STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

September 27, 2010

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

ATTN: Mr. Ronnie Smith
NCDOT Coordinator

Dear Sir,

Subject: **Application for Section 404 Nationwide Permits 13, 23 and 33, and Section 401 Water Quality Certification** for the proposed widening of US 401 from the intersection with NC 210 to just north of SR 1436 in Harnett County. Federal Aid Project No. HPP-0401(207), **TIP No. R-5185.** Debit $570 from WBS 45222.1.1.

Please find enclosed the PCN form, permit drawings, half-size plan sheets, EEP acceptance letter, request for Preliminary Jurisdictional Determination, and wetland and stream data forms for the above referenced project. A Categorical Exclusion (CE) was completed for this project on June 24, 2010 and was distributed shortly after thereafter. Additional copies are available upon request.

The North Carolina Department of Transportation (NCDOT) proposes to widen US 401 in Lillington from the intersection with NC 210 to just north of SR 1436 (Matthews Rd.) in Harnett County. US 401 currently varies from a two-lane to three-lane facility with no control of access. Currently the road has 10-foot lanes and 4 to 6-foot shoulders, 2 feet of which are paved. The improvements will widen US 401 to a four-lane median divided facility with 12-foot travel lanes and a 21-foot raised grass median with curb and gutter. The project will also include 5-foot sidewalks on both sides of US 401 between Matthews Rd. and NC 210. One 7-foot by 5-foot concrete box culvert will be replaced with a 15-foot 6-inch by 7-foot 3-inch aluminum box culvert. The other 8-foot by 4-foot concrete box culvert will be replaced with a 15-foot 4-inch by 6-foot 5-inch aluminum box culvert. There will be 0.17 acre of permanent impacts to riparian wetlands adjacent to two tributaries to Neills Creek. There will be 361 linear feet of permanent impacts, 45 linear feet of which are due to bank stabilization, and 0.01 ac (94 linear feet) of temporary impacts to streams. Traffic will be maintained on US 401 during construction through construction phasing.

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 let date for this project is April 19, 2011 and the review date is March 1, 2011; however, the let date may advance as additional funds become available.

Regulatory Approvals

Section 404 Permit: NCDOT anticipates that all aspects of the project can be authorized by Nationwide Permit 23. We are also requesting the issuance of a Nationwide Permit 13 for bank stabilization and Nationwide Permit 33 for temporary stream impacts associated with a culvert replacement (72 CFR; 11092-11198, March 12, 2007).

Section 401 Water Quality Certification: We anticipate 401 General Certification numbers 3701, 3688 and 3689 will apply to this project. All general conditions of the Water Quality Certifications will be met. In accordance with 15A NCAC 2H, Section .0500(a), we are providing five copies of this application to the NCDWQ for their approval. NCDOT authorizes the debit of $570 from WBS 45222.1.1.

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

Thank you for your time and assistance with this project. Please contact Veronica Barnes at vabarnes@ncdot.gov or (919) 431-6758 if you have any questions or need additional information.

Sincerely,

E. L. Lusk

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

w/attachment
Mr. Brian Wrenn, NCDWQ (5 Copies)

W/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Dewayne Sykes, P.E., Utilities Unit
Mr. Mark Staley, Roadside Environmental
Mr. Greg Burns, P.E, Division 6 Engineer
Mr. Jim Rerko, Division 6 Environmental Officer
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
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Ms. Anne Deaton, NCDMF
Mr. Ron Sechler, NMFS
Mr. Matthew Potter, PE, PDEA
Ms. LeiLani Paugh, NEU
Mr. Randy Griffin, NEU

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: 13 23 33 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:	Widening of US 401 in Lillington from North of Matthews Rd (SR 1436) to NC 210
2b. County:	Harnett
2c. Nearest municipality / town:	Lillington
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	R-5185

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsibl e Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 431-6758
3g. Fax no.:	(919) 431-2002
3h. Email address:	vabarnes@ncdot.gov

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

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 35.420735 (DD.DDDDDD)	Longitude: - 78.808354 (-DD.DDDDDD)
1c. Property size:	19.27 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Tributary to Neills Creek	
2b. Water Quality Classification of nearest receiving water:	WS-IV	
2c. Ri ver basin:	Cape Fear	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: The projected is located in the town of Lillington and the area is mostly commercial business.		
3b. List the total estimated acreage of all existing wetlands on the property: 0.52 ac		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 937 ft.		
3d. Explain the purpose of the proposed project: The purpose of the proposed project is to improve the traffic carrying capacity of US 401, within the project corridor.		
3e. Describe the overall project in detail, including the type of equipment to be used: The NCDOT, in consultation with the FHWA, proposes to widen US 401 from just north of SR 1436 (Matthews Road) to its intersection with NC 210/US 421, in Harnett County. The widening will convert US 401 from its current two-lane and three-lane configuration to a four-lane, median-divided facility.		
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: Jurisdictional determinations were made for part of the project area for non-DOT development projects in the area. However, NCDOT is requesting a Preliminary JD for the rest of the project along with this permit application.	☒ 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):	Agency/Consultant Company: Jordan-Tew & Assoc. Other: Enoch Engineers	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. November 12, 2008 for Harnett Forward Together Committee and November 23, 2009 for Brightwater Tract.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown	
5b. If yes, explain in detail according to "help file" instructions.		

6. Future Project Plans		
6a. Is this a phased project?	☐ Yes	☒ No
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

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

☒ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

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

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 ☒ P ☐ T	Culvert	Riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.17
Site 2 ☒ P ☐ T	Culvert	Riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site 3 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0.17 Permanent 0.0 Temporary

2h. Comments: Additionally there will be <0.01 acre of temporary fill in wetlands in the Hand Clearing areas for erosion control measures.

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☒ P ☐ T	Culvert (LT)	UT3 to Cape Fear	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	26
Site 1 ☐ P ☒ T	Culvert (LT)	UT3 to Cape Fear	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	58
Site 1 ☒ P ☐ T	Culvert (RT)	UT3 to Cape Fear	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	121
Site 1 ☐ P ☒ T	Culvert (RT)	UT3 to Cape Fear	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	9
Site 2 ☒ P ☐ T	Culvert (LT)	UT2 to Cape Fear	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	71
Site 2 ☐ P ☒ T	Culvert (LT)	UT2 to Cape Fear	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	13
Site 2 ☒ P ☐ T	Culvert (RT)	UT2 to Cape Fear	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	83
Site 2 ☐ P ☒ T	Culvert (RT)	UT2 to Cape Fear	☒ PER	☒ Corps	1.5	9

			☐ INT	☐ DWQ		
Site 2 ☒ P ☐ T	Bank Stabilization	UT2 to Cape Fear	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	45
Site 4 ☒ P ☐ T	Rip Rap	UT4 to Cape Fear	☐ PER ☒ INT	☒ Corps ☐ DWQ	2	15
Site 4 ☐ P ☒ T	Temp Fill	UT4 to Cape Fear	☐ PER ☒ INT	☒ Corps ☐ DWQ	2	5
				3h. **Total stream and tributary impacts**		361 Perm 94 Temp

3i. Comments:

4. Open Water Impacts

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

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

4g. Comments:

5. Pond or Lake Construction

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

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

5g. Comments:

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

6. Buffer Impacts (for DWQ)

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

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

6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
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.

NCDOT has proposed a "best fit" alignment which attempts to avoid and minimize impacts to streams and wetlands to the greatest extend possible; 3:1 slopes are being utilized in all jurisdictional areas.

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

Hand clearing will be used in wetland areas. Traffic will be maintained on existing roads during construction. Although there is not habitat at the stream crossings with in the impact area, BMPs for Protection of Surface Water will be used to reduce potential impacts to surface water and Cape Fear Shiner habitat located downstream.

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

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

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

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

3c. Comments:

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

4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	0 square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	0 acres
4g. Coastal (tidal) wetland mitigation requested:	0 acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

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

452 linear feet of stream mitigation (121ft @ 2:1; 195 ft @ 1:1) and 0.34 ac (0.17 ac @ 2:1) of riparian wetland mitigation will be provided by NCDOT from the Privateer and Little River Bridge Mitigation Sites, as requested by USACE and NCDWQ. Please see the attached mitiagtion 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: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☒ Yes ☐ No
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 th e 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. The potentional for Indirect and Cumulative effects with this project is low because US 401 already exists in the project area and much of the ongoing development has been incorporated into local plans for the area. Moreover, the project is not projected to spur growth along the corridor but is rather intended to accommodate and serve existing and anticipated development. Therefore, a detailed indirect and cumulative effects study is not anticipated to be necessary for this project.		
4. Sewage Disposal (DWQ Requirement)		
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes	☐ No
5c. If yes, ind icate the USFWS Field Office you have contacted.	☒ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS Website and Natural Heritage Program database and communication with the local USFWS representative.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☐ Yes	☒ No
8b. If yes, explain how project meets FEMA requirements:		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Luck Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	9.27.10 Date

Privateer and Little River Bridge Debit Ledger

The Privateer Farms Restoration Site (Site) is located in Bladen and Cumberland Counties, North Carolina, approximately fourteen miles southeast of Fayetteville. Prior to restoration, land use on the Site over the past 20 years had been primarily row crop agriculture. Stream and riparian functions on the Site had been severely impacted as a result of agricultural conversion. Harrison Creek had historically meandered through the Site, but was channelized in the early 1980s to reduce flooding and provide a drainage outlet for the extensive network of ditches excavated across the Site. Subsequent to channelization, Harrison Creek existed as a large canal running straight through the Site.

Restoration activities for the Site involved moving the stream channel back to its historic location and elevation, and filling drainage ditches to raise the local water table and restore wetland and stream hydrology. The plan also included scarification of the fields and breaking of the local plow pan to increase surface water storage and provide a range of hydrologic conditions suitable for a variety of native wetland plant species. The restoration plan for the Site predicted the restoration of 405 acres of riverine wetlands, 25 acres of riverine wetland enhancement, and 33,985 linear feet (LF) of stream restoration. Following construction, the as-built data indicated that the total area of restored riverine wetlands was 402.5 acres (excluding 2.5 acres for road accesses), with 25 acres of enhanced riverine wetlands, and 34,005 LF of restored stream channel.
As of fall 2009, the Site has met all prescribed hydrologic and vegetative monitoring criteria and been recommended for closeout.

In order to offset unavoidable stream impacts associated with R-5185, the Privateer Mitigation Site will be debited 452 feet of stream restoration. This debit is reflected in the debit below.

Site Name	River Basin	HUC	Mitigation Type	Transfer from EEP	Available	TIP Debit	TIP Debit
Privateer Site	Cape Fear	3030004				**R-5185**	
			Warm Stream Restoration	25,676	6,705	452	

The Little River Bridge Mitigation Site was originally constructed as mitigation for the US 1 Bypass in Moore County (T.I.P. R-0210). The 14.8-acre mitigation site is located in Moore County approximately 0.75 mile southeast of the town of Vass. The site is situated on both sides of the Little River and can be accessed via US 1 Business South on the northeastern boundary. The site includes 6.4 acres of bottomland hardwood restoration and 8.4 acres of bottomland hardwood preservation. This mitigation site has undergone four years of successful vegetative and hydrological monitoring as of 2009.

As shown below, NCDOT has debited 0.34acres of riverine wetland restoration from the Little River Bridge Mitigation Site. These debits are associated with unavoidable impacts to the project R-5185.

Little River Bridge	**R-0210A**	**3030004**	**Mitigation Type**	**Transfer from EEP**	**Available**	TIP Debit	TIP Debit
			Riverine Wetland Restoration		6.06	.34	

WETLAND PERMIT UTILITY IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
2	-L- 30+98 C13:J19t.	Overhead Cable PSUE					<0.01					
3	-L- 40+80 to 41+10 Rt.	Overhead Cable PSUE					0.06					
TOTALS:			0.00	0.00	0.00	0.00	0.06	0.00	0.00	0	0	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

HARNETT COUNTY
PROJECT - 45222.1.1 (R-5185)

SHEET

ATN Revised 3/31/05

Permit Drawing

PROJECT REFERENCE NO.	SHEET NO.
R-5185	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

REVISIONS

8/17/99

NC GRID — NAD 83 / NSRS 07

MATCHLINE -L- STA 30+00.00 (SHEET 5)

MATCHLINE -L- STA 42+00.00 (SHEET 7)

PROP. 65± LF OF 12" WATER PIPE
PROP. 4-45° BENDS

ADDITIONAL IMPACT = 232 SQ FT DUE TO OVERHEAD CABLE PSUE (HAND CLEARING)

ADDITIONAL IMPACT = 2414 SQ FT DUE TO OVERHEAD CABLE PSUE (HAND CLEARING)

HARNETT FORWARD TOGETHER COMMITTEE
DB 2252 PG 98
PB 2008 PG 96

STAFFORD LAND CO., INC
DB 2439 PG 386
PB 9 PG 398A

HARNETT COUNTY
PB 160 PG 889
MAP 2009 PG 572

PROPOSED CHANNEL TIE IN
SEE DETAIL THIS SHEET
EST DDE 87 CY

PROP. SPECIAL CUT DITCH
SEE DETAIL A

PROP. LATERAL BASE DITCH
SEE DETAIL D
EST DDE 1614 CY

CLASS B RIP RAP
EST. 6 TN
EST. 20 SYFF

CLASS B RIP RAP
EST. 2 TN
EST. 7 SYFF

CLASS B RIP RAP
EST. 5 TN
EST. 14 SYFF

CLASS B RIP RAP
EST. 10 TN
EST. 28 SYFF

-BL-5 PINC

ABANDON WATER

PLUG & FILL

REMOVE

24" CL. IV

15" CL. IV

2-24"

PROP. LATERAL BASE DITCH
SEE DETAIL E

CLASS B RIP RAP
EST. 5 TN
EST. 14 SYFF
EST DDE 159 CY

PROPOSED CHANNEL TIE IN
SEE DETAIL THIS SHEET
EST DDE 55 CY

PROP. ABANDON 59± LF OF 12" UTILITY PIPE

FOR -L- PROFILE SEE SHEET 11

8/13/2009
R:\Roadway\Projects\UTL\R5185_rdy_U6_ACB.dgn
mrogers

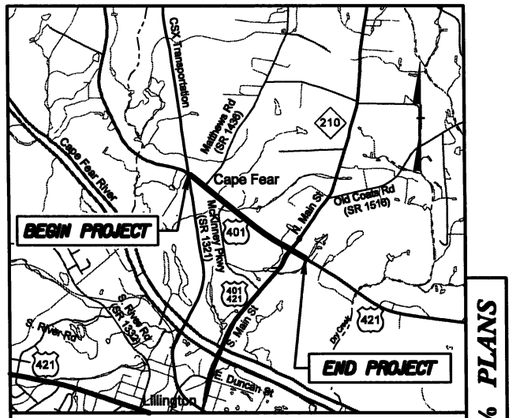
Utility
Permit Drawing
Sheet 2 of 2

TIP PROJECT: R-5185

CONTRACT:

25% PLANS
6/2010

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

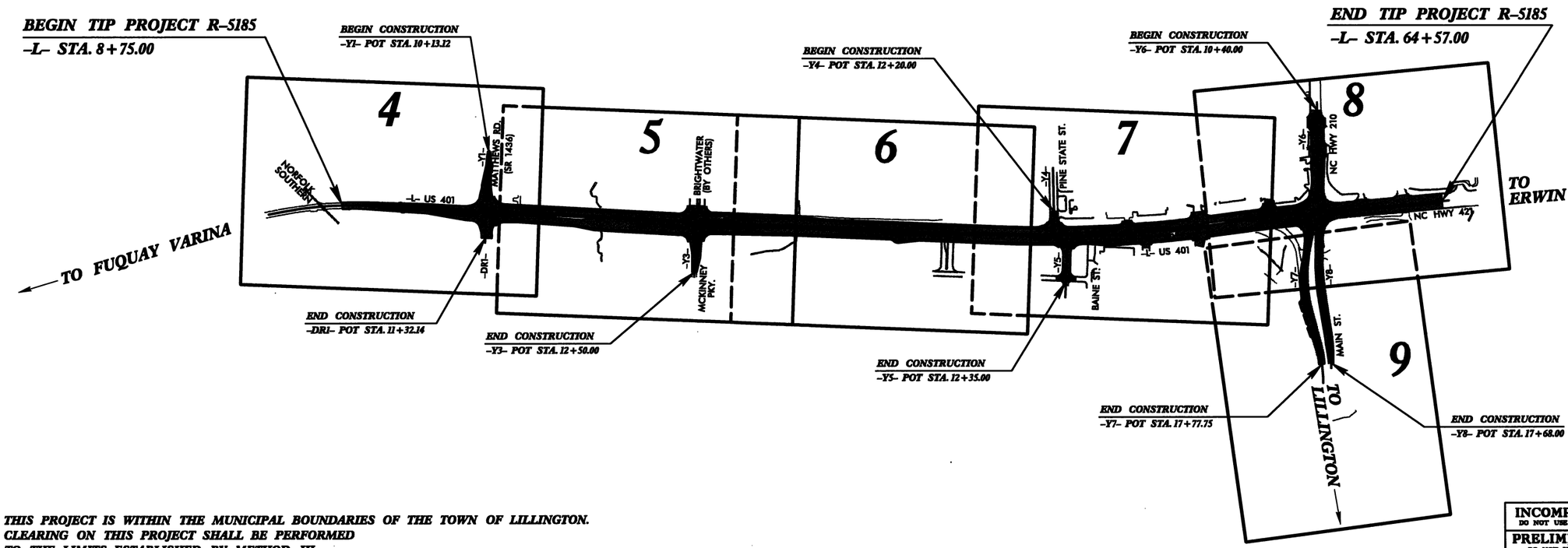
HARNETT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5185	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45222.1.1	HPP-0401(207)	P.E.	

