STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

September 29, 2009

USACE Wilmington Regulatory Field Office
69 Darlington Avenue
Wilmington, NC 28402-1890

ATTN: Ms. Kim Garvey
NCDOT Coordinator

Dear Madam:

Subject: **Application for Section 404 Nationwide Permits 23 and 33 and Section 401 Water Quality Certifications 3701 and 3688** for improvements to US 220 (Future I 73/74) from south of NC 134-US 220 Business to north of SR 1462 (Park Drive Extension) in Randolph County, Federal Aid Project Number IMS-73 (8), State Project No. 8.1572301, Division 8, T.I.P No. I-4407.

Debit $570.00 from WBS No. 34236.1.1.

The North Carolina Department of Transportation (NCDOT) proposes to upgrade the US 220 (Future I 73/74) corridor to interstate standards in order to improve traffic flow and safety, as well as to be consistent with the rest of the Congressionally designated corridor. There will be 182 feet of permanent surface water impacts at Sites 1 – 3. These impacts occur as a result of pipe extensions.

Please see the enclosed copies of the Pre-Construction Notification (PCN), Ecosystem Enhancement Program (EEP) acceptance letter, USFWS concurrence letter, stormwater management plan, Jurisdictional Determination Forms, permit drawings, and design plans for the above-referenced project. The Categorical Exclusion (CE) was completed for this project in April 2005 and distributed shortly thereafter. Additional copies are available upon request. This project was completed as a PCE Type IIB and there have not been substantial changes in project design or scope. Therefore, consultations with FHWA were not required.

This project calls for a letting date of June 15, 2010 and a review date of April 27, 2010. However, the let date may advance as additional funds become available.

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

TELEPHONE: 919-431-2000

FAX: 919-431-2001

WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 Atlantic Ave.,
Suite 116
Raleigh, NC 27604

A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/. If you have any questions or need additional information, please call Erica McLamb at (919) 431-1595.

Sincerely,

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. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Tim Johnson, P.E., Division 8 Engineer
Mr. Art King, Division 8 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. Karen Reynolds, PDEA
Ms. Beth Harmon, EEP
Mr. Phillip Ayscue, NCDOT External Audit Branch

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

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 23, 33 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No

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

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

☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization

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

2. Project Information

2a. Name of project:	Improvements to US 220 (Future I 73/74) from south of NC 134-US 220 Business to north of SR 1462 (Park Drive Extension) in Asheboro, NC.
2b. County:	Randolph
2c. Nearest municipality / town:	Asheboro
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	I-4407

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	4701 Atlantic Avenue, Suite 116
3e. City, state, zip:	Raleigh, NC 27604
3f. Telephone no.:	(919) 431-1595
3g. Fax no.:	(919) 431-2002
3h. Email address:	emclamb@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: 35.8822 (DD.DDDDDD)	Longitude: - 79.8205 (-DD.DDDDDD)
1c. Property size:	212 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	UT's to Big Branch and Cedar Fork Creek	
2b. Water Quality Classification of nearest receiving water:	C	
2c. River basin:	Cape Fear	

3. Project Description

3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application:

Existing land use in the project area consists of forested land (mixed deciduous-coniferous forest land) with some disturbed areas (maintained roadsides and agricultural fields). Land use in the project vicinity is comprised of forested land, disturbed areas, and residential development.

3b. List the total estimated acreage of all existing wetlands on the property:

0 acres

3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property:

2048 linear feet

3d. Explain the purpose of the proposed project:

The purpose of the proposed project is to upgrade the US 220 (future I73/74) corridor to interstate standards in order to improve traffic flow and safety, as well as to be consistent with the rest of the Congressionally designated/NCDOT Strategic Highway Corridor.

3e. Describe the overall project in detail, including the type of equipment to be used:

Improvements include widening of inside and outside shoulders, pipe extensions, removal of some curb and gutter and installation of guardrail, per interstate standards. Standard road building equipment, such as trucks, dozers, and cranes will be used.

4. Jurisdictional Determinations

4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: Wetland and stream delineations were completed in September 2004 by HDR Inc., biologists. 3 wetlands and 13 streams were identified in the project study area. These delineations have not been verified by USACE. A jurisdictional determination request , dated April 7, 2005, was provided to Richard Spencer. The request packet included the relevent wetland data forms. Richard Spencer declined to visit the site or verify wetlands and streams until the permit application was submitted. No written JD was provided.	☐ 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: Other:

4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

5. Project History

5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ 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			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 2 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
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**	

2h. Comments: There will be no impacts to wetlands resulting from construction of the proposed project.

3. Stream Impacts

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

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☒ P ☐ T	Fill	UT to Big Branch Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	1.5	153 (perm)
Site 2 ☒ P ☒ T	Fill	UT to Big Branch Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	2.5	18 (perm) 11 (temp)
Site 3 ☒ P ☒ T	Fill	UT to Cedar Fork Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	2	11 (perm) 30 (temp)
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	182 (perm) 41 (temp)

4.	3i. Comments: Temporary impacts at sites 1, 2, 3 are due to possible construction of temporary erosion control measures at these sites. Temporary erosion control measures will be implemented as described in NCDOT's "Best Management Practices for Construction and Maintenance Activities". Permanent impacts at these sites are due to extensions of culverts at these locations.

5. 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	0 Permanent 0 Temporary

4g. Comments:

6. 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.

Filter fabric will be utilized to allow for the complete removal of temporary fill.

Hydraulic design minimizes and avoids impacts to streams by using existing outlets to the maximum extent.

The roadway typical section will match the existing roadway section, which consists of partially grassed shoulders, wooded or grassed fill slopes and grass lined roadway ditches.

Utilization of 2:1 fill slopes.

Rip rap was used where warranted to reduce erosion at pipe outlets and within roadway ditches.

The three sites where impacts occur are a result of safety improvements that will aid in better highway drainage. The use of expressway gutter will aid in stabilizing fill slopes.

Project activities primarily occur within the existing roadway footprint and match the existing roadway grade, thereby avoiding impacts to wetlands and minimizing impacts to jurisdictional streams.

Preformed scour holes will be utilized to reduce erosion and sedimentation.

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

NCDOT will implement "Best Management Practices for Construction and Maintenance Activities". Appropriate sediment and erosion control measures will be limited, and stream banks will be immediately revegetated following completion of grading activities. NCDOT BMP's for the Protection of Surface Waters will be strictly enforced during construction of this project.

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
2b. If yes, mitigation is required by (check all that apply):	☒ DWQ ☒ Corps
2c. If yes, which mitigation 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:	364 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:	0 acres
4f. Non-riparian wetland mitigation requested:	0 acres
4g. Coastal (tidal) wetland mitigation requested:	0 acres

4h. Comments:
5. Complete if Using a Permittee Responsible Mitigation Plan
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.
6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?	☐ 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 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 the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments: CE approved on 04/04/05	☒ 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. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable		
5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes	☐ No
5c. If yes, indicate 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? Based on NCDOT field surveys, NHP database, and USFWS Website for Randolph County, it has been determined that the proposed project will have no effect on Endangered Species or Designated Critical Habitat. Additional surveys for Schweinitz's sunflower on September 8, 2008. No specimens were observed during the 6-man hour survey. Marginal habitat exists on most of corridor along roadside shoulder/woodland edges. Much of potential habitat is apparently treated with herbicides and thus has little to no plant growth. No habitat in median as all of this area is grassed and mowed regularly. However, according to NHP records a population of Schweinitz's sunflower was observed approximately 0.5 miles east of the project area. Therefore, a revised biological conclusion of "May affect, not likely to adversely affect, has been issued. The USFWS concurred with the revised biological conclusion in a memo dated July 29, 2009 (see attached).		

6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☐ Yes	☒ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA.		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E.L. Lusk Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	9.28.09 Date

Ecosystem Enhancement
PROGRAM

July 9, 2009

Mr. Richard Spencer
U. S. Army Corps of Engineers
Wilmington Regulatory Field Office
Post Office Box 1890
Wilmington, North Carolina 28403

Dear Mr. Spencer:

Subject: EEP Mitigation Acceptance Letter:

I-4407, Improvements to US 220 (Future I-73/I-74) from South of NC 124/US 220 Business to North of SR 1462 in Asheboro, Randolph County; Yadkin River Basin (Cataloging Units 03040103 and 03040104); Central Piedmont (CP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request dated July 8, 2009, stream mitigation from EEP is required for 182 feet of warm stream impact (11 feet in Yadkin 03040103 and 171 feet in Yadkin 03040104)

Mitigation associated with this project will be provided in accordance with Section X of Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient compensatory stream mitigation up to 364 warm stream credits in the appropriate cataloging units to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

William D. Gilmore

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: I-4407

Ecosystem Enhancement PROGRAM

July 9, 2009

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

I-4407, Improvements to US 220 (Future I-73/74) from South of NC 134/US 220 Business to North of SR 1462 in Asheboro, Randolph County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on July 8, 2009, the impacts are located in CUs 03040103 and 03040104 of the Yadkin River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream – Warm (03040103):	11 feet
Stream – Warm (03040104):	171 feet

EEP commits to implementing sufficient compensatory stream mitigation credits to offset the impacts associated with this project by the end of the MOA Year in which this project is permitted, in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, fully executed on March 8, 2007. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

William D. Gilmore, P.E.
EEP Director

cc: Mr. Richard Spencer, USACE – Wilmington Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: I-4407

United States Department of the Interior

FILE COPY

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

July 29, 2009

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

Dear Dr. Thorpe:

This letter is in response to your letter of July 14, 2009 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the proposed improvements to US 220 (future I-73/74) from south of NC 134-US 220 Business to north of SR 1462 (Park Drive Extension) in Randolph County (TIP No. I-4407) may affect, but is not likely to adversely affect the federally endangered Schweinitz's sunflower (*Helianthus schweinitzii*). In addition, NCDOT has determined that the project will have no effect on the federally endangered Cape Fear shiner (*Notropis mekistocholas*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information provided, plant surveys were conducted along the project area in September 2004 and September 2008. No specimens of Schweinitz's sunflower were observed, and habitat was limited due to regular mowing and herbicide use. No habitat exists in the project area for the Cape Fear shiner.

