE: TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS
APPROXIMATE AREA WITH ALLUVIAL, SOFT RESIDUAL, ARTIFICIAL FILL, AND/OR DEBRIS LADEN SOILS AT/NEAR SUBGRADE
APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE
-L1-
SEE SHEET 8 FOR -L1- PLAN
PIPE HYDRAULIC DATA
STA.-L1- 70+73.67
DRAINAGE AREA = 29.69 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 59.05 CFS
DESIGN HW ELEVATION = 786.59 FT
100 YEAR DISCHARGE = 62.16 CFS
100 YEAR HW ELEVATION = 786.73 FT
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 165 CFS
OVERTOPPING ELEVATION = 796.30 FT
GRAPHIC SCALE
HORIZONTAL
VERTICAL
PROJECT REFERENCE NO. R-2632AA
SHEET NO. 17
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Blythe
PB
PI = 66+75.00 EL = 801.00' VC = 310' K = 85 DS = 50 MPH
INTERSECTION -L1- STA. 67+57.17= -Y9- STA. 10+00.00 ELEV. 799.20
PI = 70+50.00 EL = 794.20' VC = 440' K = 112 DS = 50 MPH
INTERSECTION -L1- STA. 71+42.01= -DUKE- STA. 10+00.00 ELEV. 796.89
PROPOSED GRADE
BM #6 (R-2632AA) -L1- STA. 72+58.55 107.62' RIGHT ELEV. 798.21 RR SPIKE IN 12" POPLAR
PI = 75+00.00 EL = 803.75' VC = 250' K = 162 DS = 50 MPH
PI = 77+00.00 EL = 804.90' VC = 150' K = 162 DS = 50 MPH
(+)1.8329%
(-)1.8133%
(-)1.8133%
(+)2.1222%
(+)2.1222%
(+)0.5750%
(+)0.5750%
(+)1.5000%
EXISTING GROUND
42" RCP
POTENTIAL UNSUITABLE SUBGRADE SOILS - FIELD INVESTIGATE
APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE
-L1-
SEE SHEET 9 FOR -L1- PLAN
PIPE HYDRAULIC DATA
STA.-L1- 89+85.75
DRAINAGE AREA = 11.94 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 42.20 CFS
DESIGN HW ELEVATION = 785.73 FT
100 YEAR DISCHARGE = 49.90 CFS
100 YEAR HW ELEVATION = 788.01 FT
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 75 CFS
OVERTOPPING ELEVATION = 802.99 FT
PI = 79+80.00 EL = 809.10' VC = 180' K = 90 DS = 50 MPH
PI = 82+18.00 EL = 807.91' VC = 235' K = 97 DS = 50 MPH
PI = 83+36.00 EL = 810.17'
PI = 83+47.00 EL = 810.19'
PI = 88+10.00 EL = 807.88' VC = 150' K = 130 DS = 50 MPH
(+)1.5000%
(-)0.5000%
(+)1.9135%
(+)0.2191%
(-)0.5000%
(-)0.5000%
(+)0.6572%
(+)0.6572%
EXISTING GROUND
PROPOSED GRADE
PROPOSED GRADE
INTERSECTION -L1- STA. 80+89.38= -Y10- STA. 100+02.86 ELEV. 808.55
INTERSECTION -L1- STA. 83+41.98= NS RAILROAD ELEV. 810.18
BEGIN DITCH STA. 88+00 - LT ELEV. 796.25
PI = 89+00 ELEV. 782.05
PI = 90+00 ELEV. 772.00
END DITCH STA. 90+22 - LT ELEV. 771.00 TIE TO STREAM INVERT
24" RCP