LOCATION: US 401 IN LILLINGTON FROM NORTH OF MATTHEWS RD (SR 1436) TO NC 210

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERTS, SIGNALS, & SIGNING

NC GRID / NAD 83 /NSRS 07



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF LILLINGTON. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 5 2.5 0 5 10

DESIGN DATA

ADT 2009 = 11,000
ADT 2030 = 20,500
DHV = N/A
D = N/A
T = N/A
V = 50 MPH
FUNC. CLASS:
RURAL ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5185 = *1.06 Miles*

TOTAL LENGTH TIP PROJECT R-5185 = *1.06 Miles*

NCDOT CONTACT: JERRY BRADLEY
Project Engineer – Division 6 Project Manager

Prepared in the Office of:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-0991
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 18, 2010

LETTING DATE:
JULY 20, 2011

JOSEPH A. FREEMAN, PE
PROJECT ENGINEER

MAAMOON ABDELAZIZ
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
R-5185	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 — IP
- Property Corner
- Property Monument — CM
- 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
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

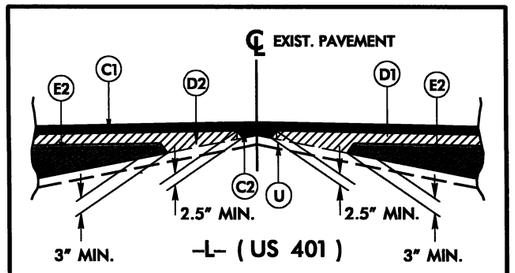
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-5185	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

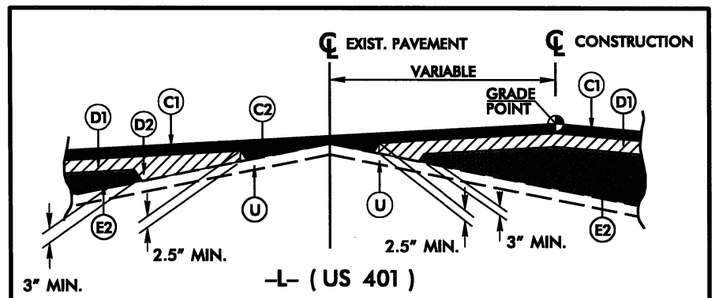
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

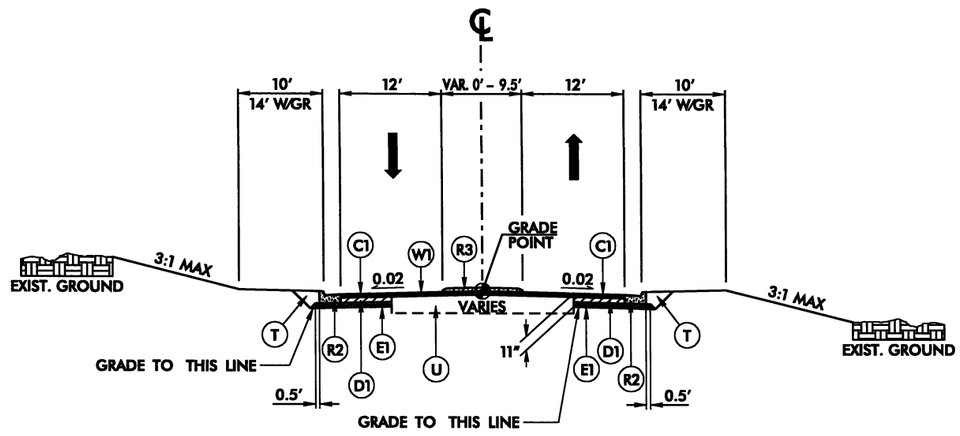
STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991



WEDGING DETAIL NO. 1

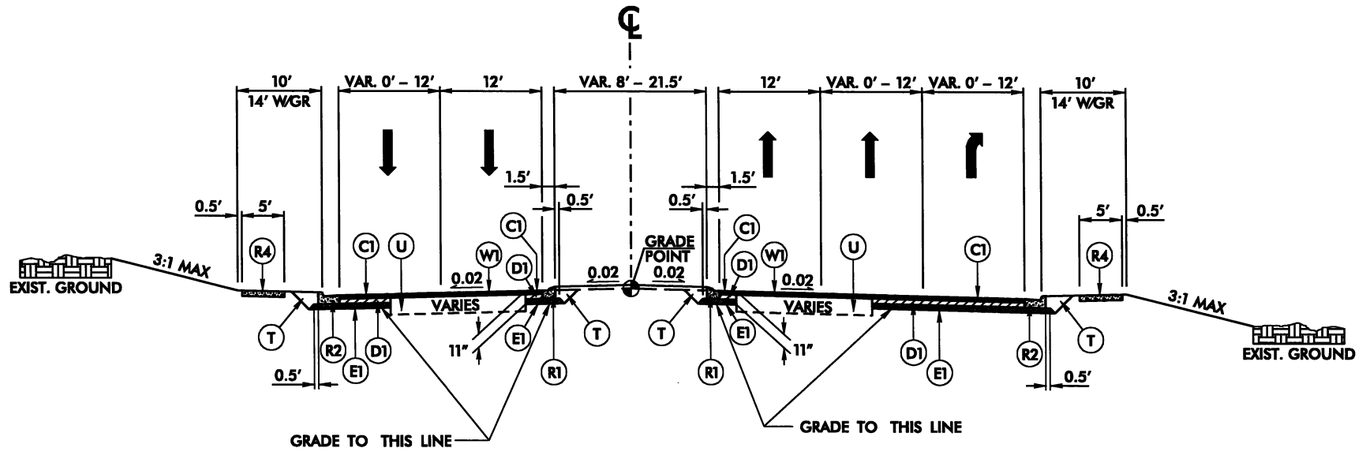


WEDGING DETAIL NO. 2



TYPICAL SECTION NO. 1

–L– STA. 8+75.00 TO STA. 10+54.00



TYPICAL SECTION NO. 2

* –L– STA. 10+54.00 TO STA. 13+87.00
–L– STA. 52+45.00 TO STA. 55+96.00

* NO SIDEWALK WITHIN THIS STATION RANGE

NOTES:

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.

ALL PAVEMENT EDGES SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE

C1	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.
C2	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 LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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 5.5" IN DEPTH.
M	1.5" MILLING
R1	PROPOSED 1'-6" CONCRETE CURB AND GUTTER
R2	PROPOSED 2'-6" CONCRETE CURB AND GUTTER
R3	PROPOSED 5" MONOLITHIC CONCRETE ISLAND
R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

6/3/2010
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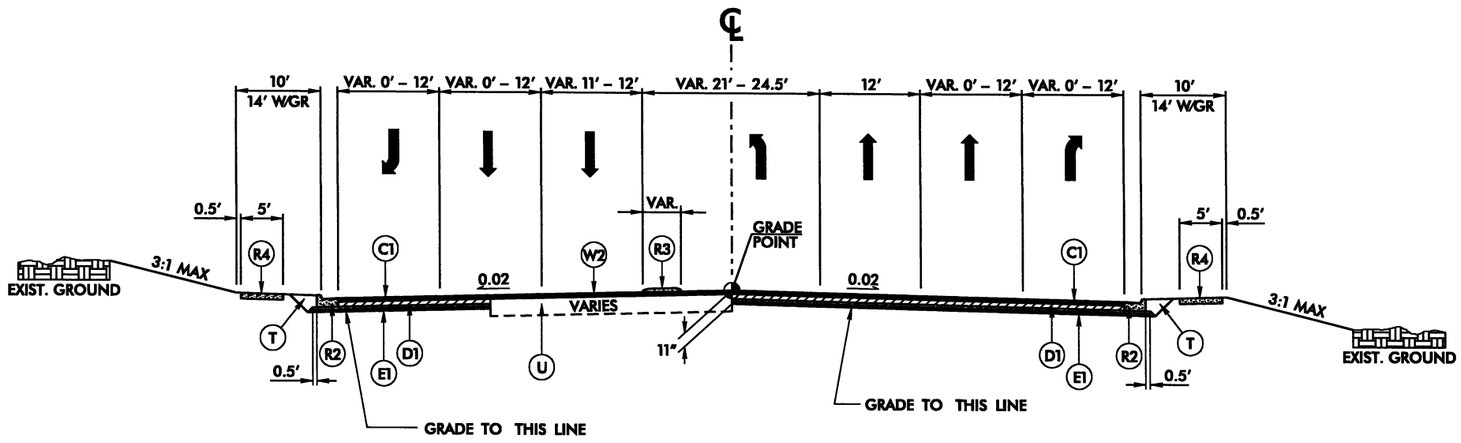
mlodwick

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-5185	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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

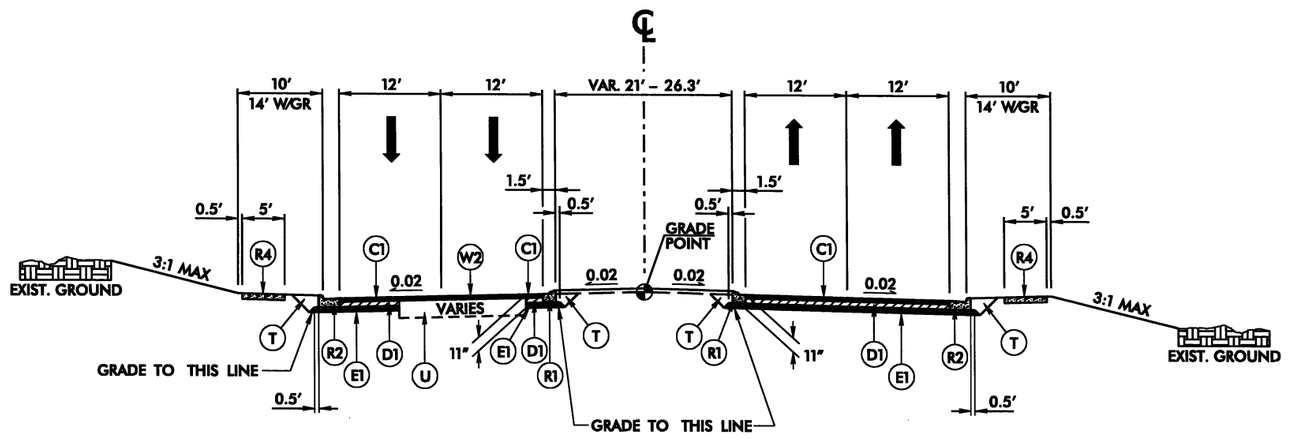
STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St. Ste. 200
Charlotte, NC 28208
NC License Number F-0991



TYPICAL SECTION NO. 3

* –L– STA. 13+87.00 TO STA. 16+29.00
–L– STA. 20+85.00 TO STA. 30+00.00
–L– STA. 36+45.00 TO STA. 52+45.00
–L– STA. 55+96.00 TO STA. 59+99.00

* NO SIDEWALK WITHIN THIS STATION RANGE



TYPICAL SECTION NO. 4

–L– STA. 16+29.00 TO STA. 20+85.00

NOTES:

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.

ALL PAVEMENT EDGES SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE

C1	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.
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D2	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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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 5.5" IN DEPTH.
M	1.5" MILLING
R1	PROPOSED 1'-6" CONCRETE CURB AND GUTTER
R2	PROPOSED 2'-6" CONCRETE CURB AND GUTTER
R3	PROPOSED 5" MONOLITHIC CONCRETE ISLAND
R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

6/3/2010
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mabdelaziz

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-5185	2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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

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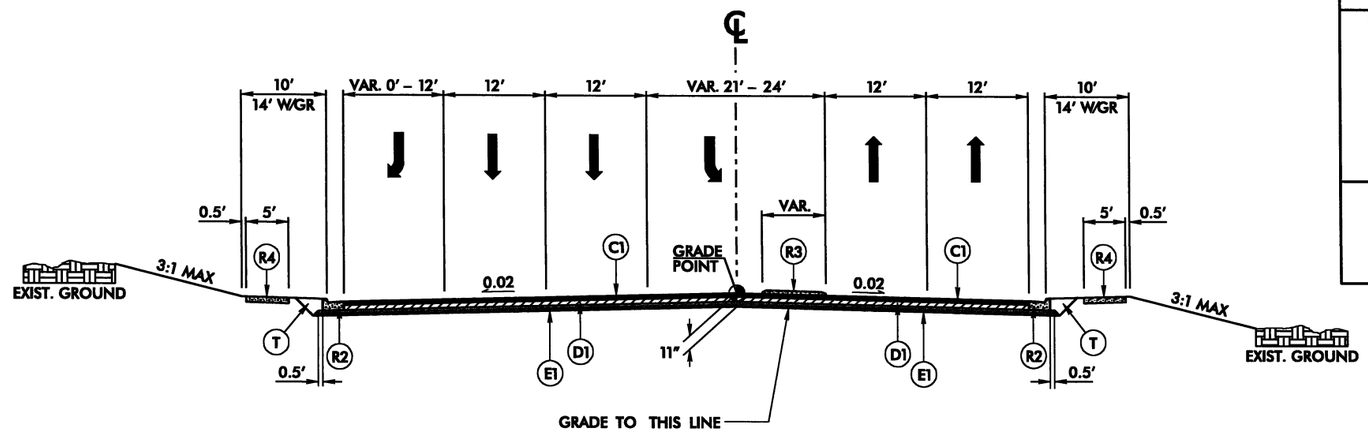
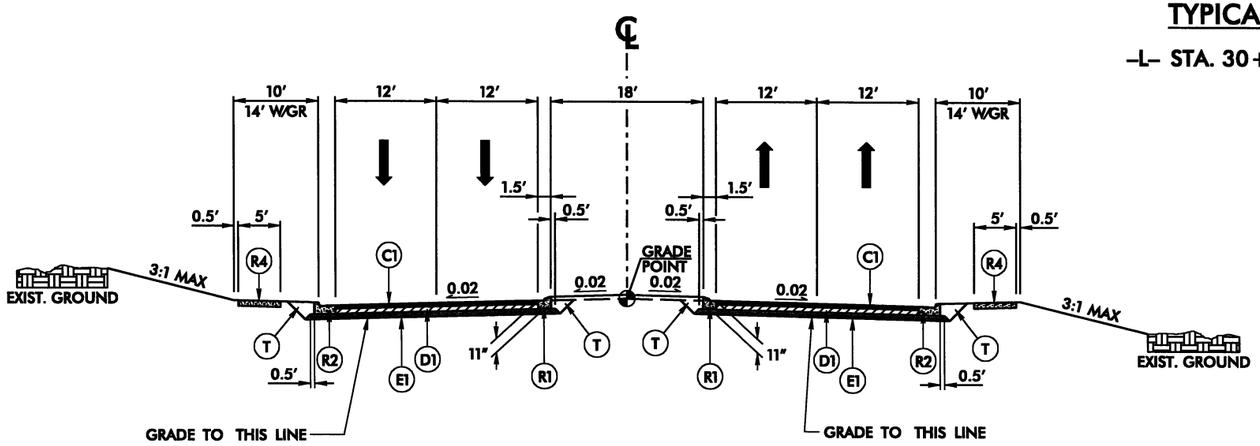


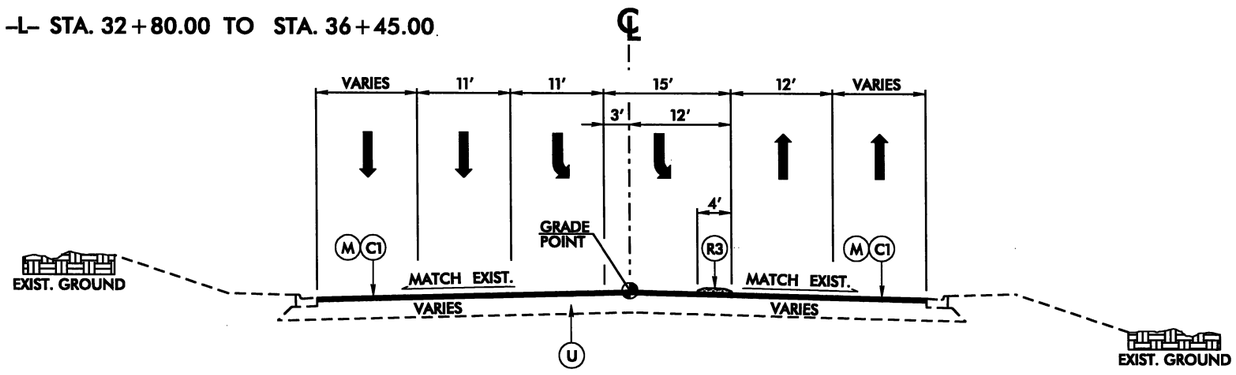
TYPICAL SECTION NO. 5

–L– STA. 30+00.00 TO STA. 32+80.00



TYPICAL SECTION NO. 6

–L– STA. 32+80.00 TO STA. 36+45.00



TYPICAL SECTION NO. 7

–L– STA. 59+99.00 TO STA. 64+57.00

NOTES:

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.

ALL PAVEMENT EDGES SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE

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R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

6/3/2010
file: c:\projects\proj\R5185_rdy_typ.dgn
model: default

PROJECT REFERENCE NO.	SHEET NO.
R-5185	2C

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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1000 West Morehead St., Ste. 200
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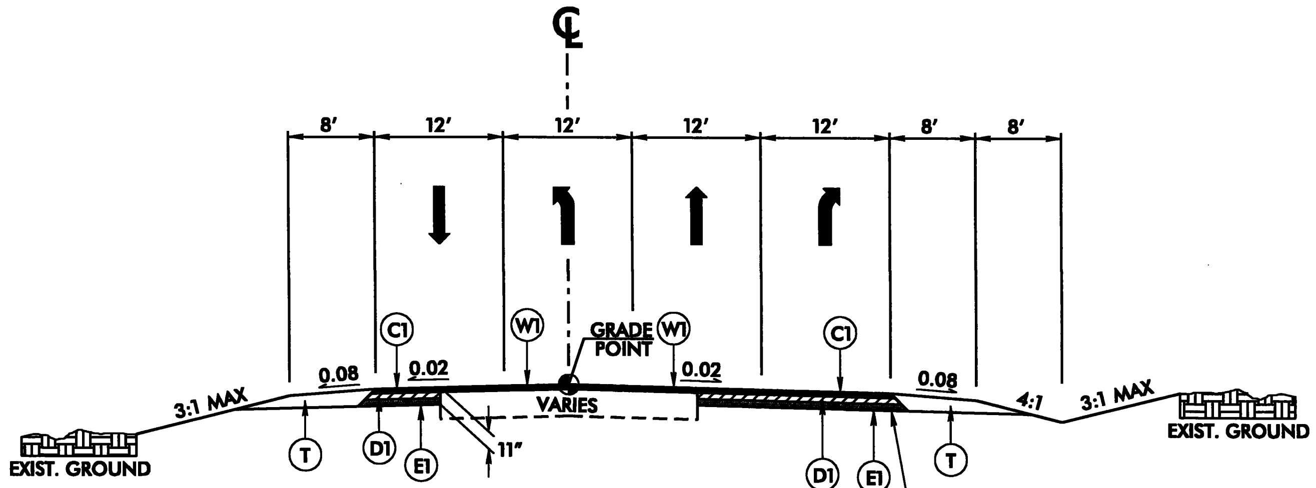
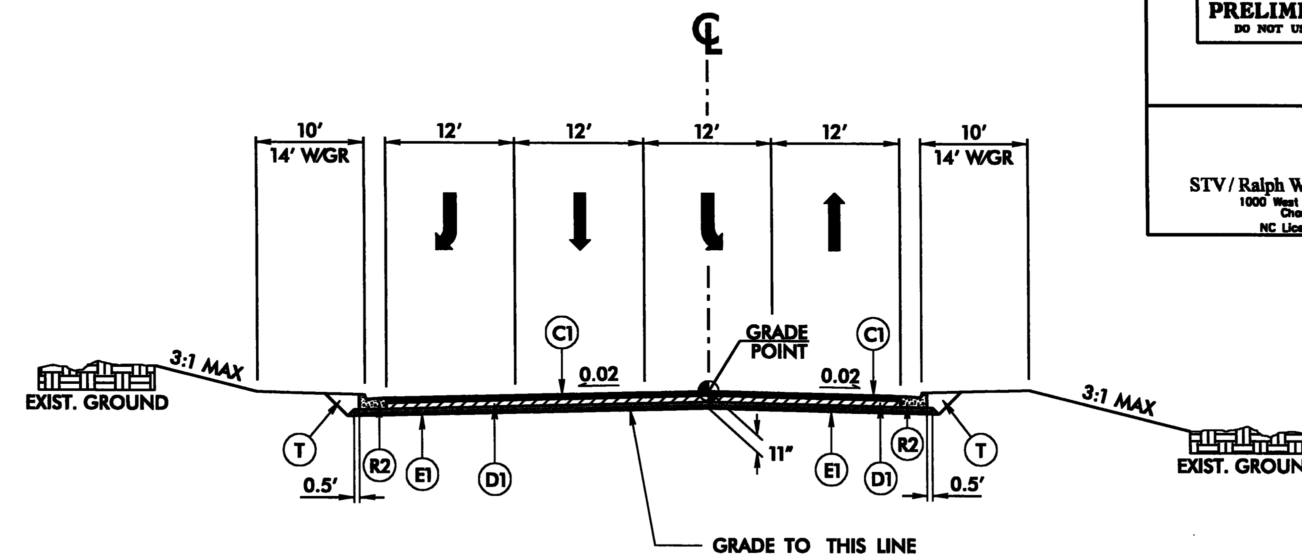