Based on survey results and other available information, the Service concurs with your determination that the project may affect, but is not likely to adversely affect the Schweinitz's sunflower. The Service also concurs with your determination that the project will have no effect on the Cape Fear shiner. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

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

Sincerely,

Gary Jordan

for Pete Benjamin
Field Supervisor

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

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Wilmington Office, I-4407

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State:NC County/parish/borough: Randolph City: Asheboro
Center coordinates of site (lat/long in degree decimal format): Lat. 35.62278° N, Long. -7982665° W.
Universal Transverse Mercator:
Name of nearest waterbody: 2 UT's to Big Branch Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Uwharrie River
Name of watershed or Hydrologic Unit Code (HUC): 03040104
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 300 linear feet: 1.5-2.5width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: **Pick List**
   Drainage area: **Pick List**
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **Pick List** tributaries before entering TNW.

   Project waters are **Pick List** river miles from TNW.
   Project waters are **Pick List** river miles from RPW.
   Project waters are **Pick List** aerial (straight) miles from TNW.
   Project waters are **Pick List** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: .
   Tributary stream order, if known: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☐ Artificial (man-made). Explain: .
- ☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
- Average width: feet
- Average depth: feet
- Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
- ☐ Silts
- ☐ Sands
- ☐ Concrete
- ☐ Cobbles
- ☐ Gravel
- ☐ Muck
- ☐ Bedrock
- ☐ Vegetation. Type/% cover:
- ☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
- ☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☐ Bed and banks
- ☐ OHWM[6] (check all indicators that apply):
  - ☐ clear, natural line impressed on the bank
  - ☐ changes in the character of soil
  - ☐ shelving
  - ☐ vegetation matted down, bent, or absent
  - ☐ leaf litter disturbed or washed away
  - ☐ sediment deposition
  - ☐ water staining
  - ☐ other (list):
  - ☐ the presence of litter and debris
  - ☐ destruction of terrestrial vegetation
  - ☐ the presence of wrack line
  - ☐ sediment sorting
  - ☐ scour
  - ☐ multiple observed or predicted flow events
  - ☐ abrupt change in plant community
- ☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
- ☐ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☐ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

---

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: Pick List. Explain: .

Surface flow is: Pick List

Characteristics: .

Subsurface flow: Pick List. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are Pick List river miles from TNW.

Project waters are Pick List aerial (straight) miles from TNW.

Flow is from: Pick List.

Estimate approximate location of wetland as within the Pick List floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: Pick List

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: The streams display the geomorphic, hydrologic,and biological characteristics of a perennial stream.
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **300** linear feet **1.5-2.5** width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Plan Sheet 6.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: Seagrove Quad, 1:24000.
☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☐ Aerial (Name & Date): .
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetland and stream delineations were completed in September 2004 by HDR Inc., biologists. These delineations have not been verified by USACE. USACE representative Richard Spencer was contacted by HDR in a letter dated April 7, 2005. Richard Spencer declined to verify wetlands and streams until the permit application was submitted. No written JD was provided. Streams impacted by the proposed I-4407 project are perennial streams.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Wilmington Office, I-4407

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State:NC County/parish/borough: Randolph City: Asheboro
Center coordinates of site (lat/long in degree decimal format): Lat. 35.69559° N, Long. -798306° W.
Universal Transverse Mercator:
Name of nearest waterbody: UT to Cedar Fork Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Uwharrie River
Name of watershed or Hydrologic Unit Code (HUC): 03040103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There Pick List "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There Are "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 100 linear feet: 2 width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: Established by OHWM.
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW:

   Summarize rationale supporting determination:

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: Pick List
   Drainage area: Pick List
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through Pick List tributaries before entering TNW.

   Project waters are Pick List river miles from TNW.
   Project waters are Pick List river miles from RPW.
   Project waters are Pick List aerial (straight) miles from TNW.
   Project waters are Pick List aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain:

   Identify flow route to TNW[5]:
   Tributary stream order, if known:

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: Pick List. Explain: .

Surface flow is: Pick List

Characteristics: .

Subsurface flow: Pick List. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are Pick List river miles from TNW.

Project waters are Pick List aerial (straight) miles from TNW.

Flow is from: Pick List.

Estimate approximate location of wetland as within the Pick List floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: Pick List

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: The stream displays the geomorphic, hydrologic,and biological characteristics of a perennial stream.
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **100** linear feet **2**width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

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[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Plan Sheet 26.
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: Asheboro Quad, 1:24000..
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☐ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date): .
  - or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetland and stream delineations were completed in September 2004 by HDR Inc., biologists. These delineations have not been verified by USACE. USACE representative Richard Spencer was contacted by HDR in a letter dated April 7, 2005. Richard Spencer declined to verify wetlands and streams until the permit application was submitted. No written JD was provided. Streams impacted by the proposed I-4407 project are perennial streams.

STORMWATER MANAGEMENT PLAN

NCDOT Project 34236 (I-4407) Date: 07/10/09
Randolph County
US 220 (Future I-73/74) from South of NC134/ US220 Business to North of SR 1462 (Park Drive Extension)
Hydraulics Project Manager: Andrew Nottingham, PE

PROJECT DESCRIPTION

The NC Department of Transportation proposes improve safety along 7.9 miles of US 220 near Asheboro. The scope of work includes grading, drainage, paving, guardrail, lighting, and signing improvements. The same roadway alignment will be followed and all work will be within the existing right of way. All existing hydraulic structures will be retained. The typical roadway section will be a divided four-lane highway with paved 10' outside shoulders and 4' paved inside shoulders. Around off-ramps and at other areas of high fill, expressway gutter will be added to protect fill slopes from erosion. Expressway gutter and associated drainage systems will also be added at other areas near the interchanges to improve drainage. Roadway improvements will result in an additional impervious area of approximately 6.96 acres.

ENVIRONMENTAL DESCRIPTION

The project is located near the divide between the Cape Fear and Yadkin-Pee Dee river basins in the Piedmont Physiographic Province. South of NC 42/ Business 64 in Asheboro, drainage intersects tributaries of the Uhwarrie River and the Little River in the Yadkin-Pee Dee river basin. North of the NC 42/ US 64 Business, drainage intersects tributaries of the Deep River in the Cape Fear river basin. All waters within the project limits have a best usage classification of C. The surrounding area is generally rolling piedmont, with natural ground elevations between approximately 750 and 860. The land usage varies from rural farmland and forest with rural residential at the southern end of the project, to suburban and urban along the northern end of the project. The project occupies the corridor for the future I-73/I-74 project.

BEST MANAGEMENT PRACTICES

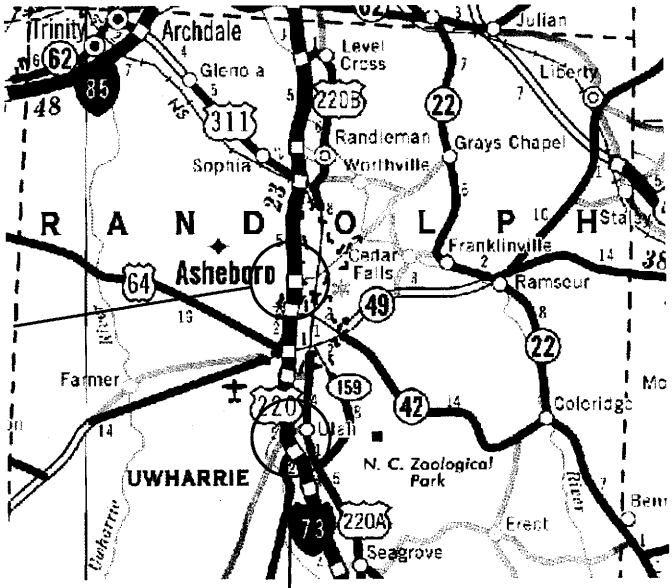
- Best management practices are non-structural and consist mainly of avoidance and minimization efforts by the roadway and hydraulic designs.
- The roadway typical section will match the existing roadway section, which consists of partially grassed shoulders, wooded or grassed fill slopes and grass lined roadway ditches.
- The hydraulic design minimizes and avoids impacts to streams by using existing outlets to the maximum extent.