NOTE: TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS
GRAPHIC SCALE
HORIZONTAL
VERTICAL
PROJECT REFERENCE NO.
R-2632AA
SHEET NO.
18
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
-L1-
SEE SHEET 10 FOR -L1- PLAN
PI = 94+20.00
EL = 811.89'
VC = 410'
K = 106
DS = 50 MPH
(+)0.6572%
(-)3.2052%
PROPOSED GRADE
EXISTING GROUND
INTERSECTION -L1- STA. 94+11.74= -Y11- STA. 0+00.00 ELEV. 810.01
END PROJECT R-2632AA END CONSTRUCTION -L1- STA. 104+00.00 EL. 780.48'
BM #10 (R-2632AA) -L1- STA. 96+99.87 73.48' RIGHT ELEV. 814.53 RR SPIKE IN POWER POLE
BM #11 (R-2632AA) -L1- STA. 105+48.09 90' RIGHT ELEV. 771.98 RR SPIKE IN 30" OAK STUMP
-RPC-
SEE SHEET 4 FOR -RPC- PLAN
INTERSECTION -L1- STA. 11+29.44= -RPC- STA. 10+00.00 ELEV. 758.62
BEGIN GRADE -L1- STA. 11+26.00, 49.80' RT.= -RPC- STA. 10+49.51 ELEV. 757.55'
PI = 12+00.00
EL = 754.35'
VC = 150'
K = 786
DS = 50 MPH
(-)2.1612%
(-)1.2264%
(-)1.9356%
(-)1.9356%