TYPICAL SECTION NO. 8

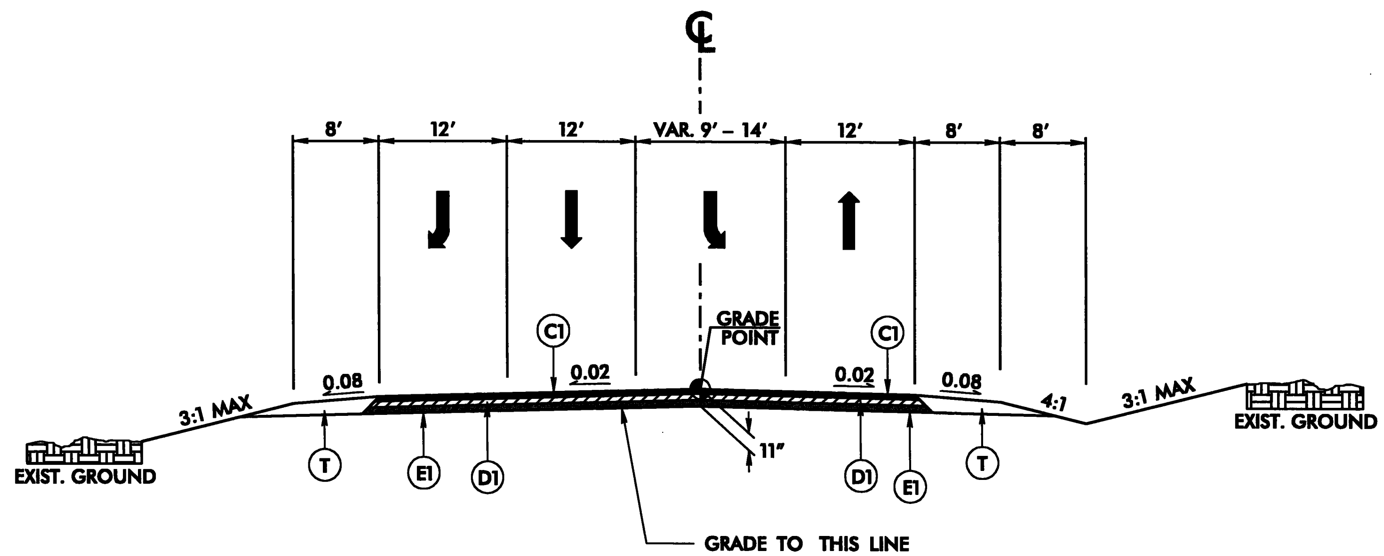
-Y1- STA. 10+13.12 TO STA. 12+72.82

GRADE TO THIS LINE



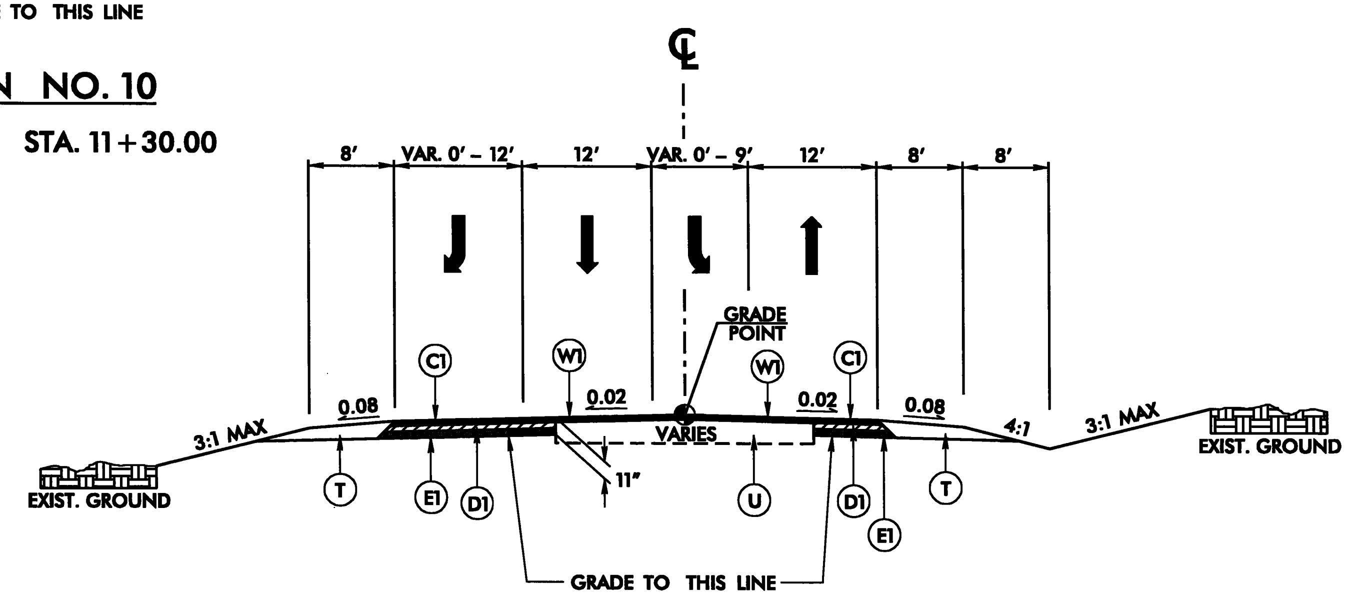
TYPICAL SECTION NO. 9

-DR1- STA. 10+34.50 TO STA. 11+32.14



TYPICAL SECTION NO. 10

-Y3- STA. 10+54.76 TO STA. 11+30.00



TYPICAL SECTION NO. 11

-Y3- STA. 11+30.00 TO STA. 12+50.00

NOTES:

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.

ALL PAVEMENT EDGES SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE	
C1	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.
C2	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 LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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 5.5" IN DEPTH.
M	1.5" MILLING
R1	PROPOSED 1'-6" CONCRETE CURB AND GUTTER
R2	PROPOSED 2'-6" CONCRETE CURB AND GUTTER
R3	PROPOSED 5" MONOLITHIC CONCRETE ISLAND
R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

6/2/99

6/3/2010
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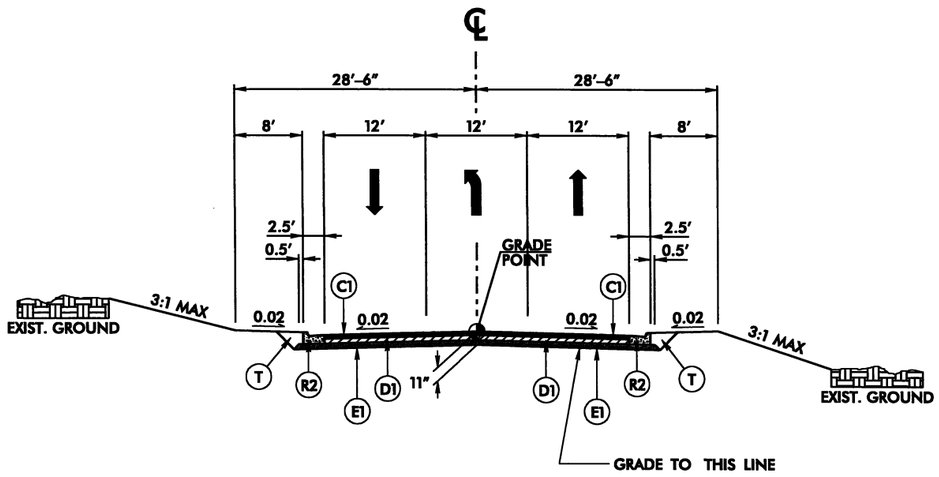
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-5185	2D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

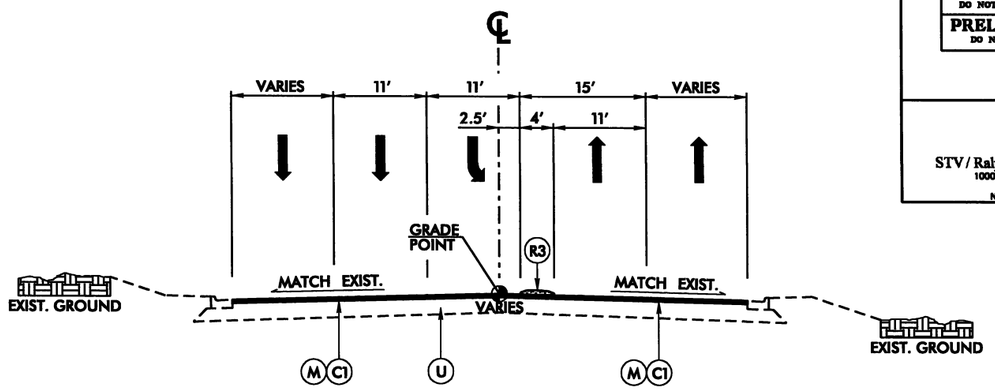
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991



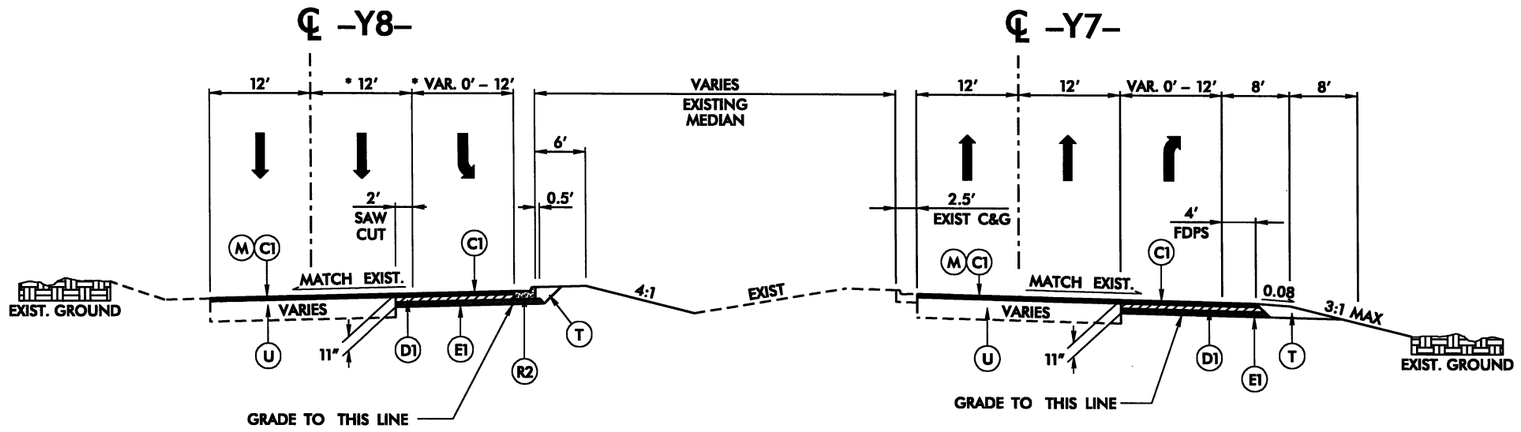
TYPICAL SECTION NO. 12

–Y5– STA. 10+34.56 TO STA. 12+08.06



TYPICAL SECTION NO. 13

–Y6– STA. 10+40.00 TO STA. 15+02.00



TYPICAL SECTION NO. 14

–Y7– STA. 10+44.14 TO STA. 17+77.75
–Y8– STA. 10+39.48 TO STA. 17+68.00

*** EXTEND EXISTING CONCRETE LANES WITHIN THIS STATION RANGE (–Y8– STA. 10+39.48 TO STA. 10+64.52)**

NOTES:

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.

ALL PAVEMENT EDGES SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE

C1	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.
C2	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 LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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 5.5" IN DEPTH.
M	1.5" MILLING
R1	PROPOSED 1'-6" CONCRETE CURB AND GUTTER
R2	PROPOSED 2'-6" CONCRETE CURB AND GUTTER
R3	PROPOSED 5" MONOLITHIC CONCRETE ISLAND
R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

6/3/2010
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COMPUTED BY: JAF DATE: 03-23-10
CHECKED BY: JAF DATE: 03-23-10

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
R-5185	3

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SUMMARY OF EARTHWORK

IN CUBIC YARDS

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L–	8+75.00	38+50.00	RT	94		22,098	22,004	
–Y3–	10+54.76	12+50.00	RT	76		393	415	
–DR1–	10+35.56	11+32.14	RT	27		211	184	
SUBTOTAL SUMMARY NO. 1				197		22,800	22,603	
–L–	38+50.00	59+99.00	RT	257		5,779	5,522	
–Y5–	10+34.15	12+35.00	RT	221		526	305	
–Y7–	11+00.00	17+50.00	RT	373		83		291
–Y8–	12+50.00	17+50.00	RT	335		95		240
SUBTOTAL SUMMARY NO. 2				1,118		6,313	5,725	531
–L–	8+75.00	38+50.00	LT	216		8,439	8,223	
–Y1–	10+13.12	12+77.71	LT	143		310	167	
SUBTOTAL SUMMARY NO. 3				359		8,749	8,390	
–L–	38+50.00	59+99.00	LT	115		1,728	1,613	
SUBTOTAL SUMMARY NO. 4				115		1,728	1,613	
SUBTOTAL SUMMARY 1–4				1,857		39,759	38,432	531
LOSS DUE TO CLEARING AND GRUBBING								
PROJECT TOTAL				1,857		39,759	38,432	
WASTE IN LIEU OF BORROW							–531	–531
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS							1,895	
GRAND TOTAL				1,857		39,759	39,797	
SAY				2,000			40,000	

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

* IN AREAS WHERE SHOULDER IS PRESENT (SEE PLANS FOR LOCATIONS)
"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH: STRAIGHT	LENGTH: SHOP CURVED	LENGTH: DOUBLE FACED	WARRANT POINT: APPROACH END	WARRANT POINT: TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH: APPROACH END	FLARE LENGTH: TRAILING END	W: APPROACH END	W: TRAILING END	ANCHORS: XI MOD	ANCHORS: B-77	ANCHORS: GRAU 350	ANCHORS: M-350	ANCHORS: TYPE III	ANCHORS: CAT-1	ANCHORS: VI MOD	ANCHORS: BIC	ANCHORS: AT-1	IMPACT ATTENUATOR TYPE 350: EA	IMPACT ATTENUATOR TYPE 350: G	IMPACT ATTENUATOR TYPE 350: NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	19+50.32	22+01.53	RT	252.2			21+65.00		14′	16′	50′		15.7′				1			1										
–L–	21+19.89	23+71.30	LT	251.4				21+65.00	14′	16′		50′		14.9′			1			1										
–L–	29+51.93	31+91.03	RT	239.2			31+64.00		14′	16′	50′		14.9′				1			1										
–L–	31+37.79	34+15.04	LT	278.0				31+64.00	14′	16′		50′		14.9′			1			1										
			TOTAL:	1020.8					46′	61′	100′	100′	30.6′	29.8′			4			4										
			TOTAL ANCHOR LENGTH:	225																										
			TOTAL GUARDRAIL LENGTH:	795.8																										
			SAY:	800																										

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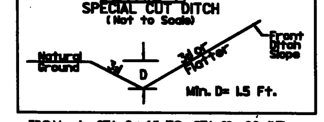
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R-5185-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 610137.8282(ft) EASTING: 2054546.3064(ft)
ELEVATION: 159.51(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999874446
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R-5185-2" TO -L- STATION 8+75.00 IS
S 33° 10' 07.51" E 82.6267 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

-L- CURVE DATA

PI Sta 7+92.33
Δ = 14° 01' 10.2" (RT)
D = 3° 05' 49.4"
L = 452.67'
T = 227.47'
R = 1,850.00'
DS = 50 MPH
e = EXIST
RUNOFF = 53'

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



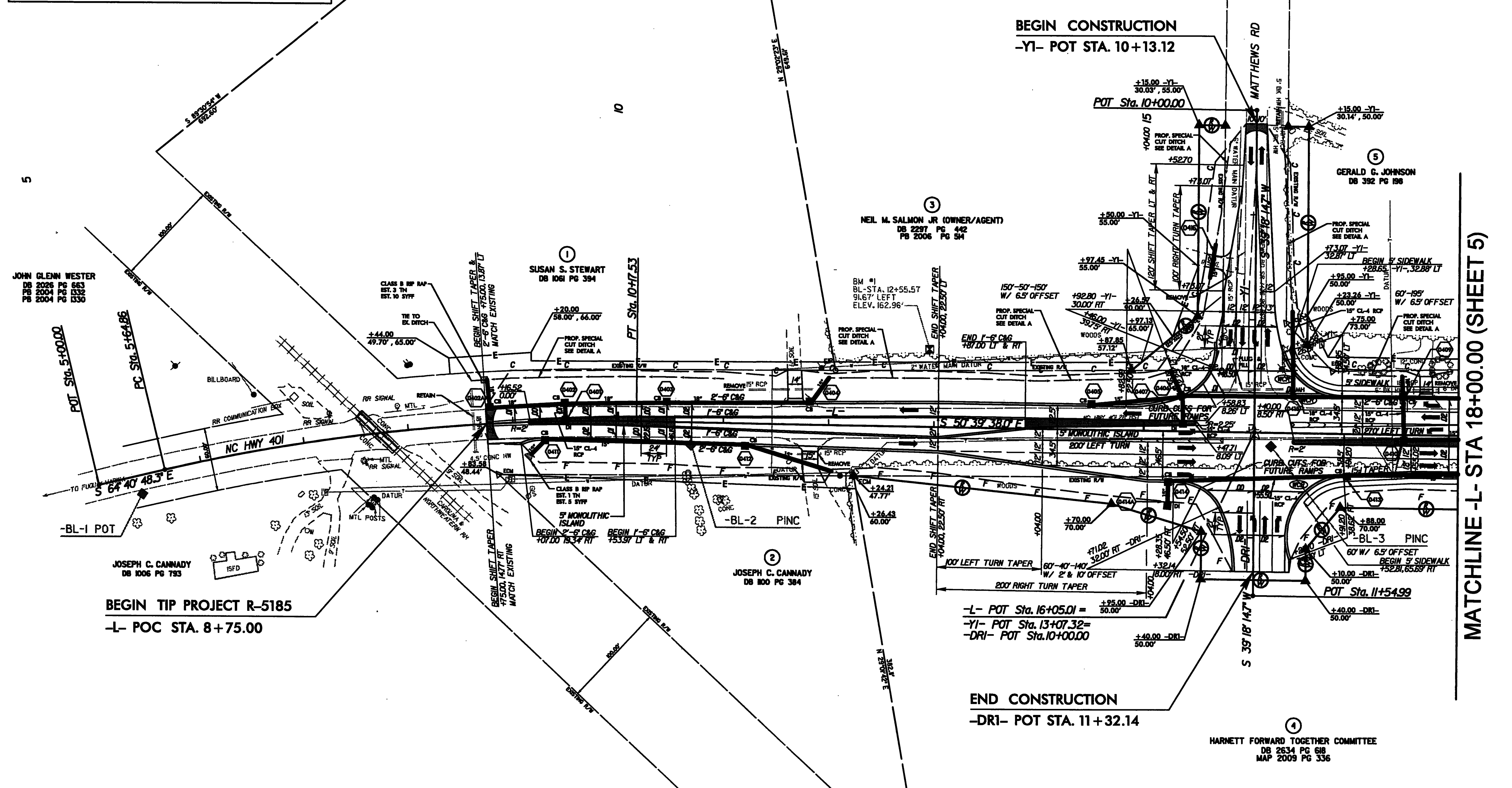
FROM -L- STA. 8+65 TO STA. 11+00 (LT)
FROM -L- STA. 12+00 TO STA. 14+00 (LT)
FROM -L- STA. 14+00 TO STA. 15+00 (LT)
FROM -L- STA. 16+75 TO STA. 17+50 (LT)
FROM -Y1- STA. 10+00 TO STA. 12+50 (LT)
FROM -Y1- STA. 10+30 TO STA. 12+50 (RT)

NOTE: ALL DITCHES TO HAVE TEMPORARY TURF REINFORCEMENT MATTING WHERE PERMANENT TURF REINFORCEMENT MATTING IS NOT SPECIFIED.