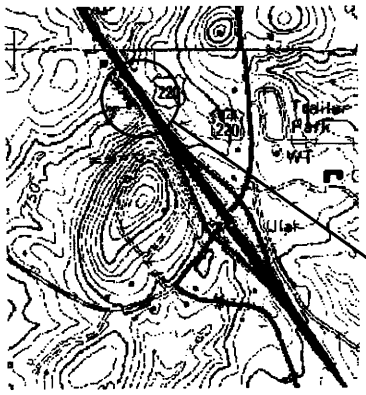
- The three sites where impacts occur are a result of safety improvements that will aid in better highway drainage. The use of expressway gutter will aid in stabilizing fill slopes.
- Rip rap was used where warranted to reduce erosion at pipe outlets and within roadway ditches.
- 2:1 fill slopes were used to further minimize impacts.

VICINITY MAP

ASHEBORO QUAD

Site 3



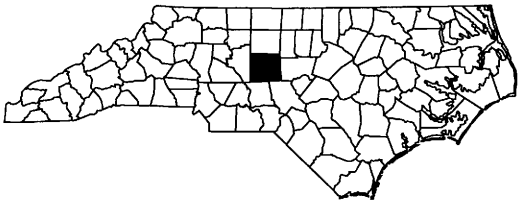


SEAGROVE QUAD

Sites 1&2

2000′ 0′ 2000′

QUAD SCALE



N

NCDOT

DIVISION OF HIGHWAYS
RANDOLPH COUNTY

PROJECT: 34236 (I-4407)

US 220 FROM NC 134
TO SR 1462

SHEET 1 OF 11 **06/25/09**

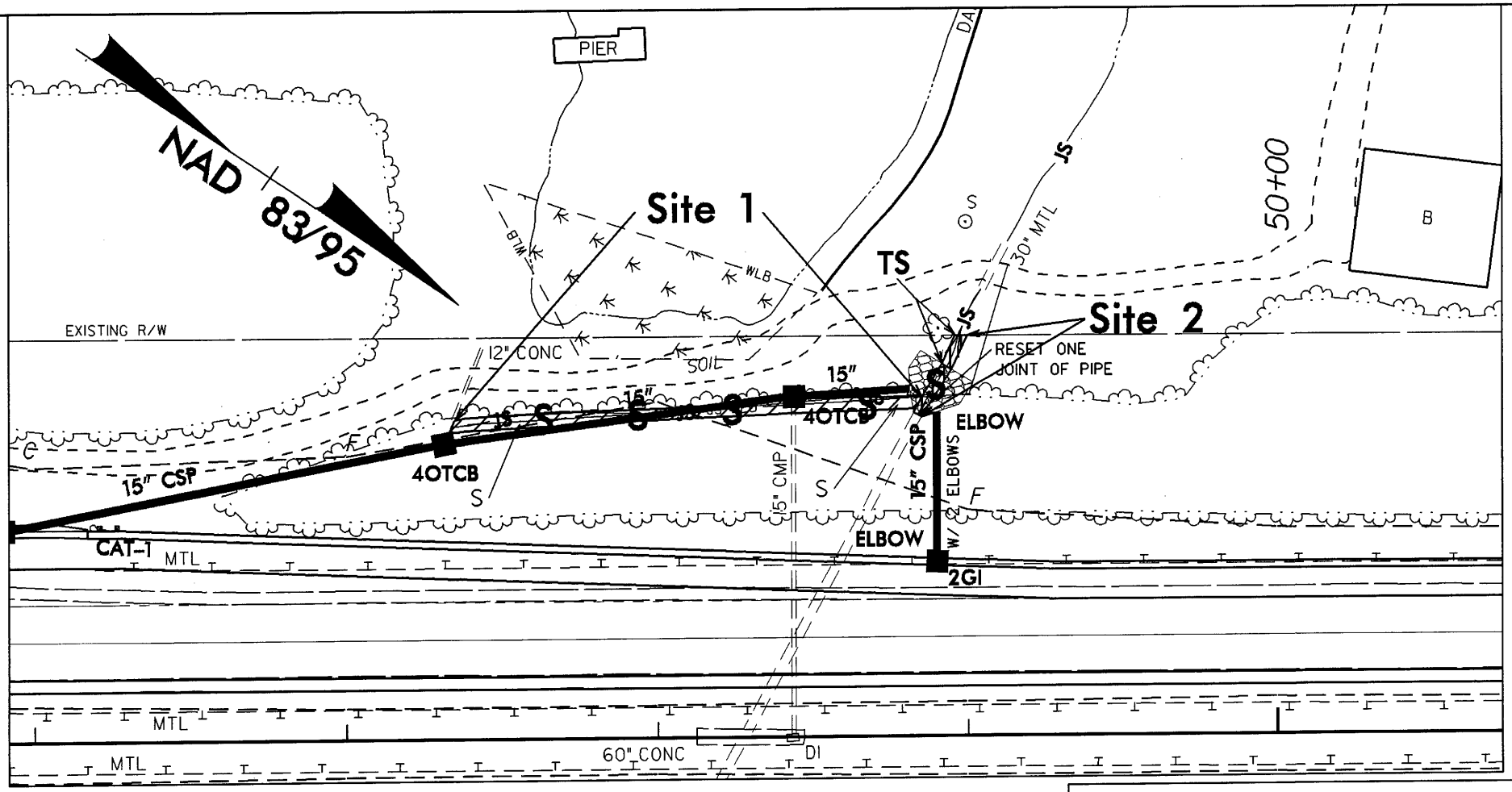
Adjacent Property Owners

Site	Owner/ Business	Address
1&2	Eddie & Karen Lambert	2362 Cole Mtn. Rd. Asheboro, NC 27205
3	NC Department of Transportation	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Randolph County
PROJ - 34236 I-4407

SHEET 2 OF 11 006/26/2009



DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITES 1 & 2

NCDOT

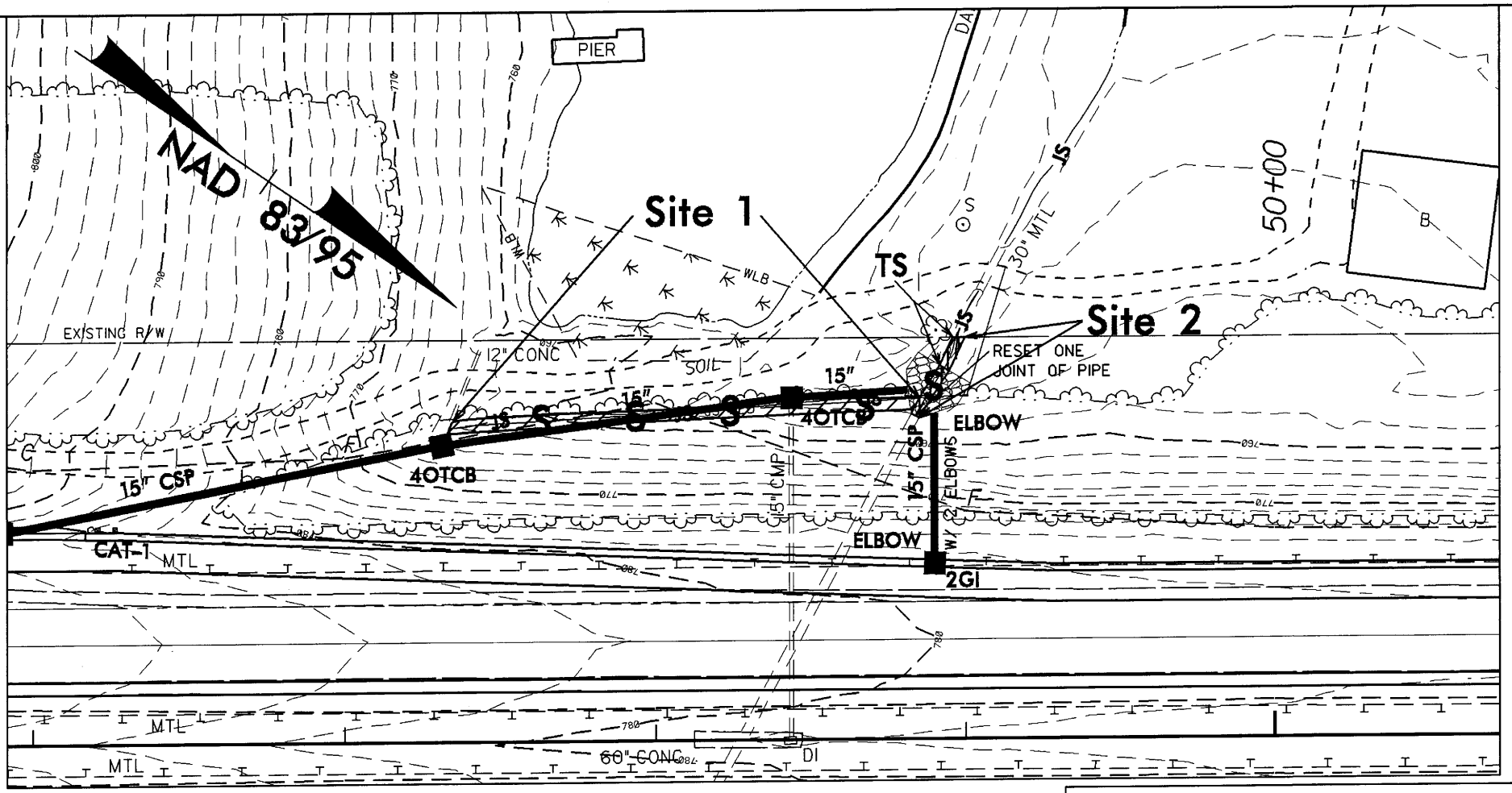
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PROJECT: 34236 (I-4407)