END GRADE -RPC- STA. 14+94.00 ELEV. 748.66'
BEGIN DITCH STA. 11+00 - LT. ELEV. 754.02
END DITCH STA. 14+50 - LT. ELEV. 745.00
PROPOSED GRADE
EXISTING GROUND
-RPD-
SEE SHEET 4 FOR -RPD- PLAN
END GRADE -RPD- STA. 8+50.00 ELEV. 752.33
BEGIN GRADE -L1- STA. 11+29.14, 43.08' LT.= -RPD- STA. 9+57.14 ELEV. 757.76'
INTERSECTION -L1- STA. 11+29.44= -RPD- STA. 10+00.00 ELEV. 758.62
PI = 9+03.25
EL = 754.75'
VC = 100'
K = 97
DS = 50 MPH
(+)4.5500%
(+)5.5801%
(+)2.0065%
EXISTING GROUND
PROPOSED GRADE
POTENTIAL UNSUITABLE SUBGRADE SOILS - FIELD INVESTIGATE
APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE



GRAPHIC SCALE
50 25 0 50 100
HORIZONTAL
10 5 0 10 20
VERTICAL

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	19

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER

Blythe

PB 100 YEARS

5/28/99

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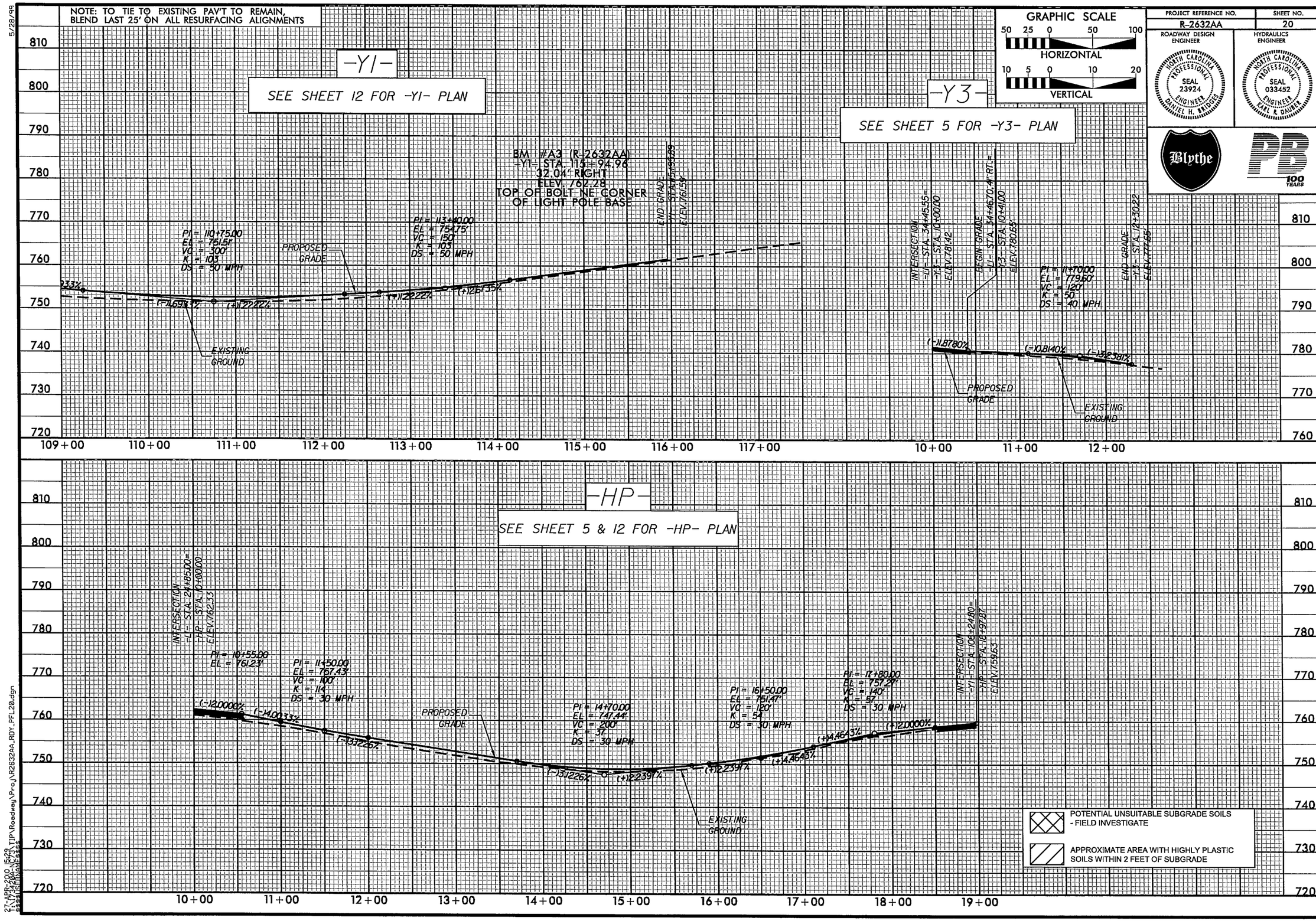