PROJECT REFERENCE NO.	SHEET NO.
R-5185	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991



FOR -L- PROFILE SEE SHEET 10
FOR -Y1- PROFILE SEE SHEET 12
FOR -DR1- PROFILE SEE SHEET 12

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PROJECT REFERENCE NO.	SHEET NO.
R-5185	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

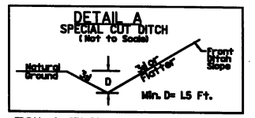
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

-L- CURVE DATA

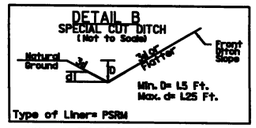
PI Sta 26+12.04
Δ = 0° 41' 03.6" (LT)
D = 0° 42' 58.3"
L = 109.51'
T = 54.76'
R = 8,000.00'
DS = 50 MPH
e = NC

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



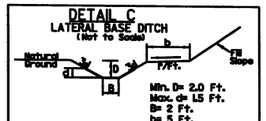
FROM -L- STA. 18+00 TO STA. 19+50 (LT)
FROM -L- STA. 27+50 TO STA. 31+00 (LT)

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



FROM -L- STA. 22+00 TO STA. 25+50 (LT)

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



FROM -L- STA. 19+50 TO STA. 21+50 (LT)

NOTE: ALL DITCHES TO HAVE TEMPORARY TURF REINFORCEMENT MATTING WHERE PERMANENT TURF REINFORCEMENT MATTING IS NOT SPECIFIED.

NC GRID
NAD 83 /NSRS 07

MATCHLINE -L- STA 18+00.00 (SHEET 4)

MATCHLINE -L- STA 30+00.00 (SHEET 6)

GERALD G. JOHNSON
DB 392 PG 198

HARNETT FORWARD TOGETHER COMMITTEE
DB 2252 PG 98
PB 2008 PG 913

15'-6" x 7'-3" ALUM. BOX CULVERT
-L- STA. 21+65.00

FUTURE BRIGHTWATER DEVELOPMENT BY OTHERS

EXIST. 7' X 5' RCBC TO BE REMOVED

PROPOSED CHANNEL TIE IN SEE DETAIL THIS SHEET

PROP. LATERAL BASE DITCH SEE DETAIL C

END 7'-6" CAG
+52.25 LT & RT

100' LEFT TURN TAPER

PROP. SPECIAL CUT DITCH SEE DETAIL A

CLASS B RIP RAP EST. 2 TN EST. 7 SYYD

CLASS B RIP RAP EST. 5 TN EST. 14 SYYD

PROP. SPECIAL CUT DITCH SEE DETAIL B

EXISTING R/W

5' SIDEWALK

-L- NC HWY 401
S 50°39'38" E

2'-6" C&G

1'-6" C&G

PROPOSED GUARDRAIL GRAU-350

-BL-4 PINC

5' MONOLITHIC ISLAND

450' DUAL LEFT TURN

450' RIGHT TURN

150' LEFT TURN TAPER

100' RIGHT TURN TAPER

BEGIN 1'-6" C&G
+28.64 LT & RT

BEGIN SHIFT TAPER RT
+120.00, 10.57' RT

END SHIFT TAPER RT
+35.00, 18.75' RT

PREFORMED SCOUR HOLE SEE DETAIL THIS SHEET

PROPOSED CHANNEL TIE IN SEE DETAIL THIS SHEET

HARNETT FORWARD TOGETHER COMMITTEE
DB 2634 PG 618
MAP 2009 PG 336

BRIGHTWATER DR
Sta. 26+66.80

FUTURE BRIGHTWATER DEVELOPMENT ENTRANCE BY OTHERS

-L- POT Sta. 26+69.91 =
-Y3- POT Sta. 10+00.00

R=50'

450' RIGHT TURN

-BL-5 PINC

450' LEFT TURN

5' MONOLITHIC ISLAND

5' SIDEWALK

185' SHIFT TAPER LT & RT

75' RIGHT TURN TAPER

12" WATER MAIN

HARNETT COUNTY
PB 850 PG 889
MAP 2009 PG 572

POT Sta. 12+72.98

MCKINNEY PKY

S 39°28'05.8" W

S 51°40'38" E
389.57'

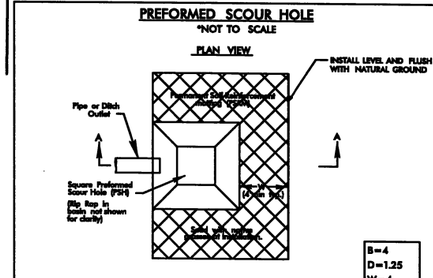
S 08°44'47" E
80.38'

S 08°44'47" E
310.04'

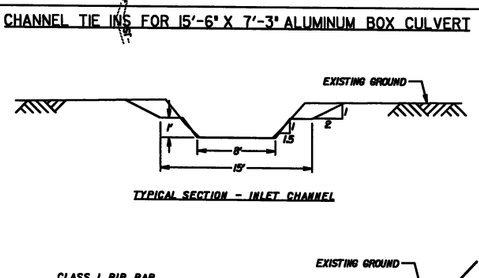
END CONSTRUCTION
-Y3- POT STA. 12+50.00

FOR -L- PROFILE SEE SHEET 10
FOR -Y3- PROFILE SEE SHEET 13

PREFORMED SCOUR HOLE
*NOT TO SCALE



CHANNEL TIE INS FOR 15'-6" X 7'-3" ALUMINUM BOX CULVERT



-L- STA. 22+40 (RT)
-L- STA. 29+00 (RT)

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8/17/99

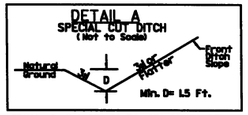
PROJECT REFERENCE NO.	SHEET NO.
R-5185	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

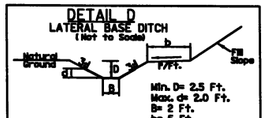
STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St. Ste. 200
Charlotte, NC 28208
NC License Number F-0991

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



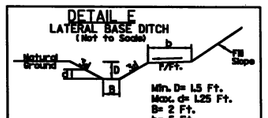
FROM -L- STA. 27+50 TO STA. 31+00 (LT)

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= PSRM
FROM -L- STA. 32+00 TO STA. 38+50 (LT)

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= PSRM
FROM -L- STA. 32+50 TO STA. 32+50 (RT)

DETAIL F
TOE PROTECTION
(Not to Scale)

Type of Liner= PSRM
FROM -L- STA. 32+50 TO STA. 38+50 (RT)
FROM -L- STA. 40+50 TO STA. 44+50 (RT)

NOTE: ALL DITCHES TO HAVE TEMPORARY TURF REINFORCEMENT MATTING WHERE PERMANENT TURF REINFORCEMENT MATTING IS NOT SPECIFIED.

NC GRID
NAD 83 /NSRS 07

N 60°45'49" E
684.07'

MATCHLINE -L- STA 30+00.00 (SHEET 5)

MATCHLINE -L- STA 42+00.00 (SHEET 7)

6 HARNETT FORWARD TOGETHER COMMITTEE
DB 2252 PG 98
PB 2008 PG 303

6 STAFFORD LAND CO.,INC
DB 2406 PG 386
PB "F" PG 398A

7 HARNETT COUNTY
PB 160 PG 889
MAP 2009 PG 572

-BL-6 PINC

BEGIN 1'-6" C&G LT & RT +93.81

100' RIGHT TURN TAPER

100' LEFT TURN TAPER

EXIST 8' X 5' RCBC TO BE REMOVED

PROPOSED CHANNEL TIE IN SEE DETAIL THIS SHEET

PROP. SPECIAL CUT DITCH SEE DETAIL A

PROP. LATERAL BASE DITCH SEE DETAIL D

CLASS B RIP RAP EST. 2 TN EST. 7 SYYF

CLASS B RIP RAP EST. 6 TN EST. 20 SYYF

CLASS B RIP RAP EST. 5 TN EST. 14 SYYF

CLASS B RIP RAP EST. 10 TN EST. 28 SYYF

+10.00
74.08', 95.00', 105.00'

+70.00
133.00'

+80.00
105.00'

+28.00
130.00'

+85.00
105.00'

+16.00
105.00', 116.00'

+05.00
105.00'

+50.00
90.00', 105.00'

+55.00
72.47', 80.00', 90.00', 105.00

+38.00
74.56', 80.00'

5' SIDEWALK

45° RIGHT TURN

-L-

PROPOSED GUARDRAIL GRAU-350

2'-6" C&G

1'-6" C&G

1'-6" C&G DATUM

NC HWY 401 PLUG & FILL

S 51°26'41.6" E

5' MONOLITHIC ISLAND

12" WATER MAIN DATUM

24" CL-4 RCP

2-24"

15" CL-4 RCP

REMOVE

2'-6" C&G

DUAL LEFT TURN

46' TYP

+94.17
75.00'

+94.18
85.00'

+05.00
85.00'

+30.00
122.00'

+68.65
100.00'

+95.00
85.00'

+70.00
70.00', 85.00'

+12.00
70.00', 100.00'

PROP. LATERAL BASE DITCH SEE DETAIL E

CLASS B RIP RAP EST. 5 TN EST. 14 SYYF

END SHAFT TAPER +30.00, 34.50' RT

PROPOSED CHANNEL TIE IN SEE DETAIL THIS SHEET

15'-4" x 6'-5" ALUM. BOX CULVERT
-L- STA. 31+64.00

S 38°30'59" W
275.76'

+58.00
70.00'

+00.00
70.00', 85.00'

+35.00
70.00'

+70.00
70.00'

+10.00
70.00'

+77.61
70.00'

+70.00

APPROX. LOCATION 100' TAPER

L=100.35'

REMOVE EXIST. CURB & GUTTER

1 FD DATUM

100' LEFT TURN TAPER

24" RCP

N 38°30'59" E
282.14'

END 2'-6" C&G
+98.00, 191.74' RT

BEGIN 2'-6" C&G
+81.00, 195.35' RT

+70.00
210.00'

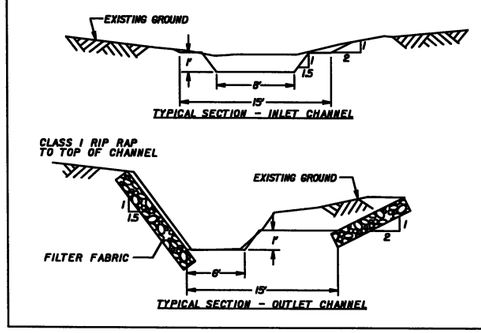
+10.00
210.00'

2' SAWCUT

S 51°29'01" E
221.00'

N 38°30'59" E
662.00'

CHANNEL TIE INS FOR 15'-4" X 6'-5" ALUMINUM BOX CULVERT



FOR -L- PROFILE SEE SHEET 11

5/7/2010
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mabdelaziz

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5185	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St. Ste. 200
Charlotte, NC 28208
NC License Number F-0991

NC GRID
NAD 83 / NSRS 07

-L- CURVE DATA
PI Sta 47+37.25
Δ = 9° 50' 30.9" (LT)
D = 0° 52' 53.3"
L = 1,116.53'
T = 559.64'
R = 6,500.00'
DS = 50 MPH
θ = RC
RUNOFF = 92'

MATCHLINE -L- STA 42+00.00 (SHEET 6)

MATCHLINE -L- STA 54+00.00 (SHEET 8)

POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y4- POT STA. 12+20.00

-L- POC Sta. 45+42.48 =
-Y5- POT Sta. 10+00.11

-L- POC Sta. 44+78.35 =
-Y4- POT Sta. 13+43.73

POT Sta. 13+11.73

END CONSTRUCTION
-Y5- POT STA. 12+35.00

PT Sta. 52+19.14

FIDELITY BANK
DB 1396 PG 38

STAFFORD LAND CO.,INC
DB 2406 PG 386
PB "F" PG 398A

DOLGENCORP,INC.
DB 1639 PG 233

JAMES T. STONE
DB 1553 PG 827
PC"F" SLIDE 626C

STEVE PARIS AND
RALPH M. POTTER
DB 1255 PG 127
PC"F" SLIDE 626C

RIDDLE PROPERTIES,LLC
DB 1669 PG 444
PC"F" SLIDE 626C

FIRST BANCORP FINANCIAL
DB 1984 PG 37

JERRY HAMILTON & WIFE MARGIE
DB 821PG 505

JOAN SEXTON CAMPBELL,TRUSTEE
DB 1213 PG 36

HARNETT COUNTY
PB 160 PG 869
MAP 2009 PG 572

-BL-7 PINC

-BL-8 PINC

BM #2
-BL- STA 43+78.11
154.54' RT
ELEV. 169.33'

FOR -L- PROFILE SEE SHEET 11
FOR -Y5- PROFILE SEE SHEET 13

6/7/2010
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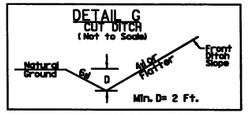
mabdallah

8/17/99

NOTE: ALL DITCHES TO HAVE TEMPORARY TURF REINFORCEMENT MATTING WHERE PERMANENT TURF REINFORCEMENT MATTING IS NOT SPECIFIED.

DETAIL G
CUT DITCH
(Not to Scale)



FROM -Y7- STA. 11+00 TO STA. 13+00 -RT-

NC GRID
NAD 83 / NSRS 07

PROJECT REFERENCE NO.	SHEET NO.
R-5185	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St. Ste. 200
Charlotte, NC 28208
NC License Number F-0991

WILBURN G. KENT
DB 702 PG 259

MATTHEWS OIL CO.
DB 2452 PG 403

POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y6- POT STA. 10+40.00

-BY- 10 POT

RETAIN

RIDDLE PROPERTIES,LLC
DB 1569 PG 444
PC*F SLIDE 626C

TRI-FOOD SYSTEM, INC.
DB 1459 PG 176
MB 2000 PG 793

R/W PIZZA HUTS OF NC
DB 862 PG 323

STEVE PARIS AND
RALPH M. POTTER
DB 1255 PG 127
PC*F SLIDE 626C

McDONALD'S CORPORATION
DB 862 PG 823
PC*F SLIDE 626C

AOM INVESTMENTS LLC
DB 1329 PG 753
PC*F SLIDE 5658

PT Sta. 57+84.26

MATTHEWS OIL CO.
DB 2452 PG 403

END TIP PROJECT R-5185
-L- POT STA. 64+57.00

POT Sta. 64+91.06

-BL- 9 POT

NC HWY 421

NC HWY 401

PC Sta. 54+56.31

MATCHLINE -L- STA 54+00.00 (SHEET 7)

MATCHLINE -Y7- STA 13+00.00 (SHEET 9)

JOAN SEXTON CAMPBELL, TRUSTEE
DB 1213 PG 36

HARNETT COUNTY CEMETARY ASSOCIATION
NO DEED

POLLARD INVESTMENTS
DB 1777 PG 946

-L- POC Sta.58+39.52 =
-Y8- POT Sta. 10+00.00

-L- POC Sta.58+21.33 =
-Y6- POT Sta. 15+56.81

-L- POC Sta.57+90.68 =
-Y7- POT Sta. 10+00.14

-GPS- 103 PINC =
-BY- 11 POT

PC Sta. 12+31.24

PC Sta. 12+93.21

-L- CURVE DATA
PI Sta 55+99.77
Δ = 2° 03' 17.0" (RT)
D = 0° 42' 58.3"
L = 286.89'
T = 143.46'
R = 8,000.00'
DS = 50 MPH
e = NC

-Y8- CURVE DATA
PI Sta 13+34.91
Δ = 11° 50' 12.5" (LT)
D = 5° 43' 46.5"
L = 206.59'
T = 103.66'
R = 1,000.00'
e = EXIST

-Y7- CURVE DATA
PI Sta 13+70.61
Δ = 22° 50' 18.6" (LT)
D = 8° 11' 06.4"
L = 279.03'
T = 141.39'
R = 700.00'
e = EXIST

FOR -L- PROFILE SEE SHEET 12

5/17/2010
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mabdallah

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5185	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