US 220 FROM NC 134 TO SR 1462

SHEET 3 **OF** 11 **06/24/09**



S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

50' 0' 50'

SCALE

SITES 1 & 2

NCDOT

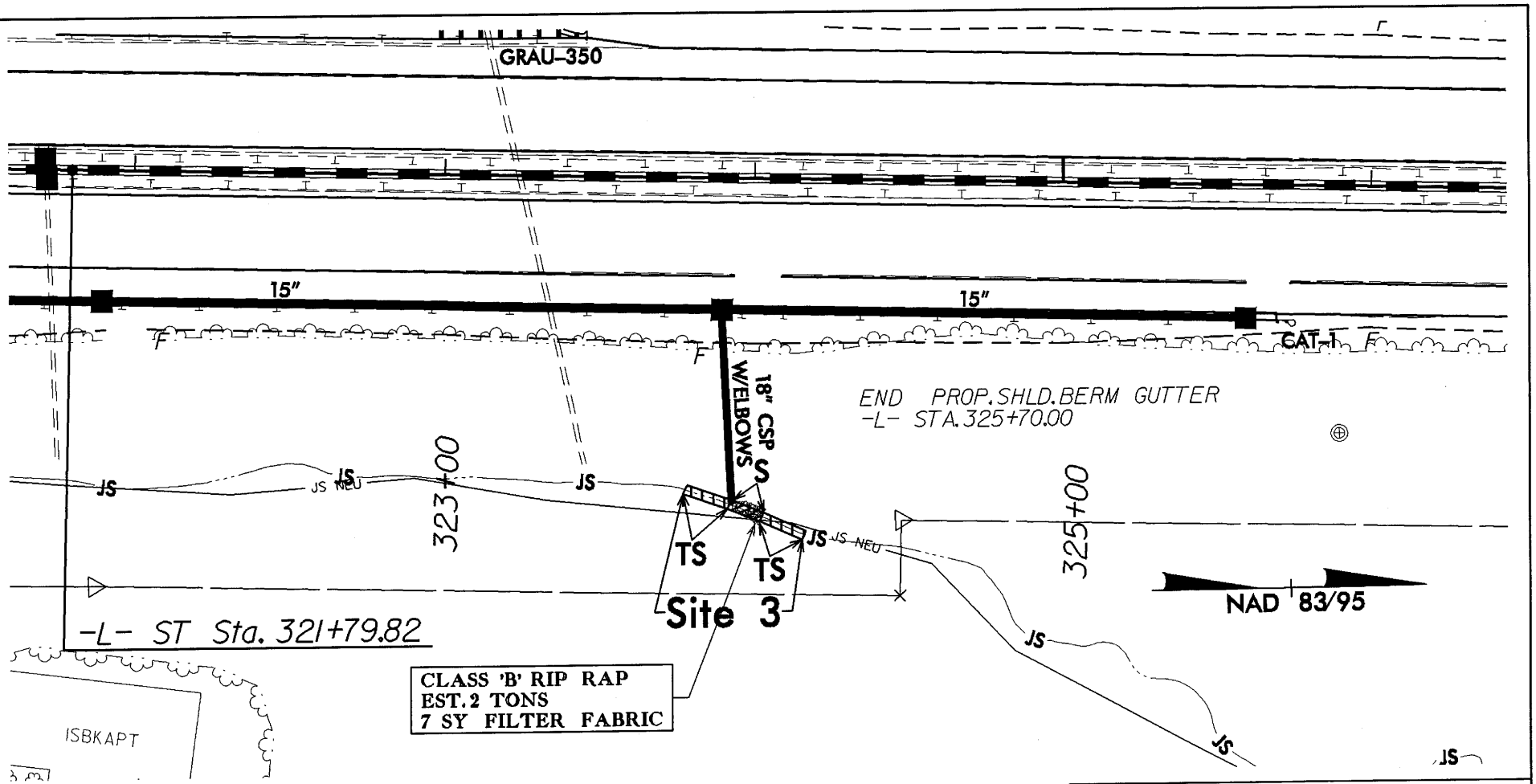
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PROJECT: 34236 (I-4407)

US 220 FROM NC 134 TO SR 1462

SHEET 4 **OF** 11 **06/24/09**



S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 3

NCDOT

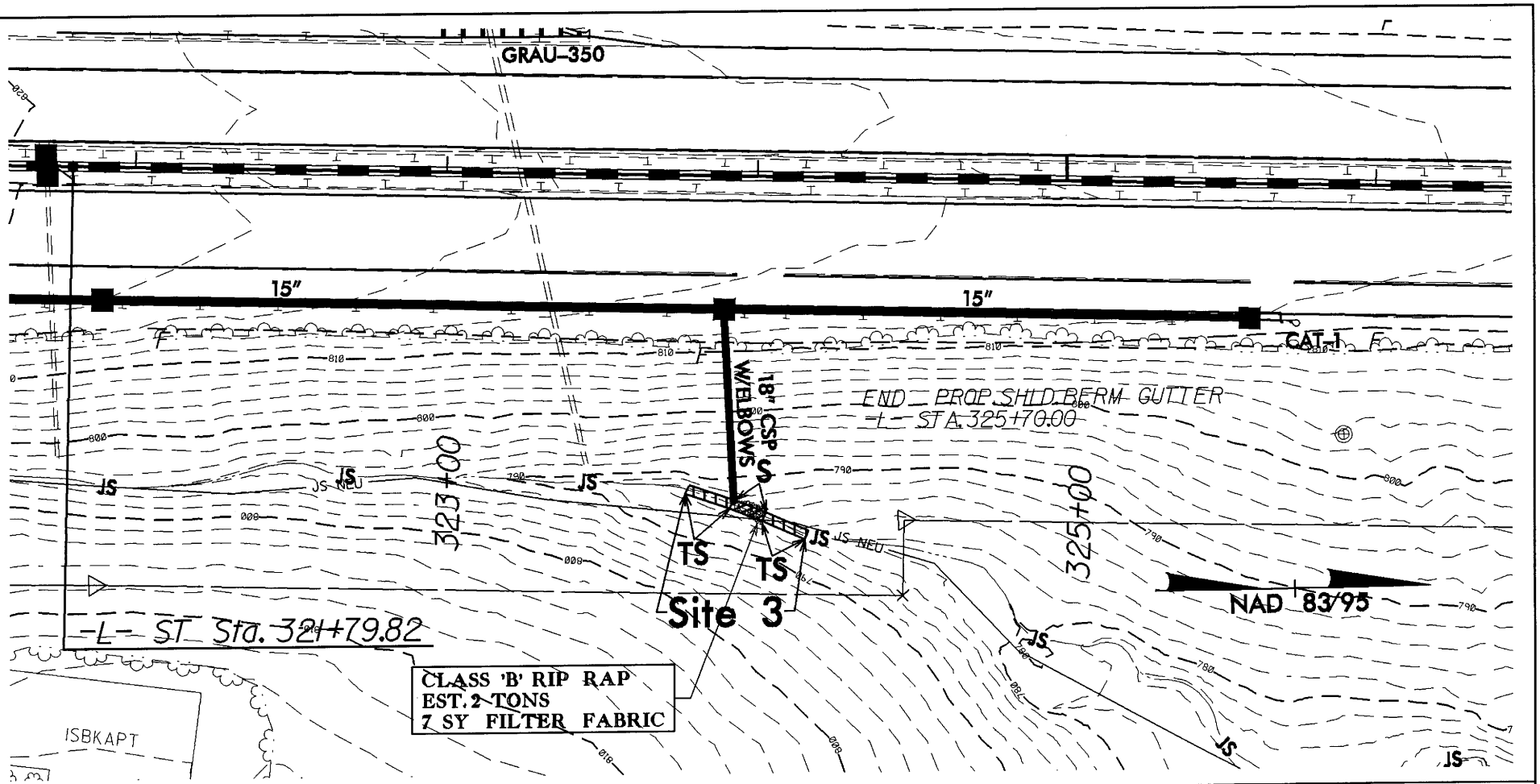
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PROJECT: 34236 (I-4407)