NOTE: TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS
-Y1-
SEE SHEET 12 FOR -Y1- PLAN
-Y3-
SEE SHEET 5 FOR -Y3- PLAN
-HP-
SEE SHEET 5 & 12 FOR -HP- PLAN
BM #A3 (R-2632AA)
-Y1- STA. 115+94.96
32.04' RIGHT
ELEV. 762.28
TOP OF BOLT NE CORNER OF LIGHT POLE BASE
PI = 110+75.00
EL = 751.51'
VC = 300'
K = 103
DS = 50 MPH
PI = 113+40.00
EL = 754.75'
VC = 150'
K = 103
DS = 50 MPH
PROPOSED GRADE
EXISTING GROUND
END GRADE
-Y1- STA. 115+95.89
ELEV. 761.59'
INTERSECTION
-L1- STA. 34+45.55=
-Y3- STA. 10+00.00
ELEV. 781.42
BEGIN GRADE
-L1- STA. 34+46.70, 41' RT.=
-Y3- STA. 10+41.00
ELEV. 780.65'
PI = 11+70.00
EL = 779.60'
VC = 120'
K = 50
DS = 40 MPH
END GRADE
-Y3- STA. 12+30.22
ELEV. 777.65'
PI = 10+55.00
EL = 761.23'
PI = 11+50.00
EL = 757.43'
VC = 100'
K = 114
DS = 30 MPH
PI = 14+70.00
EL = 747.44'
VC = 200'
K = 37
DS = 30 MPH
PI = 16+50.00
EL = 751.47'
VC = 120'
K = 54
DS = 30 MPH
PI = 17+80.00
EL = 757.27'
VC = 140'
K = 57
DS = 30 MPH
INTERSECTION
-Y1- STA. 106+24.80=
-HP- STA. 18+97.87
ELEV. 759.63
POTENTIAL UNSUITABLE SUBGRADE SOILS - FIELD INVESTIGATE
APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE
GRAPHIC SCALE
HORIZONTAL
VERTICAL
PROJECT REFERENCE NO.
R-2632AA
SHEET NO.
20
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER
Blythe
PB 100 YEARS
5/28/99
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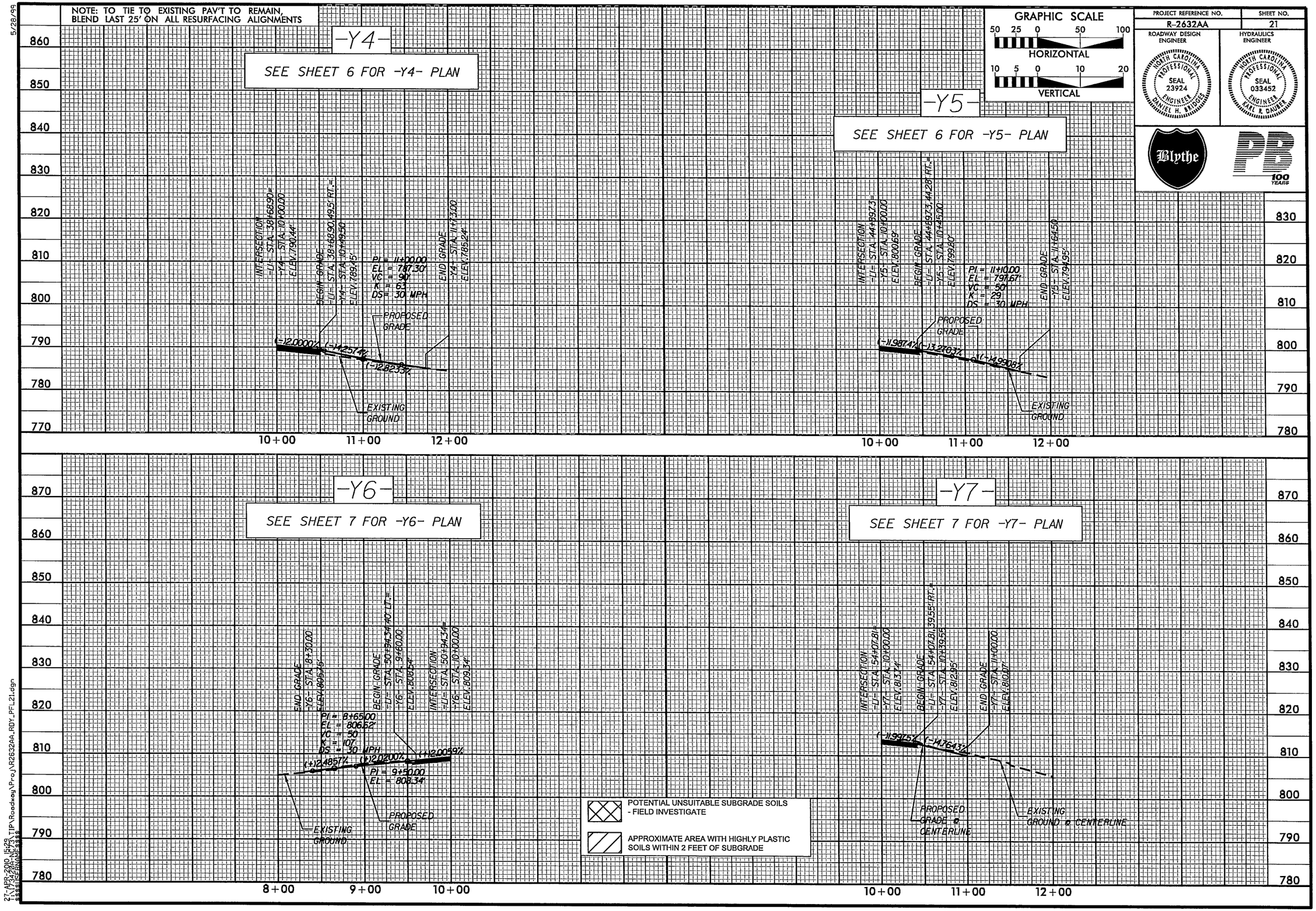