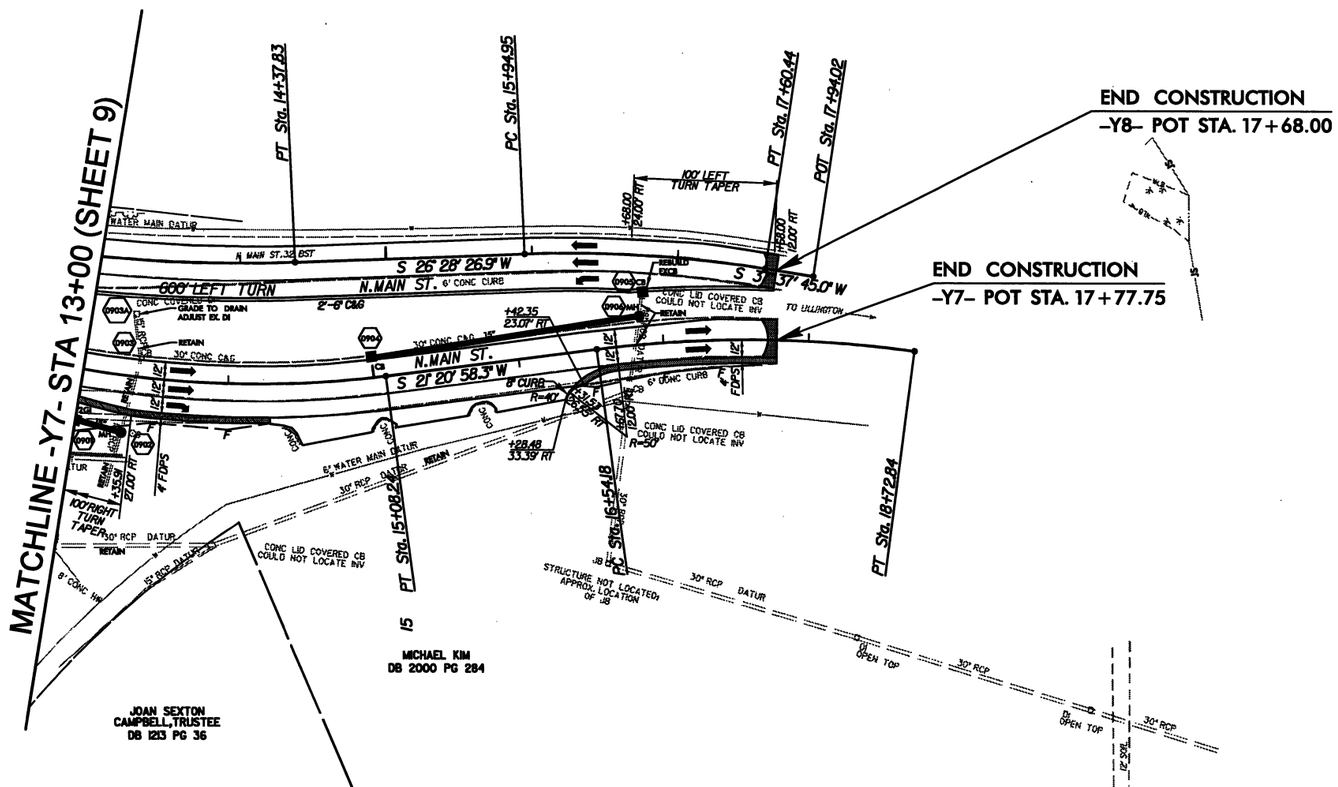
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St. Ste. 200
Charlotte, NC 28208
NC Licenses Number F-0991

NC GRID NAD 83 /NSRS 07

-Y7- CURVE DATA	
PI Sta 13+70.61	PI Sta 17+64.15
Δ = 22° 50' 18.6" (LT)	Δ = 15° 05' 39.7" (RT)
D = 8° 11' 06.4"	D = 6° 54' 11.2"
L = 279.03'	L = 218.66'
T = 141.39'	T = 109.97'
R = 700.00'	R = 830.00'
e = EXIST	e = EXIST

-Y8- CURVE DATA	
PI Sta 13+34.91	PI Sta 16+77.96
Δ = 11° 50' 12.5" (LT)	Δ = 11° 09' 18.1" (RT)
D = 5° 43' 46.5"	D = 6° 44' 26.4"
L = 206.59'	L = 165.49'
T = 103.66'	T = 83.01'
R = 1,000.00'	R = 850.00'
e = EXIST	e = EXIST



6/7/2010
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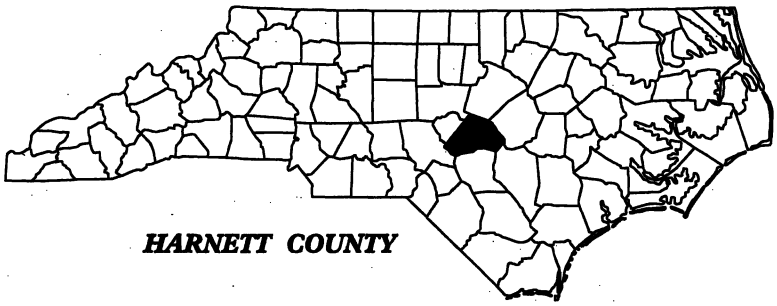
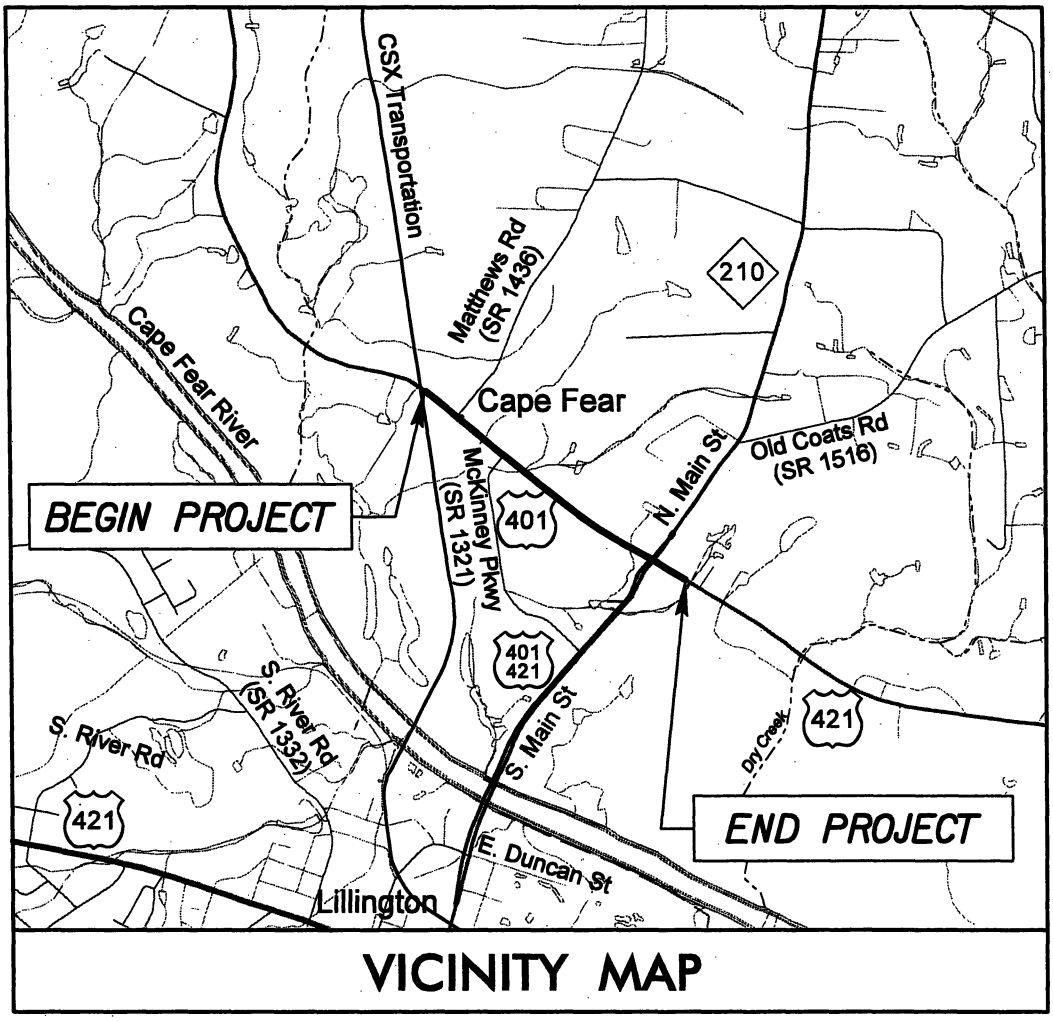
mabdelaziz

NORTH CAROLINA





VICINITY MAP

Permit Drawing
Sheet ___ of ___

VICINITY MAP

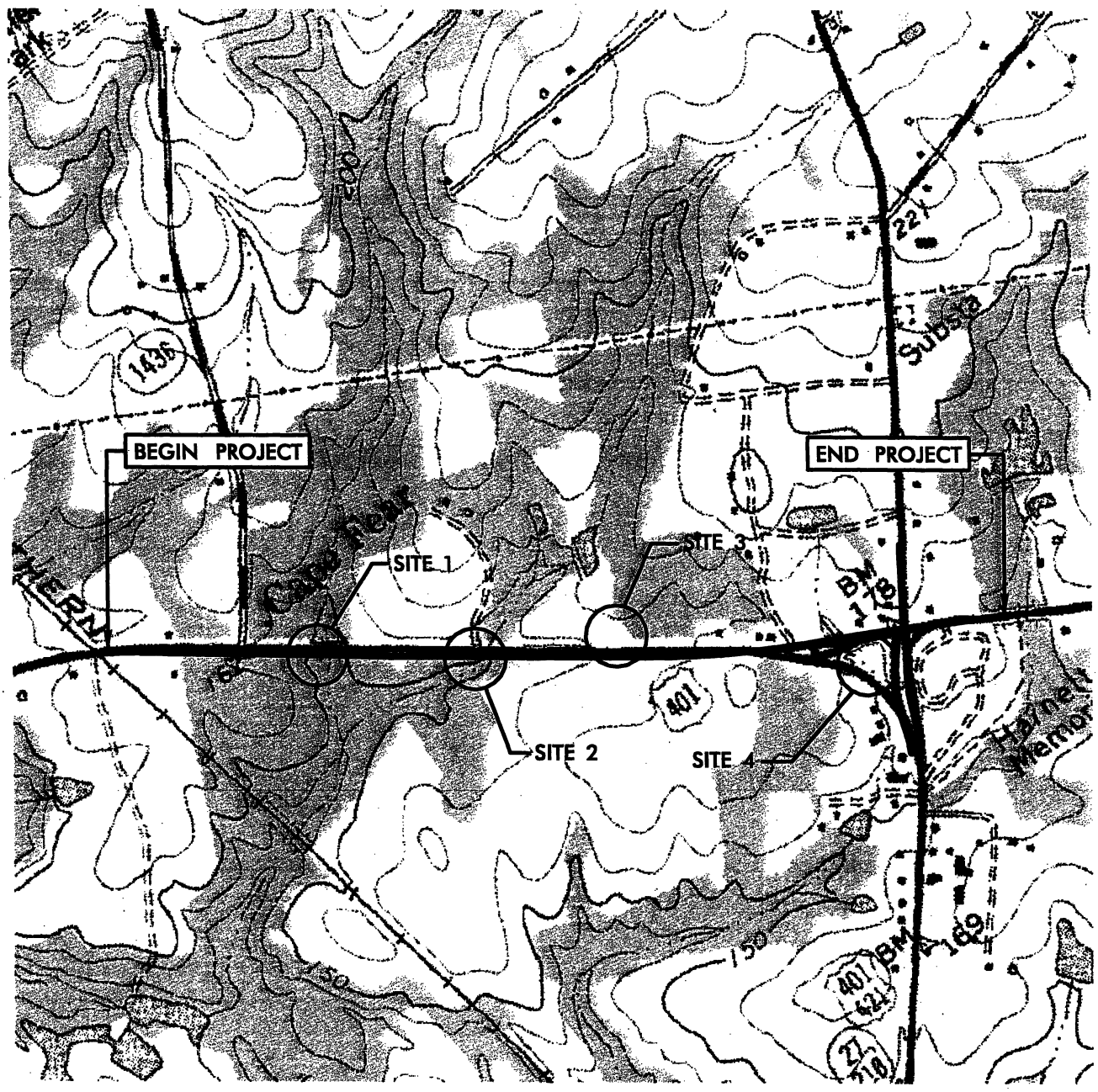
NCDOT

DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD (SR 1436) TO NC 210

Permit Drawing
Sheet 1 of 21

SHEET OF

5/17/10



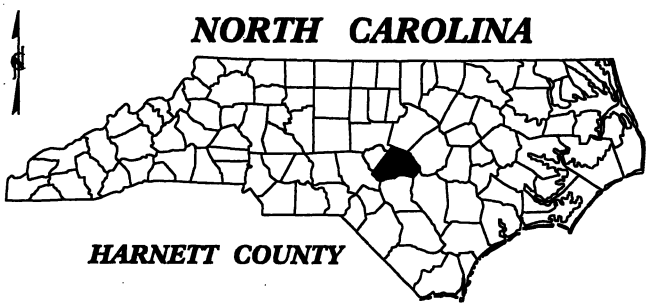
VICINITY MAP

1000′ 0′ 1000′

GRAPHIC SCALE

Permit Drawing
Sheet ___ of ___

LILLINGTON, NC QUAD MAP



NCDOT

DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD
(SR 1436) TO NC 210

Permit Drawing
Sheet 2 of 21
SHEET OF

5/17/10

Permit Drawing
Sheet 2 of 21

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 20+66 to 22+00	15'-6"x7'-3" Aluminum Culvert	0.17				0.04	0.03	0.01	147	67	
2	-L- 31+14 to 32+01)	15'-4"x6'-5" Aluminum Culvert	<.01				<.01	0.06	<.01	154	22	
2	-L- 31+14 to 31+93 (RT)	Bank Stablization								45		
3	-L- 39+11 to 39+43 (LT)	N/A					<.01					
4	-L- 54+92 to 55+14 (LT)	42" RCP						<.01	<.01	15	5	
TOTALS:			0.17				0.04	0.09	0.01	361	94	

Note: Less than 0.01 acres of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COUNTY
45222.1.1 (R-5185)

SHEET 9/13/2010

ATN Revised 3/31/05

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESS
4	HARNETT FORWARD TOGETHER COMMITTEE	W. CORNELIUS HARNETT BLVD. LILLINGTON, NC 27546
6	HARNETT FORWARD TOGETHER COMMITTEE	W. CORNELIUS HARNETT BLVD. LILLINGTON, NC 27546
7	HARNETT COUNTY	W. CORNELIUS HARNETT BLVD. LILLINGTON, NC 27546
8	STAFFORD LAND CO., INC	W. CORNELIUS HARNETT BLVD. LILLINGTON, NC 27546

Permit Drawing
Sheet ___ of ___

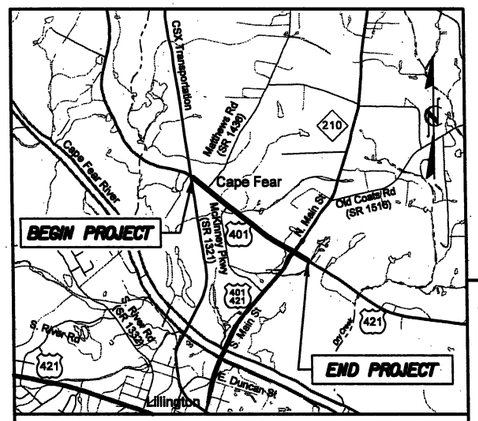
NCDOT
DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD
(SR 1436) TO NC 210

Permit Drawing
Sheet 4 of 21

SHEET ~~OF~~ 5/17/10

TIP PROJECT: R-5185

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



VICINITY MAP
N.T.S.

25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT COUNTY

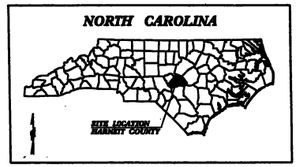
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5185	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45222.1.1	HPP-0401(207)	P.E.

LOCATION: US 401 IN LILLINGTON FROM NORTH OF MATTHEWS RD (SR 1436) TO NC 210

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERTS, SIGNALS, & SIGNING

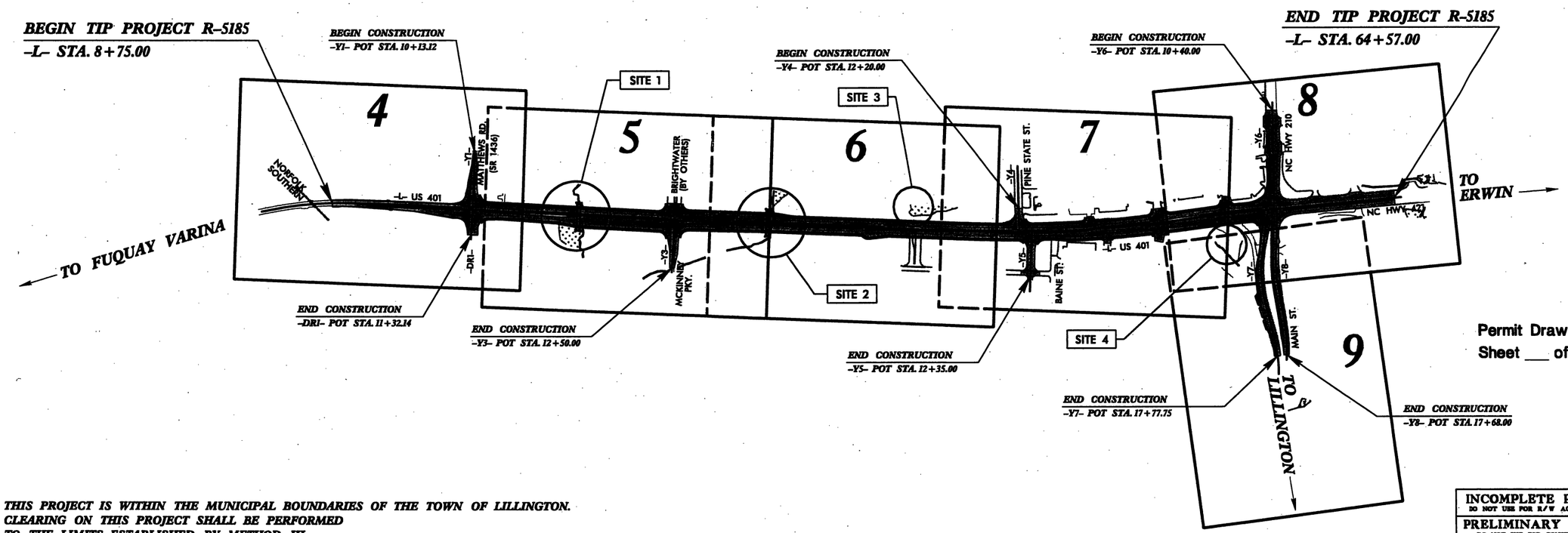
NC GRID
NAD 83 / NSRS 07



WETLAND AND STREAM IMPACTS

BEGIN TIP PROJECT R-5185
-L- STA. 8+75.00

END TIP PROJECT R-5185
-L- STA. 64+57.00



Permit Drawing
Sheet ___ of ___

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF LILLINGTON. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