US 220 FROM NC 134 TO SR 1462

SHEET 5 **OF** 11 **06/24/09**



S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

50' 0' 50'

SITE 3

NCDOT

DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PROJECT: 34236 (I-4407)

US 220 FROM NC 134 TO SR 1462

SHEET 6 **OF** 11 **06/24/09**

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER 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)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 47+34/48+85	15" RCP						0.140	0.001	153		
2	-L- 48+82/49+00	36" RCP, 15"CSP						0.001		18	11	
3	-L- 323+77/324+16	18" CSP						0.001	0.002	11	30	
TOTALS:								0.142	0.003	182	41	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RANDOLPH COUNTY
34236 (I-4407)

SHEET 7 OF 11 7/14/2009

ATN Revised 3/31/05

PROJECT REFERENCE NO.	SHEET NO.
I-4407	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 8 of 11

NAD 83/95

REVISIONS

SEE SHEET NO.5

SEE SHEET NO.7

MATCH LINE

MATCH LINE

-RAMPAI- STA.16+10.00

-RAMPAI- STA.18+10.00

-L- STA.37+00.00

-L- STA.51+00.00

-RAMPAI- PT Sta. 12+49.18

-RAMPAI- PC Sta. 10+36.80

-L- POT Sta. 43+13.94 (44' LT.) =
-RAMPAI- POT Sta. 10+00.00
= 2°18'00"

BEGIN PROP. EXPRESSWAY GUTTER
-L- STA. 44+00.00

END PROP. EXPRESSWAY GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-I)
-L- STA. 46+07.00

END TRANSITION
BEGIN PROP. SHLD. BERM GUTTER
-L- STA. 46+11.00

END PROPOSED
WOVEN WIRE FENCE

BEGIN PROP. SHLD. BERM GUTTER
-L- STA. 43+75.00

END PROPOSED
WOVEN WIRE FENCE

-L- POT Sta. 45+09.70 (44' RT.) =
-RAMPDI- TS Sta. 10+00.00

-RAMPDI- CS Sta. 13+49.97

-RAMPDI- ST Sta. 15+49.97

-RAMPDI- SC Sta. 12+00.00

CLASS 'I' RIP RAP
EST. 22 TONS
20 SY FILTER FABRIC

CLASS 'B' RIP RAP
EST. 1 TON
5 SY FILTER FABRIC

CLASS 'B' RIP RAP
EST. 1 TON
6 SY FILTER FABRIC

Site 1

Site 2

RESET ONE
END OF PIPE

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

300' TAPER

350' FULL

S 23° 35' 00.0" E

S 32° 16' 31.0" E

N 34° 34' 31.0" W

S 41° 56' 36.0" E

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

SR 1240 COLE MT. RD.

1138 DAWSON MILLER RD.

POND

DAM

PIER

EXISTING R/W

Sites 1 and 2

100' 0' 100' 200' 300'

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

24-JUN-2009 16:27
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smorgan

PROJECT REFERENCE NO.	SHEET NO.
I-4407	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 9 of 11

NAD 83/95

REVISIONS

-RAMP A- STA.16+10.00

-RAMP A- PC Sta. 10+36.80

-RAMP A- PT Sta. 12+49.18

-L- POT Sta. 43+13.94 (44' LT.) =
-RAMP A- POT Sta. 10+00.00
= 2.18' OT

-L- POT Sta. 45+09.70 (44' RT.) =
-RAMP D1- TS Sta. 10+00.00

-RAMP D1- CS Sta. 13+49.97

-RAMP D1- ST Sta. 15+49.97

-RAMP D1- SC Sta. 12+00.00

-L- STA.37+00.00

-L- STA.51+00.00

SEE SHEET NO.5

SEE SHEET NO.7

MATCH LINE

MATCH LINE

S 23° 35' 00.0" E -RAMP A-

S 32° 16' 31.0" E

N 34° 34' 31.0" W -L-

S 41° 56' 36.0" E -RAMP D1-

BEGIN PROP. EXPRESSWAY GUTTER
-L- STA.44+00.00

END PROPOSED WOVEN WIRE FENCE

END PROP. EXPRESSWAY GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET) 2 - 1
-L- STA.46+00.00

END TRANSITION
BEGIN PROP. SHLDBERM GUTTER
-L1 STA.46+17.00

BEGIN PROP. SHLDBERM GUTTER
-L- STA.43+75.00

END PROPOSED WOVEN WIRE FENCE

CLASS 'I' RIP RAP
EST. 22 TONS
35 SY FILTER FABRIC

CLASS 'B' RIP RAP
EST. 1 TON
6 SY FILTER FABRIC

CLASS 'B' RIP RAP
EST. 1 TON
6 SY FILTER FABRIC

REMOVE EXISTING GUARDRAIL

REMOVE EXISTING GUARDRAIL

PROPOSED GUARDRAIL

PROPOSED GUARDRAIL

300' TAPER

300' TAPER

ELBOW

ELBOW

PSH

PSH

15" CSP W/ELBOWS

15" CSP W/ELBOWS

REMOVE ONE JOINT OF PIPE

Site 1

Site 2

Sites 1 and 2

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

COLE MT. RD.

SR 1240

DAWSON MILLER RD.

SR 1238

POND

DAM

EXISTING R/W

100' 0' 100' 200' 300'

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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smorgan
A1 H1294381

PROJECT REFERENCE NO.	SHEET NO.
I-4407	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 10 of 11

NAD 83/95

REVISIONS

MATCH LINE

SEE SHEET NO.25

-L- STA.314+00.00

-L- STA.328+00.00

SEE SHEET NO.27

MATCH LINE

315+00

320+00

323+00

325+00

EXISTING R/W

PA GR

PA BST

10' BST

CB 2

12" CONC

24" CONC

18" CONC W/FES

15" CONC W/FES

56" CONC

SHOULDER DRAIN

REMOVE EXISTING GUARDRAIL

REMOVE CB 2GI

PROPOSED GUARDRAIL

GRAU-350

CAT-1

TYPE A

TYPE D

COLLAR REMOVE CB

REMOVE 91LF OF 15" RCF

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

24" C&G

EOT

BST

MTL

BYTC

N 56°57'08" E

END TRANSITION
BEGIN PROP.SHLD.BERM GUTTER
-L- STA.315+92.00

END PROP.EXPRESSWAY GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-1)
-L- STA.315+52.00

CLASS 'B' RIP RAP
EST.2 TONS
7 SY FILTER FABRIC

END PROP.SHLD.BERM GUTTER
-L- STA.325+70.00

CLASS 'B' RIP RAP
EST.2 TONS
7 SY FILTER FABRIC

ISBKD

ISBKAPT

CONC

WD WALL

PA SOIL

WALL

Site 3

Site 3

100' 0' 100' 200' 300'

Scale

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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smorgan AT H2371391