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NOTE: TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS

-Y8-

SEE SHEET 7 FOR -Y8- PLAN

-Y9-

SEE SHEET 8 FOR -Y9- PLAN

GRAPHIC SCALE
50 25 0 50 100
HORIZONTAL
10 5 0 10 20
VERTICAL

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	22

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER

Blythe

PB 100 YEARS

-Y10-

SEE SHEET 13 FOR -Y10- PLAN

POTENTIAL UNSUITABLE SUBGRADE SOILS - FIELD INVESTIGATE

APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE

BM #8 (R-2632AA)
Y10- STA. 94+79.35
59.41' LEFT
ELEV. 812.51
RR SPIKE IN POWER POLE

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5/28/99

NOTE: TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS

-Y10-

SEE SHEET 9,14 FOR -Y10- PLAN

GRAPHIC SCALE
50 25 0 50 100
HORIZONTAL
10 5 0 10 20
VERTICAL

PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	23

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER

Blythe

PB 100 YEARS

PI = 95+50.00
EL = 815.15'
VC = 150'
K = 17.8
DS = 50 MPH

(-)1.980%

(-)1.63%

(-)1.12%

PI=95+50
ELEV. 808.32

PI = 99+00.00
EL = 810.96'
VC = 100'
K = 8.7
DS = 50 MPH

(-)1.980%

(-)2.3500%

END DITCH
STA. 99+00 - RT
ELEV. 805.52

INTERSECTION
-Y10- STA. 100+00.86
ELEV. 805.55

EXISTING GROUND

PI = 101+00.00
EL = 806.28'
VC = 100'
K = 3.49
DS = 50 MPH

(-)2.3500%

(-)2.0637%

PROPOSED GRADE

BEGIN DITCH
STA. 101+00 - LT
ELEV. 796.50

(-)0.39%

PI=102+27
ELEV. 796.08

PI = 104+25.00
EL = 799.55'
VC = 350'
K = 8.3
DS = 45 MPH

(-)2.0637%

(+)1.11%

(+)2.7327%

END DITCH
STA. 104+25 - LT
ELEV. 797.99

BEGIN DITCH
STA. 105+00 - LT
ELEV. 799.12

END DITCH
STA. 105+45 - LT
ELEV. 798.94

PI = 107+90.00
EL = 801.48'
VC = 310'
K = 6.8
DS = 45 MPH

(+)2.7327%

(-)2.3959%

BEGIN DITCH
STA. 107+00 - LT
ELEV. 801.45

96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00

820 810 800 790 780 770

-Y10-

SEE SHEET 14 FOR -Y10- PLAN

PI = 110+50.00
EL = 801.25'
VC = 200'
K = 6.1
DS = 45 MPH

(-)2.3969%

(-)1.5668%

PROPOSED GRADE

PI = 112+00.00
EL = 799.75'
VC = 100'
K = 12.4
DS = 50 MPH

(-)1.5668%

(-)1.8494%

EXISTING GROUND

END GRADE
-Y10- STA. 113+80.00
ELEV. 796.02

POTENTIAL UNSUITABLE SUBGRADE SOILS - FIELD INVESTIGATE

APPROXIMATE AREA WITH HIGHLY PLASTIC SOILS WITHIN 2 FEET OF SUBGRADE

110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00

870 860 850 840 830 820 810 800 790 780

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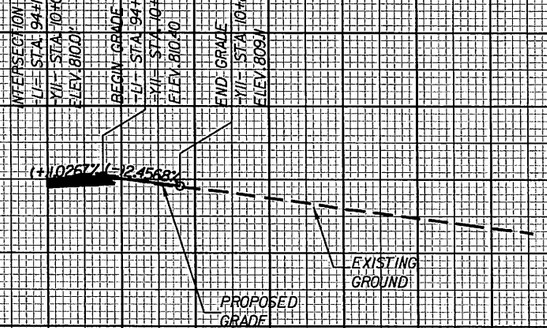
5/28/99