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

CONTRACT:

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 5 2.5 0 5 10

DESIGN DATA

ADT 2009 = 11,000
ADT 2030 = 20,500
DHV = N/A
D = N/A
T = N/A
V = 50 MPH
FUNC. CLASS:
RURAL ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5185 = *1.06 Miles*
TOTAL LENGTH TIP PROJECT R-5185 = *1.06 Miles*

NCDOT CONTACT: JERRY BRADLEY
Project Engineer – Division 6 Project Manager

Prepared In the Office of:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-0991
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 18, 2010
LETTING DATE: JULY 20, 2011

JOSEPH A. FREEMAN, PE
PROJECT ENGINEER

MAAMOON ABDELAZIZ
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Permit Drawing
Sheet 5 of 21

STATE HIGHWAY DESIGN ENGINEER

25% PLANS
6/3/2010

8/17/99

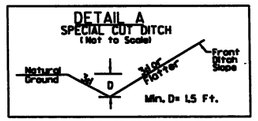
PROJECT REFERENCE NO.	SHEET NO.
R-5185	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

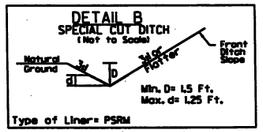
STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



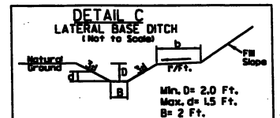
FROM -L- STA. 18+00 TO STA. 19+50 (LT)
FROM -L- STA. 27+50 TO STA. 31+00 (LT)

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= PSRM
FROM -L- STA. 22+00 TO STA. 25+50 (LT)

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= PSRM
FROM -L- STA. 19+50 TO STA. 21+50 (LT)

NC GRID
NAD 83 / NSRS 07

MATCHLINE -L- STA 18+00.00 (SHEET 4)

MATCHLINE -L- STA 30+00.00 (SHEET 6)

SEE FIGURE
SITE 1

SITE 1

TEMPORARY IMPACTS
IN SURFACE WATER

IMPACTS IN
SURFACE WATER

PROPOSED CHANNEL TIE IN
SEE DETAIL THIS SHEET

⑤ GERALD G. JOHNSON

⑥ HARNETT FORWARD TOGETHER COMMITTEE

CLASS B RIP RAP
EST. 5 TN
EST. 14 SYFF

PROP. LATERAL
BASE DITCH
SEE DETAIL C
DA=8.2cc total

PROP. SPECIAL
CUT DITCH
SEE DETAIL A
DA=0.3cc

CLASS B RIP RAP
EST. 2 TN
EST. 7 SYFF

PROP. SPECIAL
CUT DITCH
SEE DETAIL B
DA=3.2cc

CLASS B RIP RAP
EST. 2 TN
EST. 7 SYFF

PROP. SPECIAL
CUT DITCH
SEE DETAIL A
DA=4.1cc total

36" WD
10" HDPE
WOODS
FALLOW
DATUR
8" CONC HW
CONC WW
PDE
4"

④ HARNETT FORWARD TOGETHER COMMITTEE

⑦ HARNETT COUNTY

FILL IN WETLAND

HAND CLEARING

PROP. 15'-6" X 7'-3"
ALUMINUM BOX CULVERT

PREFORMED SCOUR HOLE
SEE DETAIL THIS SHEET

IMPACTS IN
SURFACE WATER

HAND CLEARING

PROPOSED CHANNEL TIE IN
SEE DETAIL THIS SHEET

TEMPORARY IMPACTS
IN SURFACE WATER

12" WATER MAIN
36" CMP
18" CONC HW

LEGEND

S/S	DENOTES IMPACTS IN SURFACE WATER
TS/TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F/F	DENOTES FILL IN WETLAND
HC/HC	DENOTES HAND CLEARING

Permit Drawing
Sheet ___ of ___

100' 0' 100'
GRAPHIC SCALE

Permit Drawing
Sheet 6 of 21

6/3/2010
R:\Hydraulics\PERMITS_Environmental\Drawings\R5185_Hyd_prm_psh5.dgn
mabolanz

8/17/99

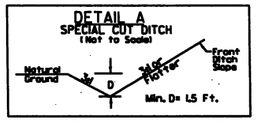
PROJECT REFERENCE NO.	SHEET NO.
R-5185	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

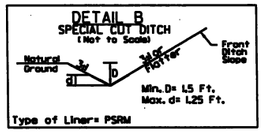
STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



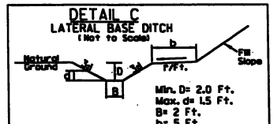
FROM -L- STA. 18+00 TO STA. 19+50 (LT)
FROM -L- STA. 27+50 TO STA. 31+00 (LT)

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= PSRM
FROM -L- STA. 22+00 TO STA. 25+50 (LT)

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= PSRM
FROM -L- STA. 19+50 TO STA. 21+50 (LT)

NC GRID
NAD 83 /NSRS 07

MATCHLINE -L- STA 18+00.00 (SHEET 4)

MATCHLINE -L- STA 30+00.00 (SHEET 6)

SEE FIGURE SITE 1

SITE 1

TEMPORARY IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

PROPOSED CHANNEL TIE IN SEE DETAIL THIS SHEET

(5) GERALD G. JOHNSON

(6) HARNETT FORWARD TOGETHER COMMITTEE

(4) HARNETT FORWARD TOGETHER COMMITTEE

(7) HARNETT COUNTY

CLASS B RIP RAP
EST. 5 TN
EST. 14 SYFF

PROP. LATERAL BASE DITCH
SEE DETAIL C
DA=1.2ac total

PROP. SPECIAL CUT DITCH
SEE DETAIL A
DA=0.3ac

CLASS B RIP RAP
EST. 2 TN
EST. 7 SYFF

PROP. SPECIAL CUT DITCH
SEE DETAIL B
DA=3.2ac

PROP. SPECIAL CUT DITCH
SEE DETAIL A
DA=4.1ac total

36" CMP

90" HDPE

PDE

PREFORMED SCOUR HOLE
SEE DETAIL THIS SHEET

FILL IN WETLAND

HAND CLEARING

PROP. 15'-6" X 7'-3" ALUMINUM BOX CULVERT

TEMPORARY IMPACTS IN SURFACE WATER

FALLOW

DATUR

WOODS

18" CONC HW

LEGEND

IS/IS	DENOTES IMPACTS IN SURFACE WATER
TS/TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F/F	DENOTES FILL IN WETLAND
HC/HC	DENOTES HAND CLEARING

Permit Drawing
Sheet ___ of ___

100' 0' 100'
GRAPHIC SCALE

Permit Drawing
Sheet 7 of 21

6/11/2010
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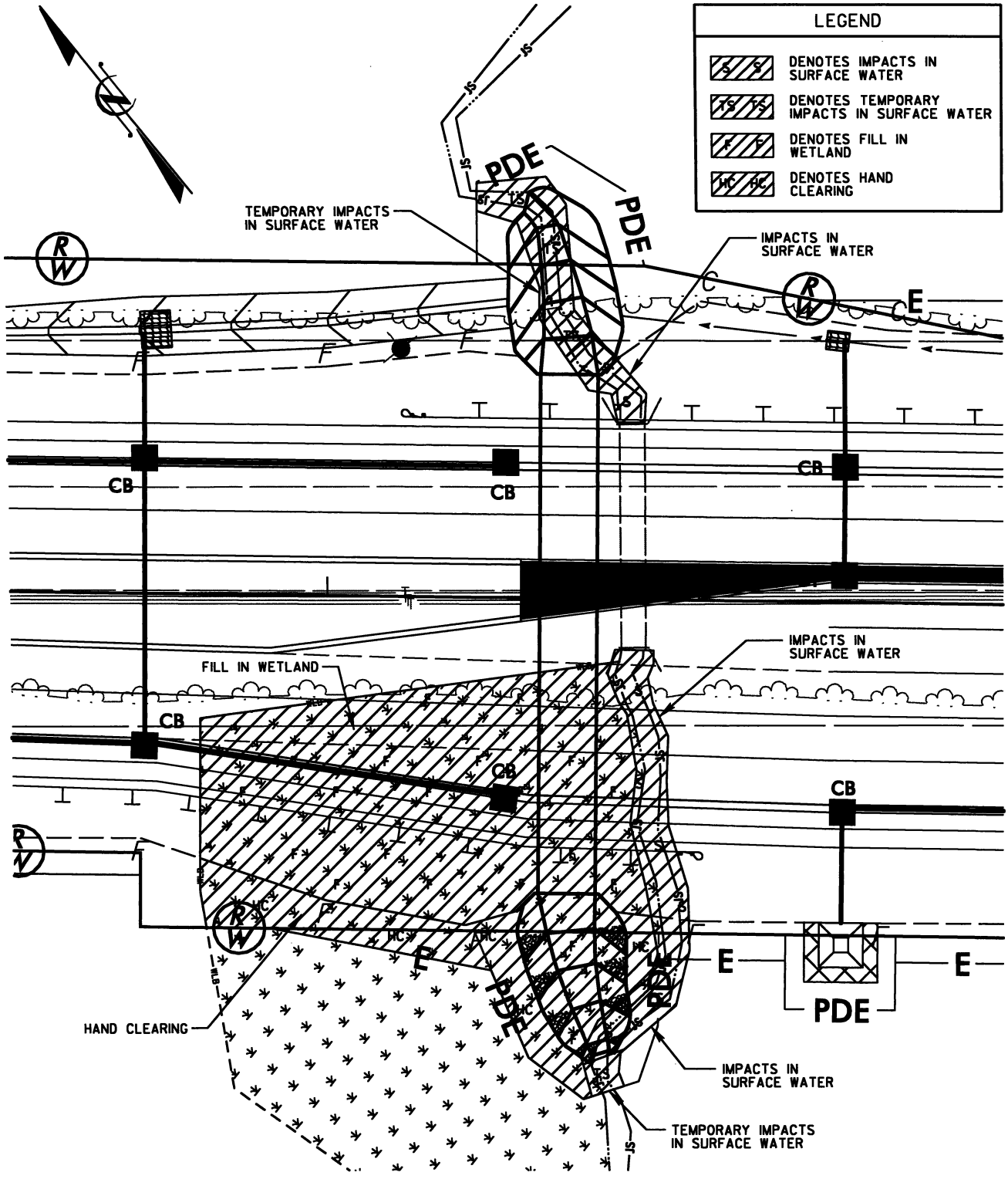
mpickett



Permit Drawing
Sheet ___ of ___

SITE 1

40′ 0′ 40′

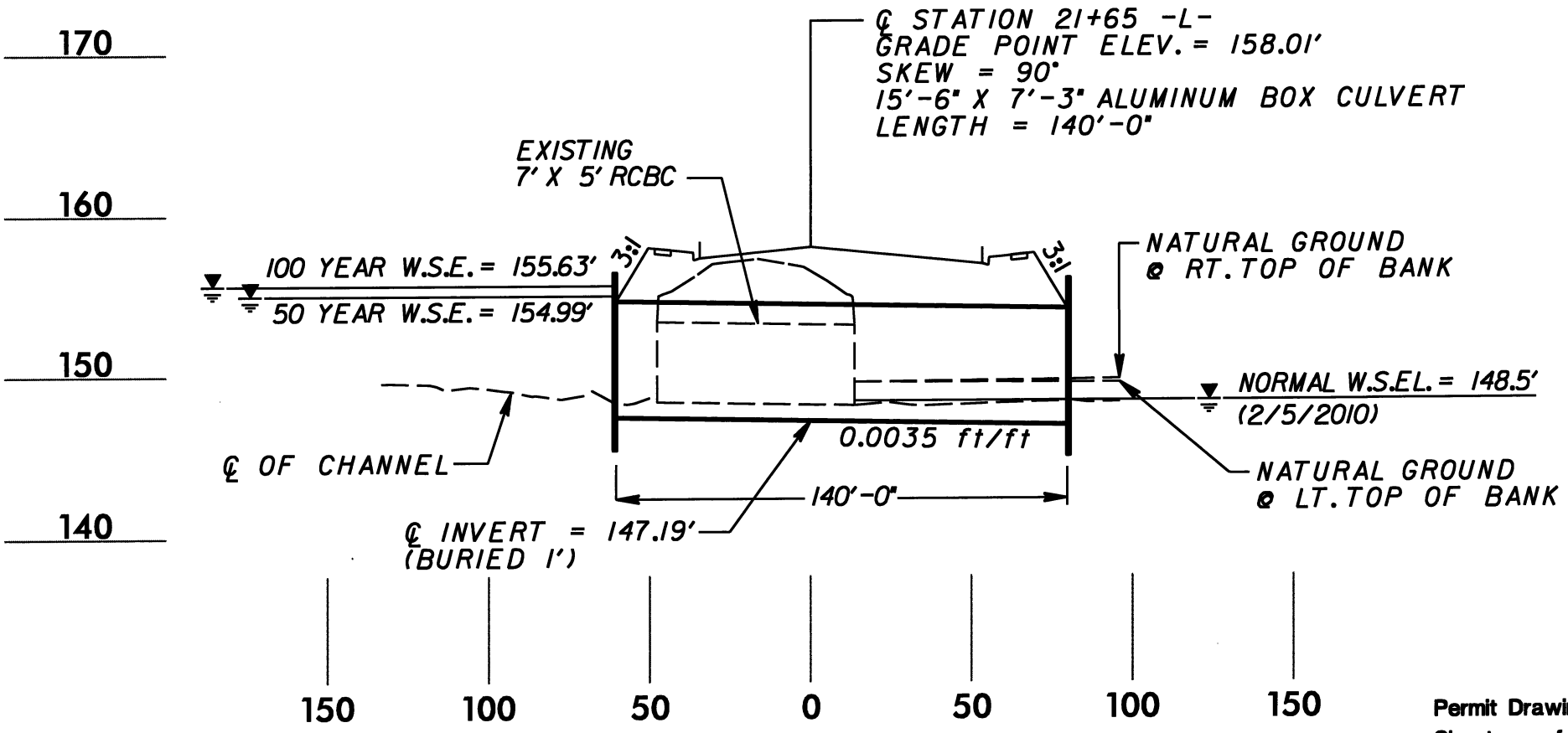
GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD
(SR 1436) TO NC 210

Permit Drawing
Sheet 8 of 21

SHEET OF **5/17/10**



Permit Drawing
Sheet ___ of ___

-L- STA. 21+65.00
15'-6" X 7'-3" ALUMINUM BOX CULVERT

Permit Drawing
Sheet 9 of 21

SITE 1
PROFILE VIEW
ALONG CULVERT 1

50' 0' 50'
HORZ.

10' 0' 10'
VERT.

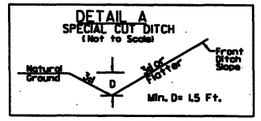
GRAPHIC SCALE

NCDOT

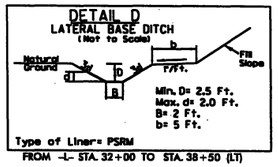
DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD
(SR 1436) TO NC 210

SHEET OF 5/17/10

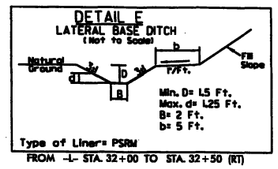
8/17/99



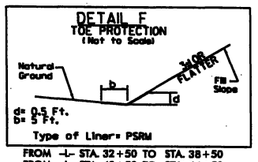
FROM -L- STA. 27+50 TO STA. 31+00 (LT)



FROM -L- STA. 32+00 TO STA. 38+50 (LT)



FROM -L- STA. 32+00 TO STA. 32+50 (RT)



FROM -L- STA. 32+50 TO STA. 38+50
FROM -L- STA. 40+50 TO STA. 44+50

PROJECT REFERENCE NO.	SHEET NO.
R-5185	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

NC GRID
NAD 83 /NSRS 07

6 HARNETT FORWARD TOGETHER COMMITTEE

SEE FIGURE SITE 2

SITE 2

SITE 3

SEE FIGURE SITE 3

8 STAFFORD LAND CO.,INC

35

40

MATCHLINE -L- STA 30+00.00 (SHEET 5)

MATCHLINE -L- STA 42+00.00 (SHEET 7)

TEMPORARY IMPACTS IN SURFACE WATER

HAND CLEARING

PROPOSED CHANNEL TIE IN SEE DETAIL THIS SHEET

FILL IN WETLAND

IMPACTS IN SURFACE WATER

PROP. SPECIAL CUT DITCH SEE DETAIL A DA=4.1ac total

CLASS B RIP RAP EST. 6 TN EST. 20 SYFF

CLASS B RIP RAP EST. 2 TN EST. 7 SYFF

PROP. LATERAL BASE DITCH SEE DETAIL D DA=32.0ac total

CLASS B RIP RAP EST. 2 TN EST. 7 SYFF

CLASS B RIP RAP EST. 5 TN EST. 14 SYFF

CLASS B RIP RAP EST. 10 TN EST. 28 SYFF

HAND CLEARING

CLASS B RIP RAP EST. 5 TN EST. 14 SYFF

PROP. LATERAL BASE DITCH SEE DETAIL E DA=6.2ac total

PROP. 15'-4" X 6'-5" ALUMINUM BOX CULVERT

PROPOSED CHANNEL TIE IN SEE DETAIL THIS SHEET

TEMPORARY IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

7 HARNETT COUNTY

7 HARNETT COUNTY

7 HARNETT COUNTY

APPROX. LOCATION

LEGEND

S/S	DENOTES IMPACTS IN SURFACE WATER
TS/TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F/F	DENOTES FILL IN WETLAND
HC/HC	DENOTES HAND CLEARING

Permit Drawing
Sheet ___ of ___

100' 0' 100'
GRAPHIC SCALE

Permit Drawing
Sheet 10 of 21

R/3/2010
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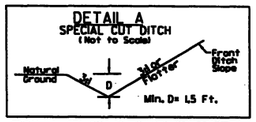
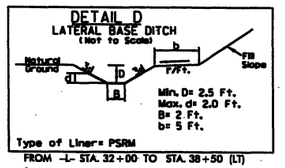
mdaniel.azzz

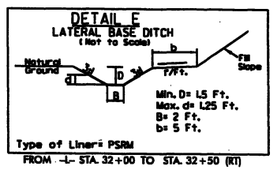
8/17/99



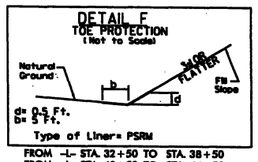
FROM -L- STA. 27+50 TO STA. 31+00 (LT)



FROM -L- STA. 32+00 TO STA. 38+50 (LT)



FROM -L- STA. 32+00 TO STA. 32+50 (RT)