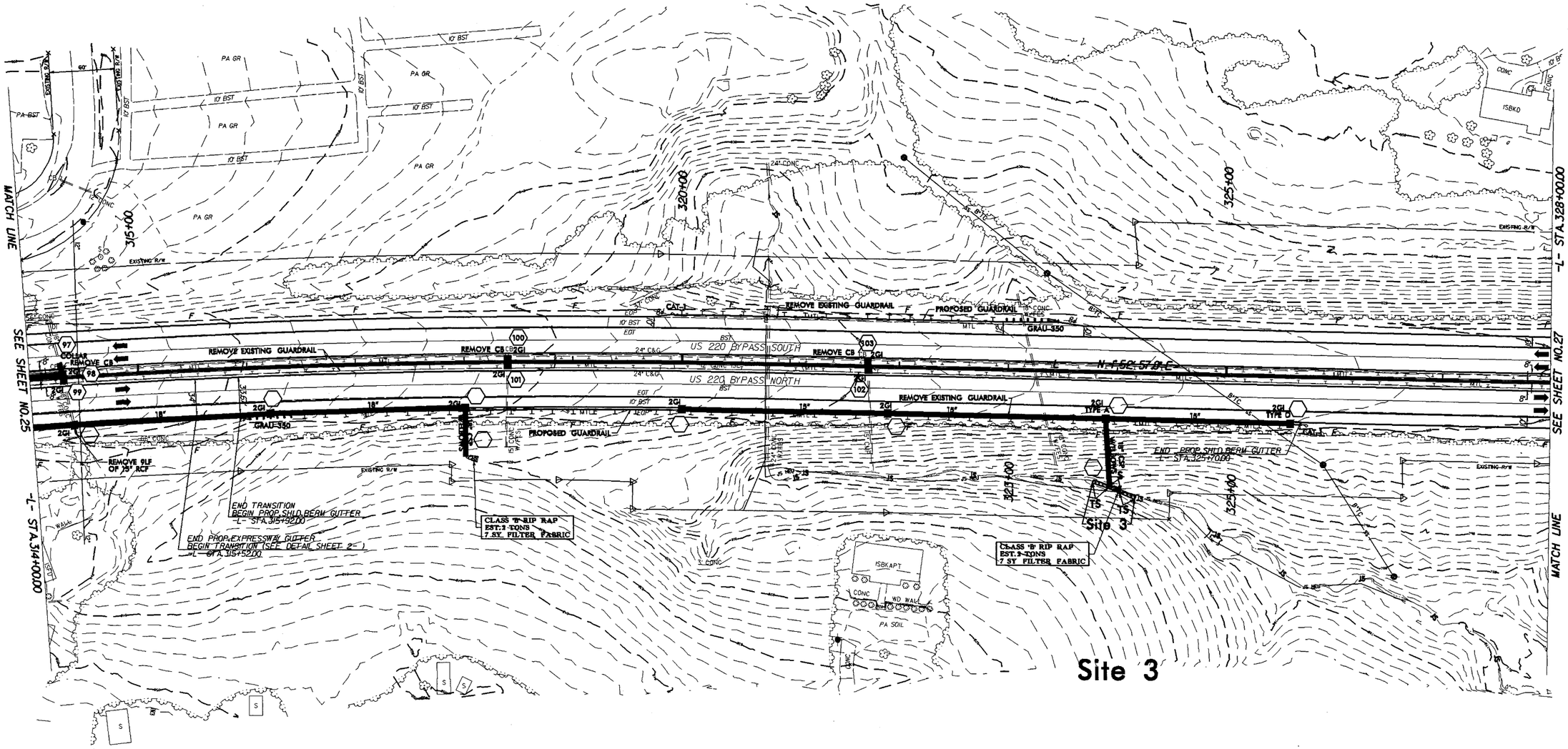
PROJECT REFERENCE NO.	SHEET NO.
I-4407	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 11 of 11

NAD 83/95

REVISIONS



100' 0' 100' 200' 300'
Scale

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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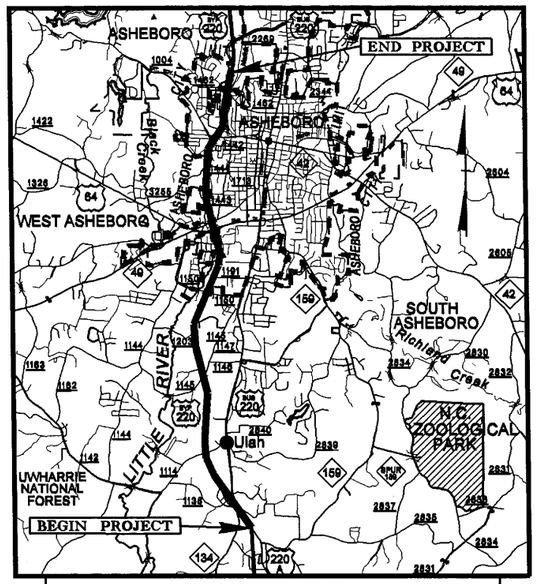
smorgan 4T (H:23.38)

09/08/99

TIP PROJECT: I-4407

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

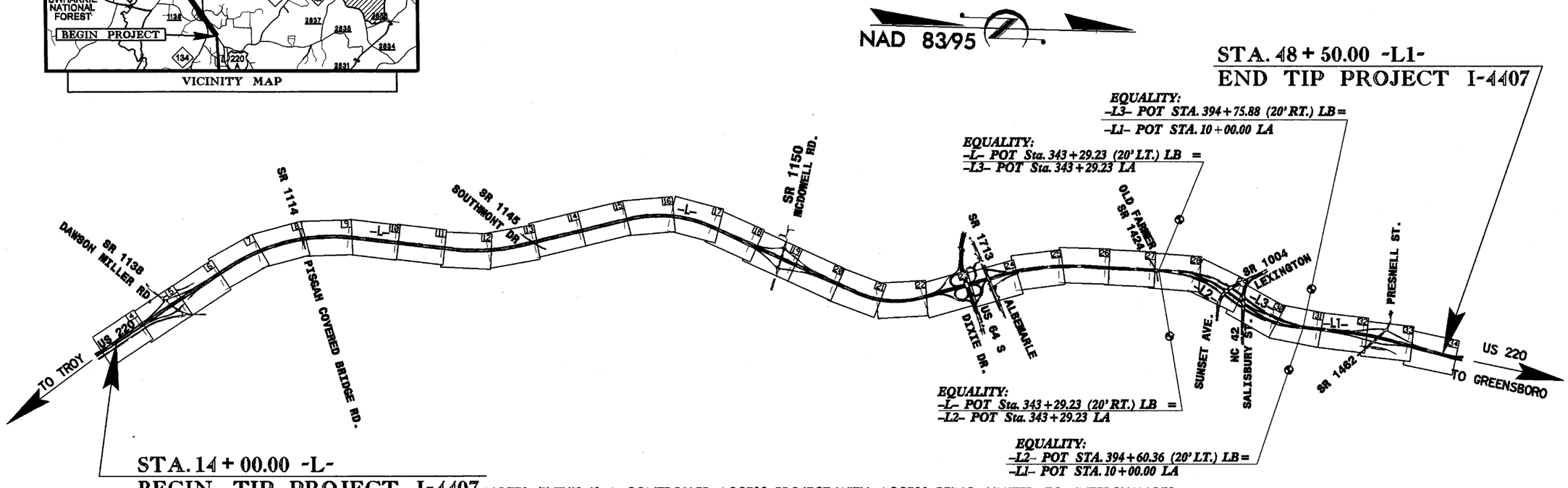
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4407	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34236.1.1	IMS-73(8)	PE
34236.2.1	NHS-0220(31)	R/W & UTIL

LOCATION: US 220 (FUTURE I-73/74) FROM SOUTH OF NC 134-US 220 BUSINESS TO NORTH OF SR 1462 (PARK DRIVE EXT.)

TYPE OF WORK: SAFETY IMPROVEMENTS - GRADING, DRAINAGE, PAVING, GUARDRAIL, LIGHTING, AND SIGNING

NAD 83/95



NOTES: (1) THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES
(2) CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
(3) A PORTION OF THIS PROJECT IS WITHIN THE CITY OF ASHEBORO'S MUNICIPAL BOUNDARIES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50' 25' 0 50' 100'
PLANS

50' 25' 0 50' 100'
PROFILE (HORIZONTAL)

10' 5' 0 10' 20'
PROFILE (VERTICAL)

DESIGN DATA

ADT 2010 =19310-49230
ADT 2035 =38200-89600
DHV = 10 %
D = 60 %
T = 20 % *
V = 70 MPH

* TTST 15% DUAL 5%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT I-4407 = 7.941 MILES
TOTAL LENGTH OF TIP PROJECT I-4407 = 7.941 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 16, 2008

LETTING DATE: APRIL 20, 2010

ROGER D. THOMAS, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

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$$$$USERNAME$$$$

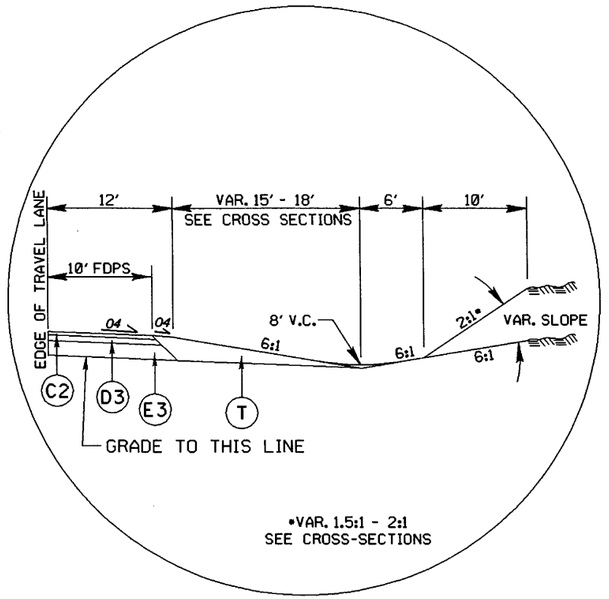
PROJECT REFERENCE NO.	SHEET NO.
I-4407	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. APPROX. 11½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 1,311 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 5.5" IN DEPTH OR LESS THAN 4" IN DEPTH
E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 5.5" IN DEPTH OR LESS THAN 4" IN DEPTH
R1	EXPRESSWAY GUTTER
R2	CONCRETE MEDIAN BARRIER, TYPE T
R3	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT

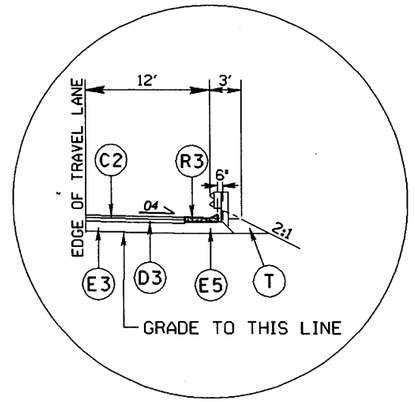
NOTE: PAVEMENT EDGE SLOPES ARE 4:1 UNLESS SHOWN OTHERWISE



INSET NO. 1

INSET NO. 1
Use with Typical Section No. 1
Use with Typical Section No. 4
Use with Typical Section No. 5

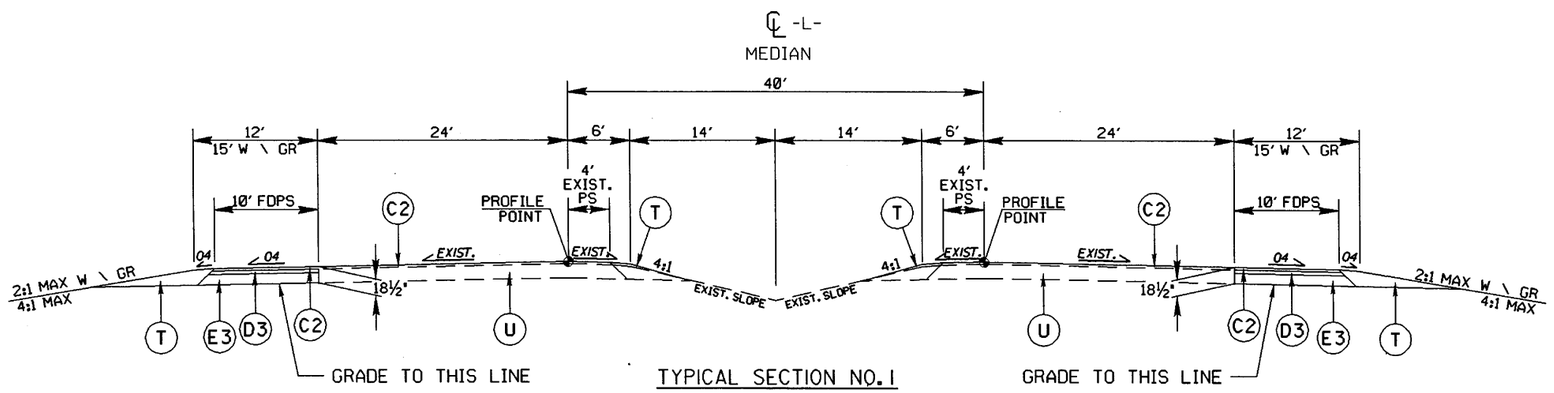
USE INSET NO. 1 AT THE FOLLOWING LOCATIONS:
-L- STA. 17+00.00 (LT.) TO -L- STA. 21+00.00 (LT.)
-L3- STA. 393+50.00 (LT.) TO -L3- STA. 394+75.88 (LT.)
•-LI- STA. 10+00.00 (LT.) TO -LI- STA. 14+00.00 (LT.)
•-LI- STA. 41+50.00 (RT.) TO -LI- STA. 44+00.00 (RT.)
-LI- STA. 46+50.00 (RT.) TO -LI- STA. 47+50.00 (RT.)



INSET NO. 2

INSET NO. 2
Use with Typical Section No. 1

USE INSET NO. 2 AT THE FOLLOWING LOCATIONS:
-L- STA. 43+75.00 (RT.) TO -L- STA. 55+00.00 (RT.)
-L- STA. 46+17.00 (LT.) TO -L- STA. 55+80.00 (LT.)
-L- STA. 172+05.00 (RT.) TO -L- STA. 182+75.00 (RT.)
-L- STA. 202+40.00 (RT.) TO -L- STA. 205+75.00 (RT.)
-L- STA. 202+50.00 (LT.) TO -L- STA. 215+98.76 (LT.)
-RAMPB2- STA. 10+00.00 (LT.) TO -RAMPB2- STA. 13+05.00 (LT.)
-L- STA. 213+00.00 (RT.) TO -L- STA. 214+96.50 (RT.)
-RAMPC2- STA. 10+00.00 (RT.) TO -RAMPC2- STA. 11+55.00 (RT.)



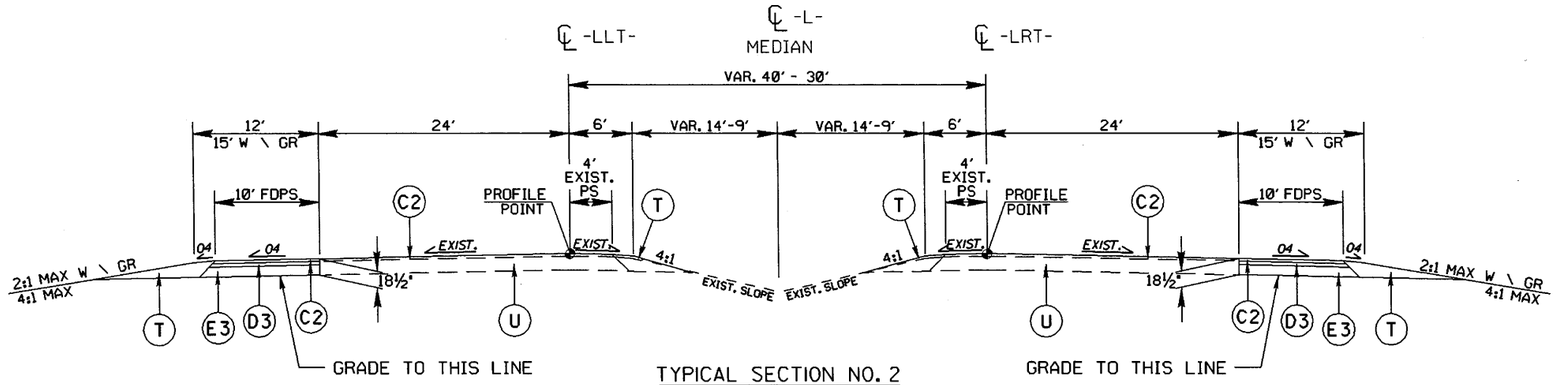
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 14+00.00 TO -L- STA. 32+79.00
-L- STA. 35+26.00 TO -L- STA. 252+52.71

NOTES: (1) REMOVE EXISTING OUTSIDE PAVED SHOULDERS
(2) DO NOT DISTURB GUARDRAIL IN MEDIAN UNLESS LABELED ON PLANS
(3) FULL DEPTH PAVEMENT REPAIR -L- STA.32+79.00 TO -L- STA.33+29 +\- (BEGIN BRIDGE)
(4) FULL DEPTH PAVEMENT REPAIR -L- STA.34+76 +/- (END BRIDGE) TO -L- STA.35+26.00

PROJECT REFERENCE NO.	SHEET NO.
I-4407	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 2

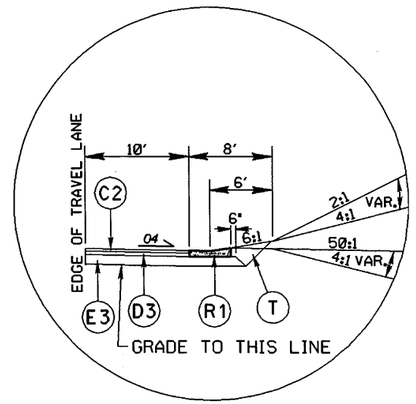
USE TYPICAL SECTION NO. 2

-L- STA. 252+52.71 TO -L- STA. 259+00.00

NOTES: (1) REMOVE EXISTING OUTSIDE PAVED SHOULDERS
(2) TRANSITION FROM TYPICAL SECTION NO.2 TO TYPICAL SECTION NO.3
-L- STA.259+00.00 TO -L- STA.262+35.00

FINAL PAVEMENT SCHEDULE	
C2	3" TYPE S9.5C
D3	4" TYPE I19.0C
E3	11½" TYPE B25.0C
R1	EXPRESSWAY GUTTER
R2	CONCRETE MEDIAN BARRIER, TYPE T
T	EARTH MATERIAL
U	EXISTING PAVEMENT