NOTE: TO TIE TO EXISTING PAV'T TO REMAIN, BLEND LAST 25' ON ALL RESURFACING ALIGNMENTS

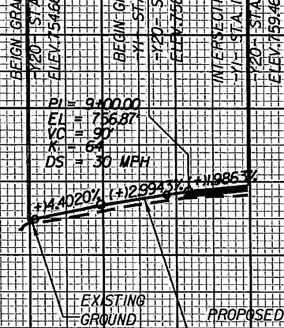
-Y11-

SEE SHEET 10 FOR -Y11- PLAN



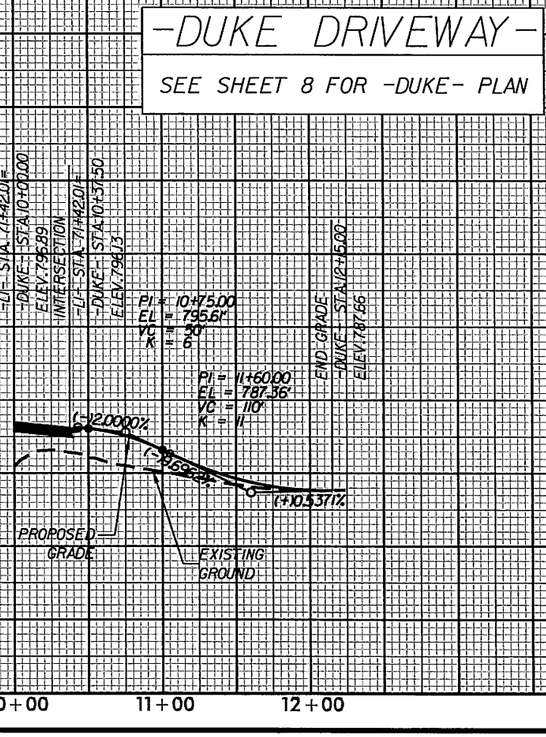
-Y20-

SEE SHEET 12 FOR -Y20- PLAN



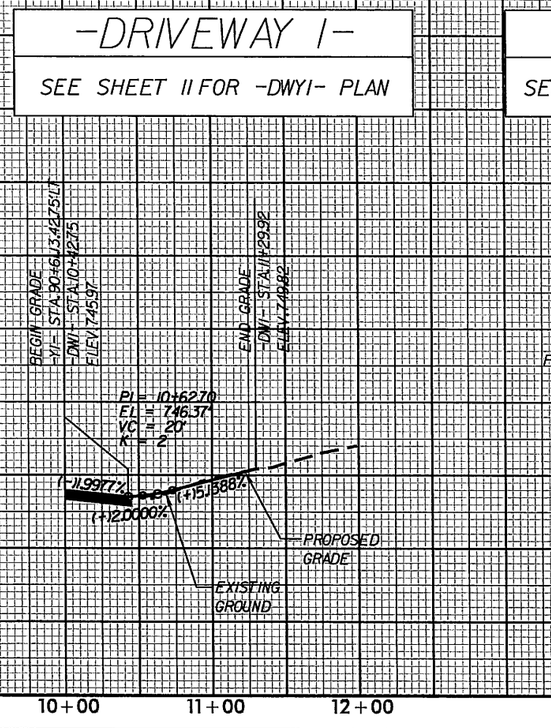
-DUKE DRIVEWAY-

SEE SHEET 8 FOR -DUKE- PLAN



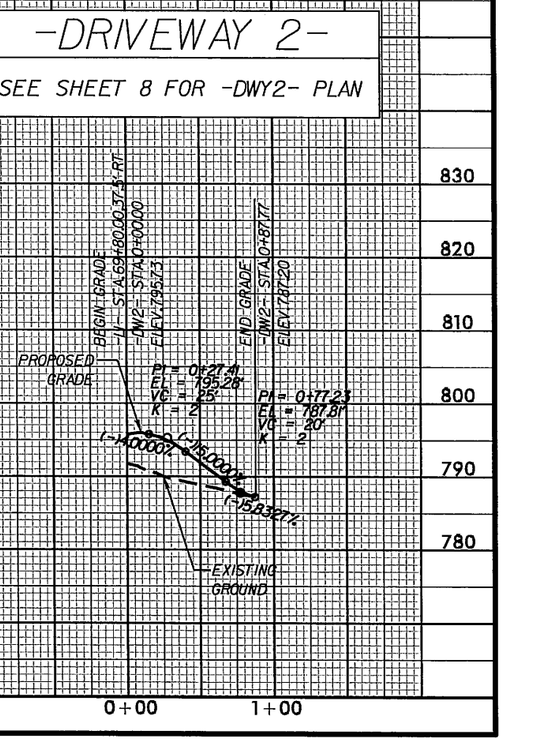
-DRIVEWAY 1-

SEE SHEET 11 FOR -DWY1- PLAN



-DRIVEWAY 2-

SEE SHEET 8 FOR -DWY2- PLAN



PROJECT REFERENCE NO.	SHEET NO.
R-2632AA	24

GRAPHIC SCALE
50 25 0 50 100
HORIZONTAL
10 5 0 10 20
VERTICAL

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033452 ENGINEER KARL R. DAUBER

Blythe

PB 100 YEARS

27-APR-2000 15:30
C:\TIP\Roadway\Proj\R2632AA_RDY_PFL24.dgn
$$$$USERNAME$$$$