FROM -L- STA. 32+50 TO STA. 38+50
FROM -L- STA. 40+50 TO STA. 44+50

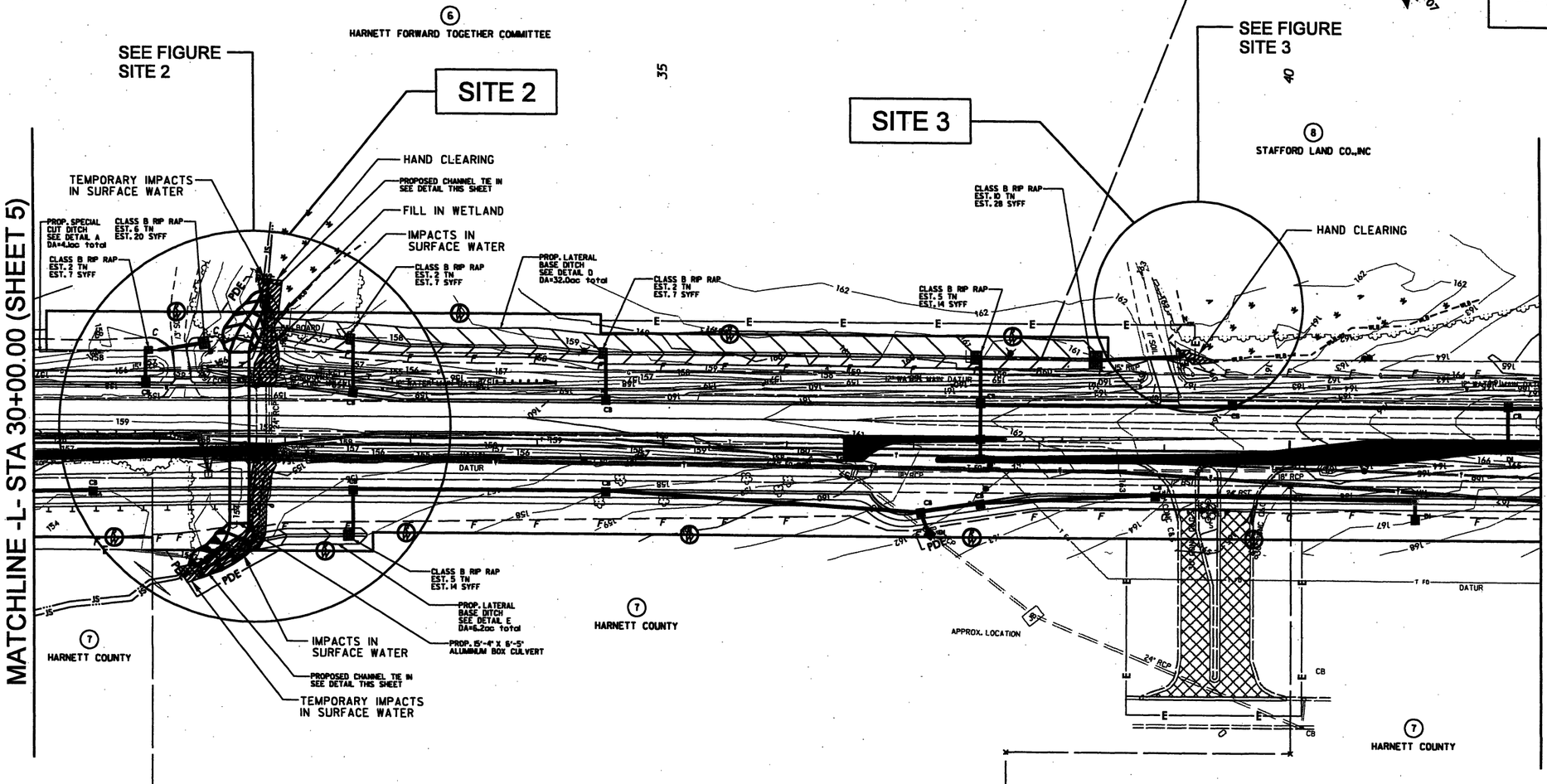
PROJECT REFERENCE NO.	SHEET NO.
R-5185	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

NC GRID
NAD 83 /NSRS 07



LEGEND

S/S	DENOTES IMPACTS IN SURFACE WATER
TS/TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F/F	DENOTES FILL IN WETLAND
HC/HC	DENOTES HAND CLEARING

Permit Drawing
Sheet ___ of ___

100' 0' 100'
GRAPHIC SCALE

Permit Drawing
Sheet 11 of 21

6/3/2010
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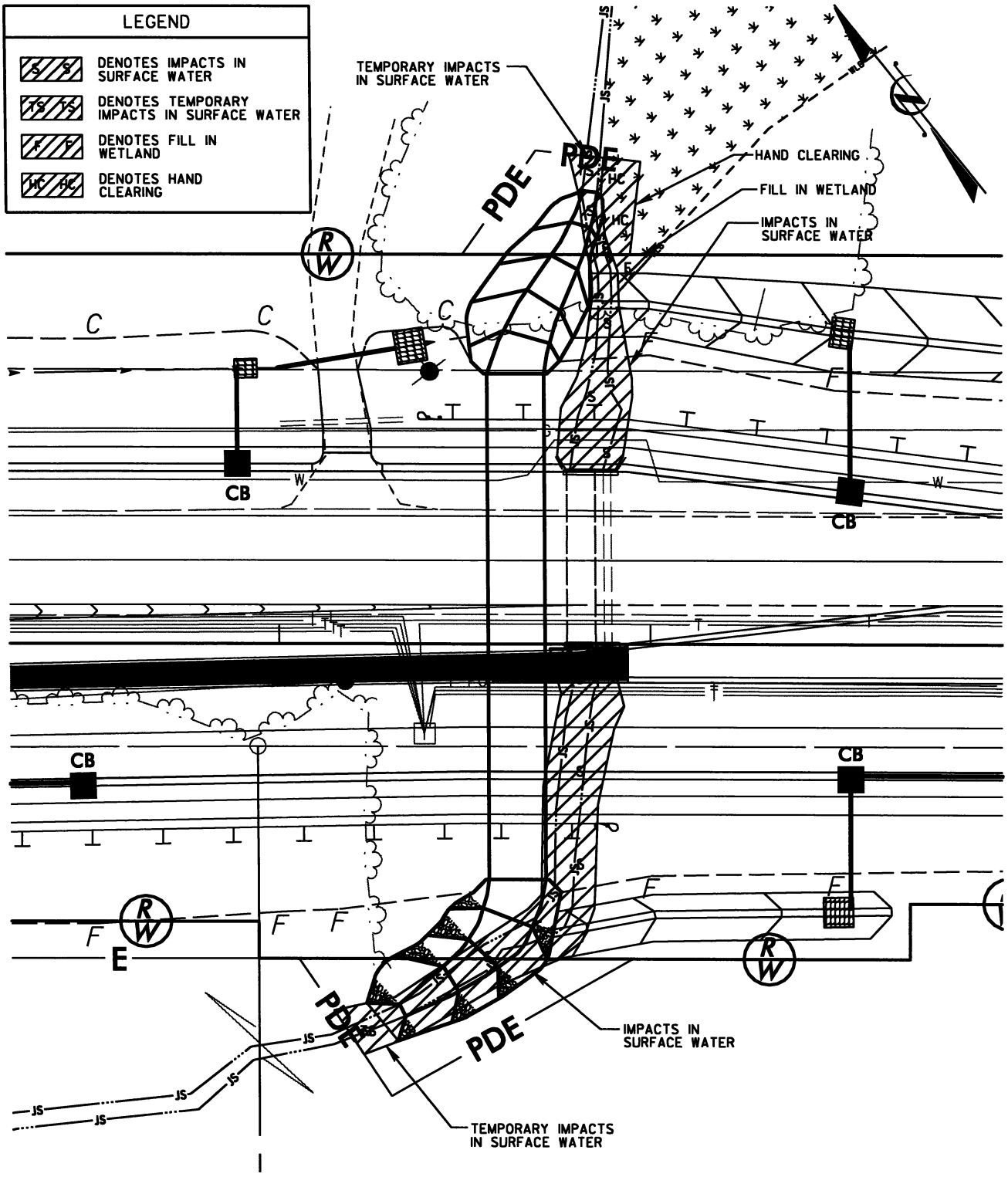
mbodenheimer



Permit Drawing
Sheet ___ of ___

SITE 2

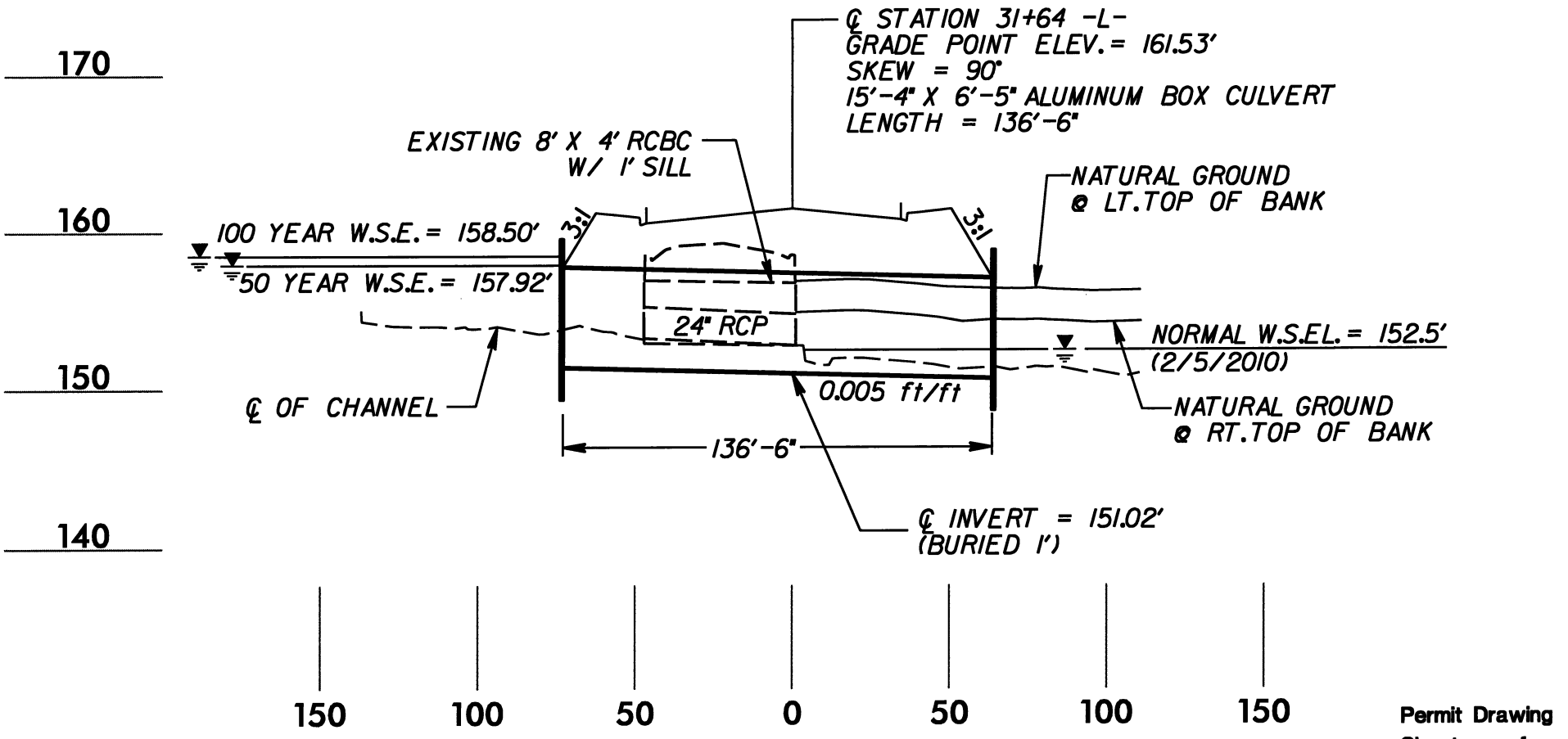
40′ 0′ 40′
GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD
(SR 1436) TO NC 210

Permit Drawing
Sheet 12 of 21

SHEET **OF** 5/17/10



Permit Drawing
Sheet ___ of ___

-L- STA. 31+64.00
15'-4" X 6'-5" ALUMINUM BOX CULVERT

SITE 2
PROFILE VIEW
ALONG CULVERT 2

50' 0' 50'
HORZ.

10' 0' 10'
VERT.

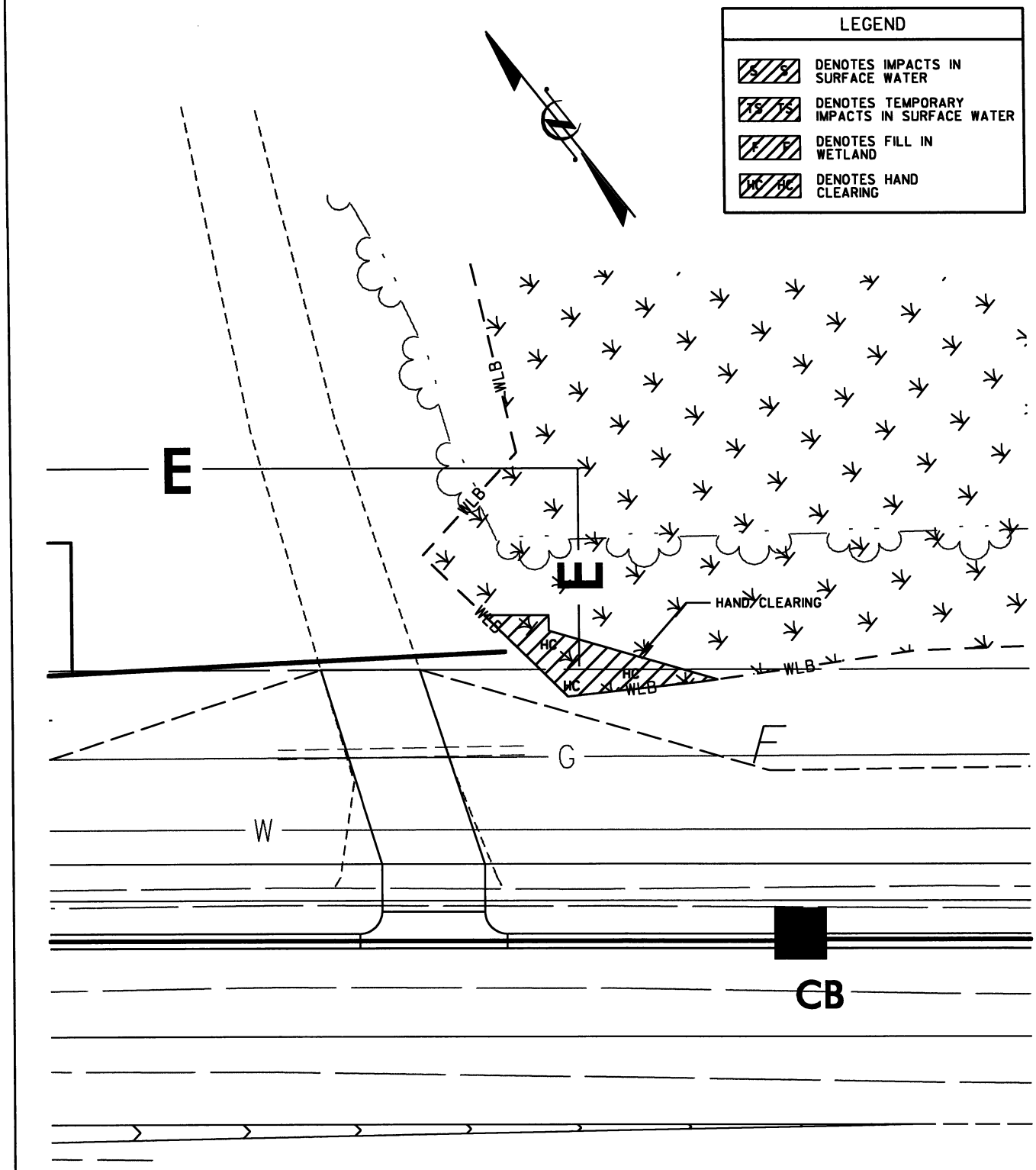
GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD
(SR 1436) TO NC 210

SHEET OF 5/17/10

Permit Drawing
Sheet 13 of 21



Permit Drawing
Sheet ___ of ___

SITE 3

20′ 0′ 20′
GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD
(SR 1436) TO NC 210

Permit Drawing
Sheet 14 of 21

SHEET OF 5/17/10

-L-

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
R-5185	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DRAINAGE AREA	=	0.55	SQ MI.
DESIGN DISCHARGE	=	657	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	154.92	FT.
BASE DISCHARGE	=	765	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	155.55	FT.
OVERTOPPING DISCHARGE	=	945	CFS
OVERTOPPING FREQUENCY	=	< 500	YRS
OVERTOPPING ELEVATION	=	> 158.00	FT.

LOW POINT
STA. 21+48.03
EL.=158.00'

PI = 19+48.00
EL = 158.43'
VC = 150'
K = 176

PI = 21+61.00
EL = 157.17'
VC = 275'
K = 402

℄ STATION 21+65 -L-
GRADE POINT ELEV. = 158.01'
SKEW = 90°
15'-6" X 7'-3" ALUMINUM BOX CULVERT
LENGTH = 140'

(-)1.6162%
(-)0.3099%
(+)0.3744%

100 YEAR W.S.E. = 155.69'
50 YEAR W.S.E. = 154.99'

PROPOSED GRADE

EXISTING GROUND
UPSTREAM TOE OF SLOPE

EXISTING GROUND
℄ PROFILE

REMOVE EXISTING 7' X 5' RCBC

PROP. 15'-6" x 7'-3" ALUM. BOX CULVERT
STA. 21+65.00
CL INVERT = 147.19'
(BURIED 1')

EXISTING GROUND
DOWNSTREAM TOE OF SLOPE

SEE SHEET 5 FOR -L- PLAN

-L-

CULVERT HYDRAULIC DATA

DRAINAGE AREA	=	0.36	SQ MI.
DESIGN DISCHARGE	=	519	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	157.87	FT.
BASE DISCHARGE	=	607	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	158.45	FT.
OVERTOPPING DISCHARGE	=	855	CFS
OVERTOPPING FREQUENCY	=	< 500	YRS
OVERTOPPING ELEVATION	=	> 161.50	FT.

PI = 32+40.00
EL = 161.81'
VC = 150'
K = 2203

℄ STATION 31+64 -L-
GRADE POINT ELEV. = 161.53'
SKEW = 90°
15'-4" X 6'-5" ALUMINUM BOX CULVERT
LENGTH = 136'-6"

PI = 36+40.00
EL = 163.58'
VC = 150'
K = 202

HIGH POINT
STA. 36+54.39
EL. = 163.45'

LOW POINT
STA. 37+52.91
EL. = 163.30'

PI = 38+40.00
EL = 162.98'
VC = 250'
K = 126

100 YEAR W.S.E. = 158.50'

(+)0.3744%
(+)0.4425%
(-)0.3000%
(+)1.6765%

50 YEAR W.S.E. = 157.92'

PROPOSED GRADE

EXISTING GROUND
UPSTREAM TOE OF SLOPE

REMOVE EXISTING
8' X 4' RCBC

REMOVE EXISTING
24" RCP

EXISTING GROUND
DOWNSTREAM TOE OF SLOPE

PROP. 15'-4" x 6'-5" ALUM. BOX CULVERT
STA. 31+64.00
CL INVERT = 151.02'
(BURIED 1')

EXISTING GROUND
℄ PROFILE

BM#2 ELEV=169.33'
-L- STA 43+78.11 135.10' LT

Permit Drawing
Sheet ___ of ___

SEE SHEET 6 FOR -L- PLAN

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6/3/2010

Permit Drawing
Sheet 15 of 21

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5185	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St. Ste. 200
Charlotte, NC 28208
NC License Number F-0991

MATCHLINE -L- STA 51+00.00 (SHEET 7)

R/W PIZZA HUTS OF NC

TRI-FOOD SYSTEM, INC.

(13) RIDDLE PROPERTIES,LLC

STEVE PARIS AND RALPH M. POTTER

(14) McDONALD'S CORPORATION

AOM INVESTMENTS LLC

MATTHEWS OIL CO.

HARNETT COUNTY CEMETARY ASSOCIATION

JOAN SEXTON CAMPBELL,TRUSTEE

CEMETARY

NC GRID NAD 83 / NSRS 07

IMPACTS IN SURFACE WATER

SEE FIGURE SITE 4

TEMPORARY IMPACTS IN SURFACE WATER

SITE 4

CLASS. I RIP RAP EST. 20 TN EST. 39 SYFF

LEGEND	
F/F	DENOTES IMPACTS IN SURFACE WATER
TS/TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F/F	DENOTES FILL IN WETLAND
HC/HC	DENOTES HAND CLEARING

15

Permit Drawing
Sheet ___ of ___

100' 0' 100'
GRAPHIC SCALE

Permit Drawing
Sheet 16 of 21

8/3/2010
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mdarnell

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5185	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

MATCHLINE -L- STA 51+00.00 (SHEET 7)

15+00

NC GRID
NAD 83 / NSRS 07

(13) RIDDLE PROPERTIES,LLC

STEVE PARIS AND RALPH M. POTTER

(14) McDONALD'S CORPORATION

R/W PIZZA HUTS OF NC

TRI-FOOD SYSTEM, INC.

AOM INVESTMENTS LLC

MATTHEWS OIL CO.

HARNETT COUNTY CEMETARY ASSOCIATION

JOAN SEXTON CAMPBELL,TRUSTEE

CEMETARY

IMPACTS IN SURFACE WATER

SEE FIGURE SITE 4

TEMPORARY IMPACTS IN SURFACE WATER

SITE 4

LEGEND	
S/S	DENOTES IMPACTS IN SURFACE WATER
TS/TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F/F	DENOTES FILL IN WETLAND
HC/HC	DENOTES HAND CLEARING

Permit Drawing
Sheet ___ of ___

100′ 0′ 100′
GRAPHIC SCALE

Permit Drawing
Sheet 17 of 21

15

6/3/2010
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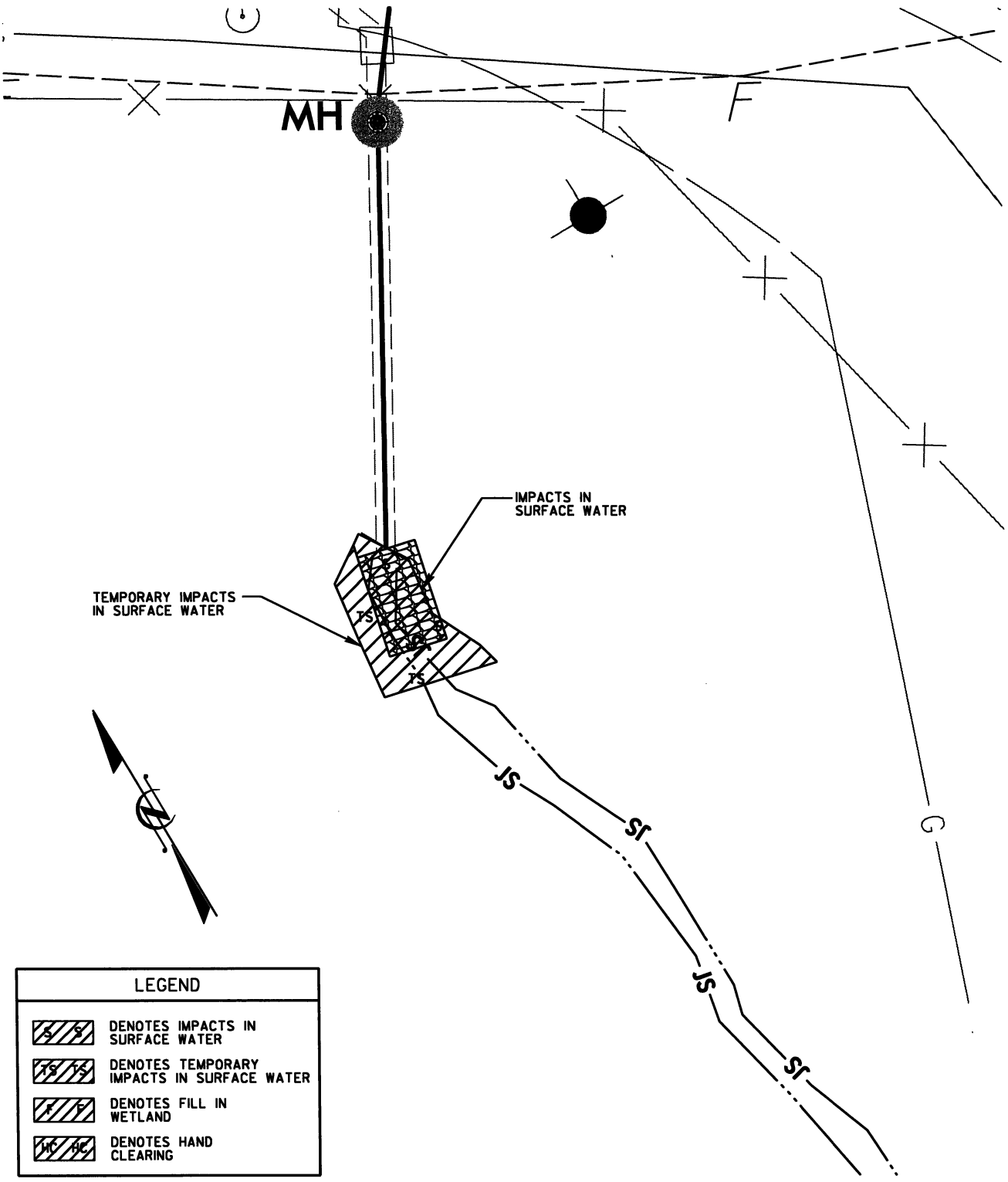


Permit Drawing
Sheet ___ of ___

SITE 4

20' 0' 20'

GRAPHIC SCALE

NCDOT

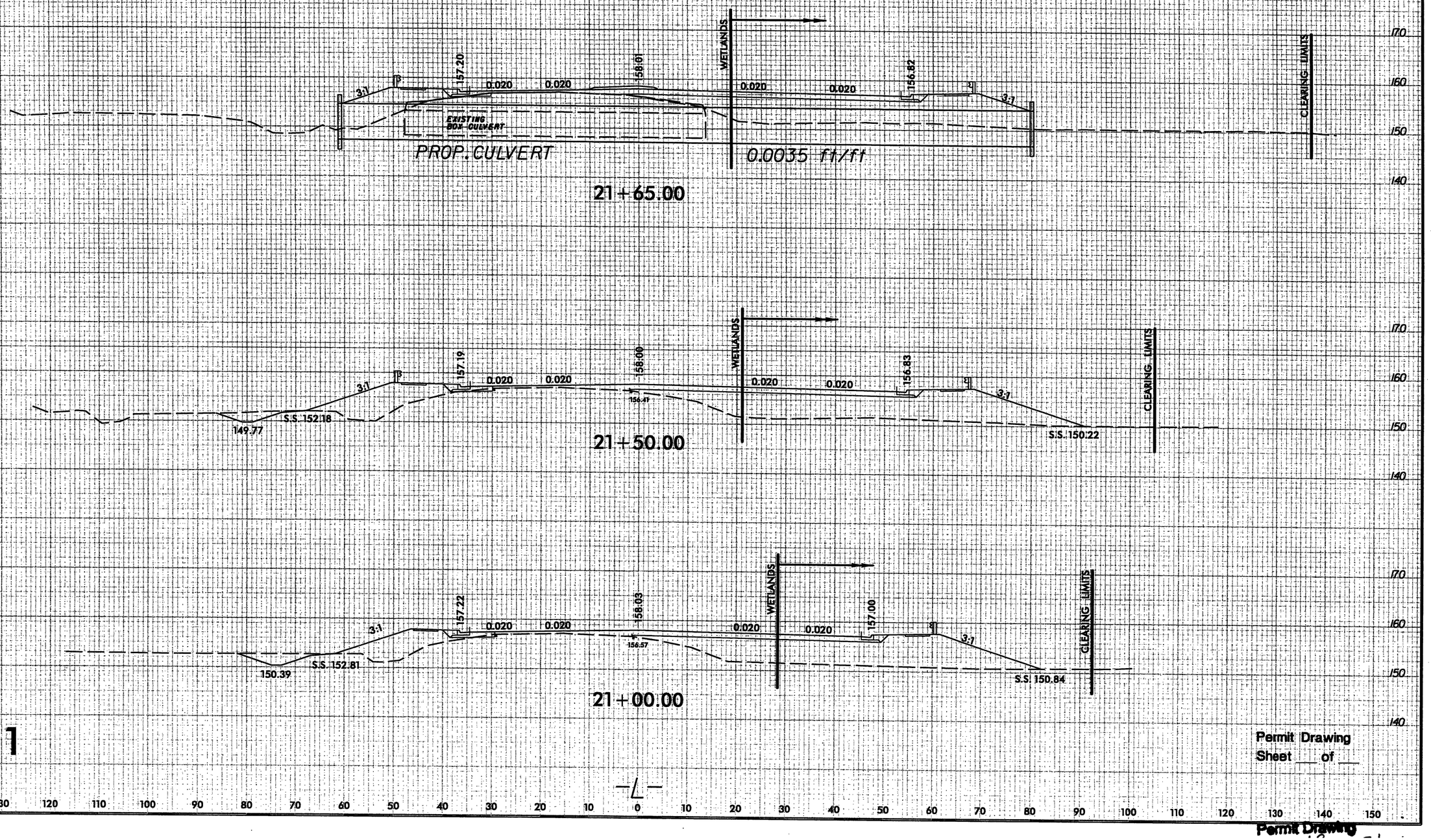
DIVISION OF HIGHWAYS
HARNETT COUNTY
PROJECT: 45222.1.1 (R-5185)
US 401 IN LILLINGTON
FROM NORTH OF MATTHEWS RD
(SR 1436) TO NC 210

Permit Drawing
Sheet 18 of 21

SHEET **OF** **5/17/10**

8/23/95

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5185	X-5



Permit Drawing
Sheet ___ of ___

Permit Drawing

6/3/2010
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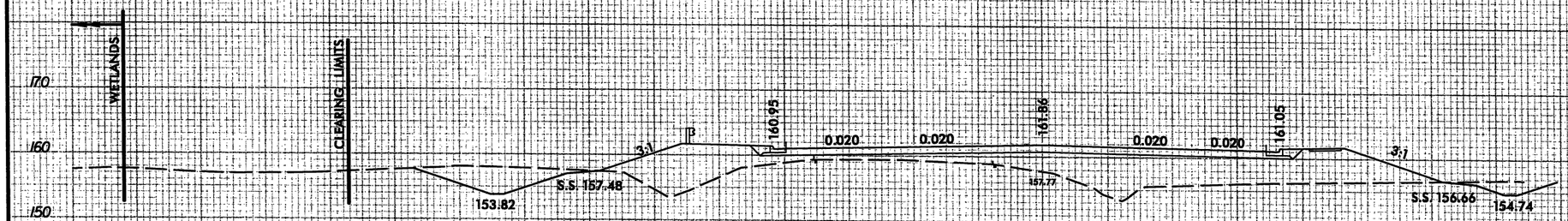
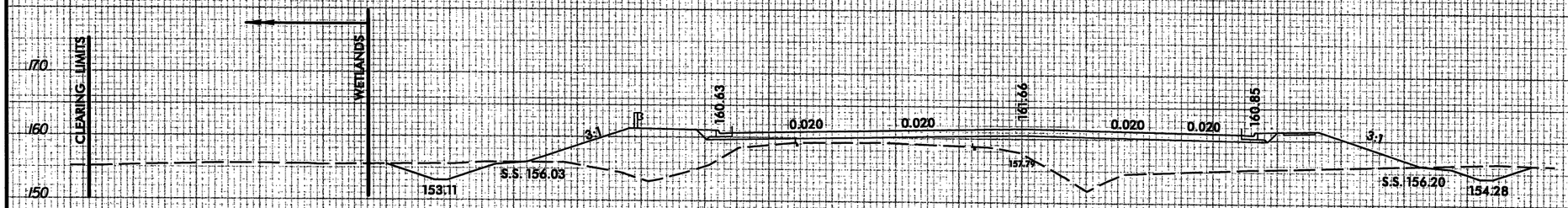
8/23/99

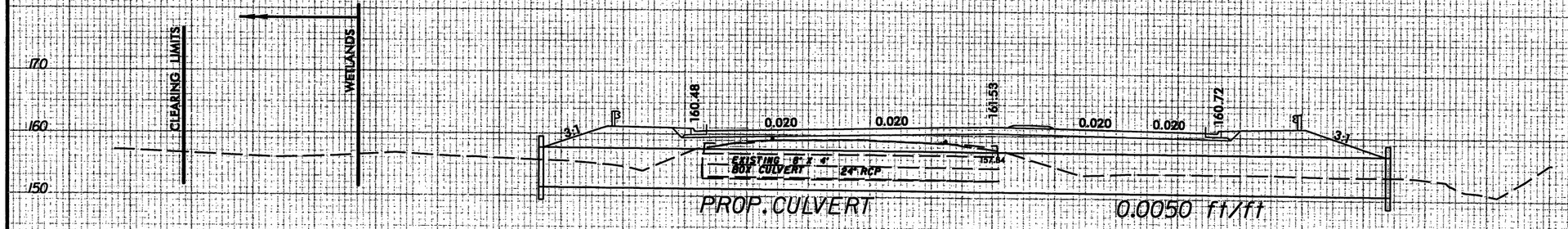
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5185	X-6



32+50.00



32+00.00



31+64.00

SITE 2

Permit Drawing
Sheet ___ of ___

6/3/2010
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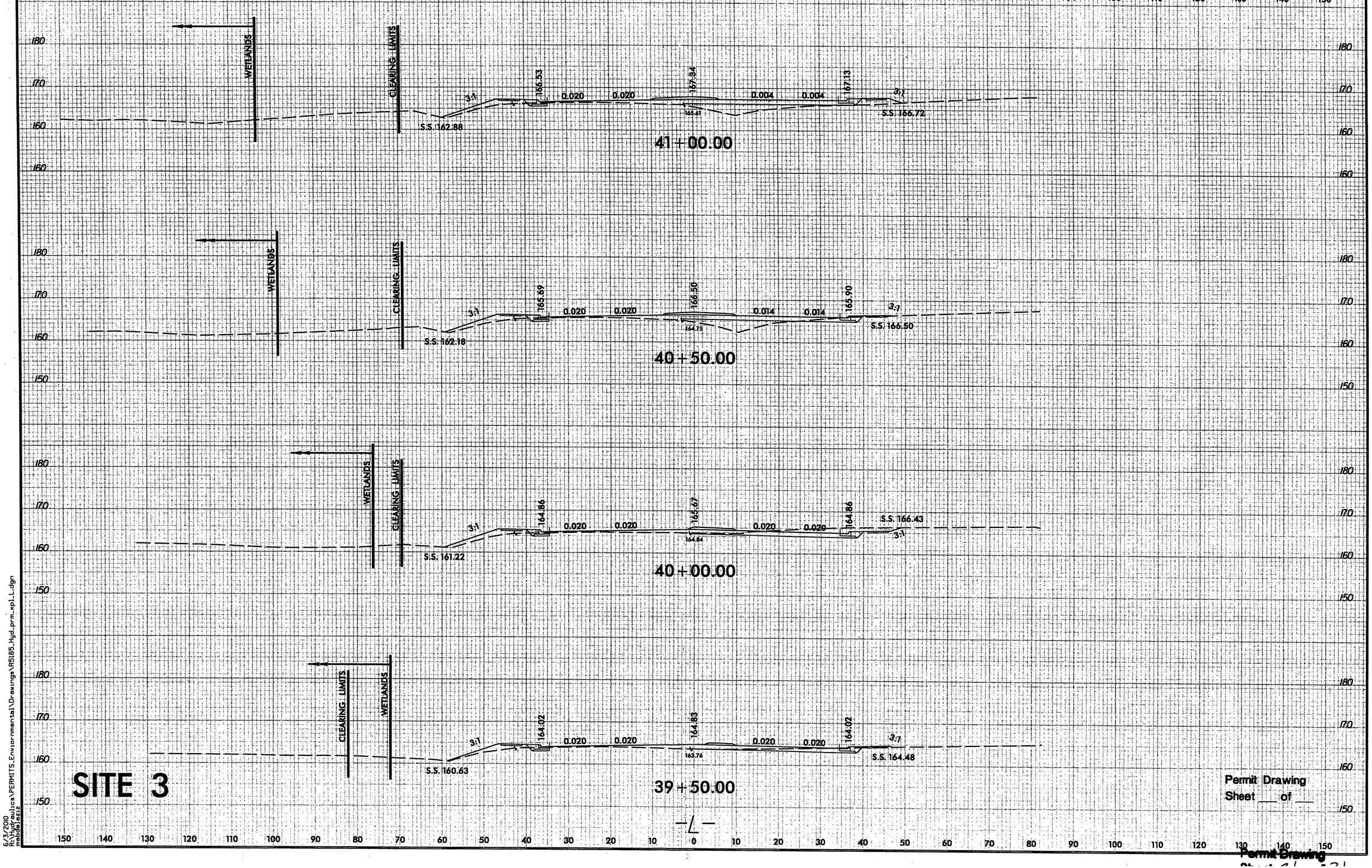
Permit Drawing

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5185	X-10



Permit Drawing
Sheet ___ of ___

Permit Drawing

6/3/2010
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