NOTE: PAVEMENT EDGE SLOPES ARE ¼ UNLESS SHOWN OTHERWISE

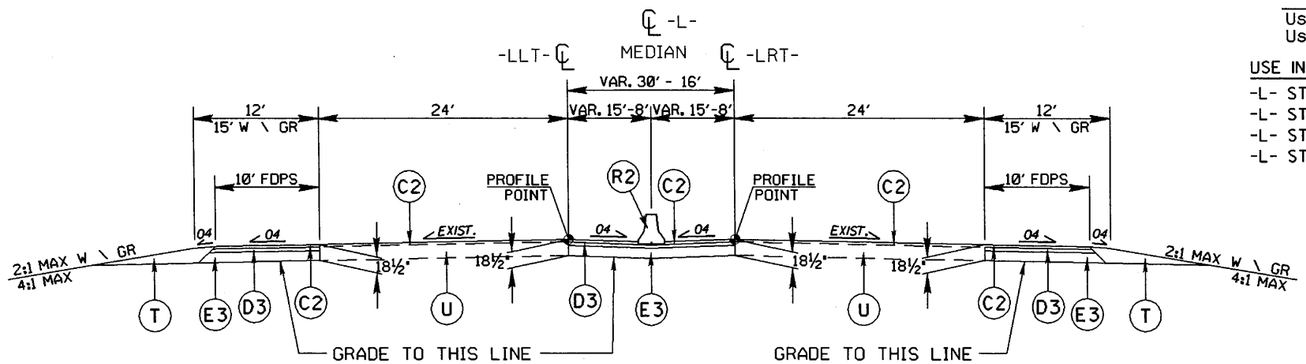


INSET NO. 3

INSET NO. 3
Use with Typical Section No. 1
Use with Typical Section No. 4

USE INSET NO. 3 AT THE FOLLOWING LOCATIONS:

-L- STA. 44+00.00 (LT.) TO -L- STA. 46+07.00 (LT.)
-L- STA. 242+00.00 (RT.) TO -L- STA. 247+30.00 (RT.)
-L- STA. 305+00.00 (LT.) TO -L- STA. 307+50.00 (LT.)
-L- STA. 305+60.00 (RT.) TO -L- STA. 315+52.00 (RT.)



TYPICAL SECTION NO. 3

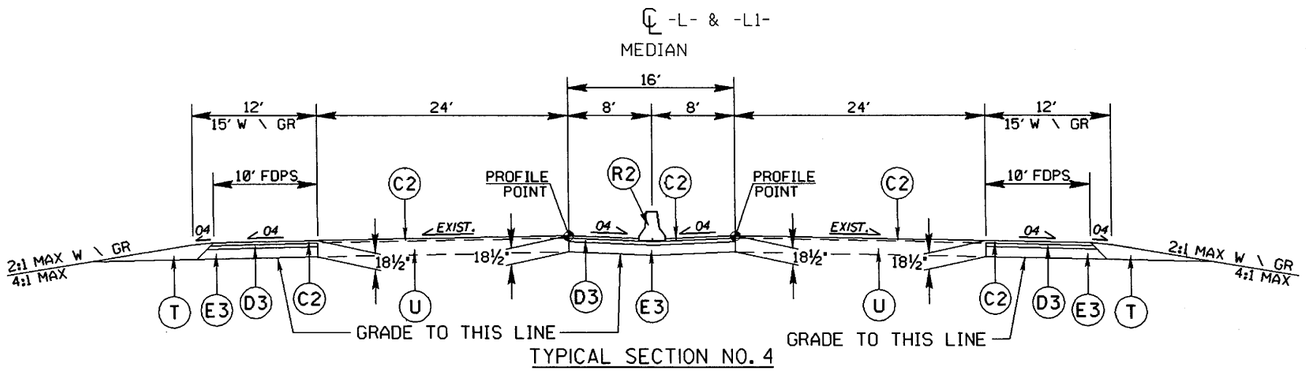
USE TYPICAL SECTION NO. 3

-L- STA. 262+35.00 TO -L- STA. 269+58.38

NOTES: (1) REMOVE EXISTING MEDIAN PAVED SHOULDERS
(2) REMOVE EXISTING OUTSIDE PAVED SHOULDERS

PROJECT REFERENCE NO.	SHEET NO.
I-4407	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



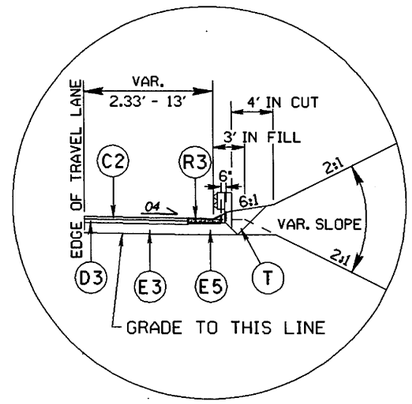
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
-L- STA. 269+58.38 TO -L- STA. 341+05.00
-L1- STA. 10+00.00 TO -L1- STA. 48+50.00

NOTES: (1) REMOVE EXISTING PAVED MEDIAN SHOULDERS
(2) NEED FULL DEPTH PAVEMENT REPAIR -L- STA.341+05.00 TO -L- STA.341+55 +\- (BEGIN BRIDGE)
(3) NEED FULL DEPTH PAVEMENT REPAIR -L- STA.343+04 +/- (END BRIDGE) TO -L- STA.343+29.23

FINAL PAVEMENT SCHEDULE	
C2	3" TYPE S9.5C
D3	4" TYPE I19.0C
E3	11½" TYPE B25.0C
E5	VAR. TYPE B25.0C
R2	CONCRETE MEDIAN BARRIER, TYPE T
R3	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT

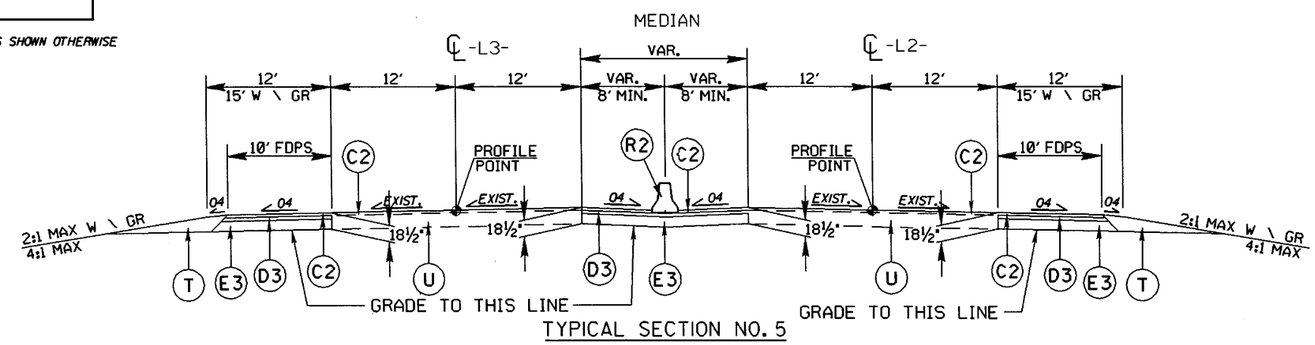
NOTE: PAVEMENT EDGE SLOPES ARE 4:1 UNLESS SHOWN OTHERWISE



INSET NO. 4

INSET NO. 4
Use with Typical Section No. 4
Use with Typical Section No. 6
Use with Typical Section No. 7

USE INSET NO. 4 AT THE FOLLOWING LOCATIONS:
-L- STA. 292+19.00 (LT.) TO -L- STA. 293+19.00 (LT.)
-L- STA. 315+92.00 (RT.) TO -L- STA. 325+70.00 (RT.)
-L2- STA. 361+92.00 (RT.) TO -L2- STA. 363+52.00 (RT.)
-L2- STA. 369+89.00 (RT.) TO -L2- STA. 370+89.00 (RT.)
-L3- STA. 366+48.00 (LT.) TO -L3- STA. 367+48.00 (LT.)
-L3- STA. 370+84.00 (LT.) TO -L3- STA. 371+84.00 (LT.)
-L3- STA. 380+75.00 (LT.) TO -L3- STA. 382+00.00 (LT.)
-1713RAMPA- STA. 14+62.00 (RT.) TO -L- STA. 304+70.00 (LT.)
-1713RAMPD- STA. 12+34.00 (LT.) TO -L- STA. 305+50.00 (RT.)
-RAMPC3- STA. 11+98.00 (LT.) TO -RAMPC3- STA. 13+16.00 (LT.)
-L2- STA. 347+81.00 (LT.) TO -L2- STA. 350+40.00 (LT.)
-L3- STA. 347+84.00 (RT.) TO -L3- STA. 350+46.00 (RT.)
-L2- STA. 362+54.00 (LT.) TO -L2- STA. 363+54.00 (LT.)
-L2- STA. 369+50.00 (LT.) TO -L2- STA. 370+50.00 (LT.)
-L3- STA. 366+06.00 (RT.) TO -L3- STA. 367+06.00 (RT.)
-L3- STA. 371+35.00 (RT.) TO -L3- STA. 372+35.00 (RT.)
-L2- STA. 386+85.00 (LT.) TO -L2- STA. 391+00.00 (LT.)
-L3- STA. 387+07.00 (RT.) TO -L3- STA. 391+16.00 (RT.)
-RAMPA4- STA. 11+20.00 (LT.) TO -RAMPA4- STA. 12+30.00 (LT.)



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
-L2- STA. 343+55.00 TO -L2- STA. 347+40.00
-L3- STA. 343+55.00 TO -L3- STA. 347+41.42
-L2- STA. 391+29.42 TO -L2- STA. 394+60.36
-L3- STA. 391+46.00 TO -L3- STA. 394+75.88

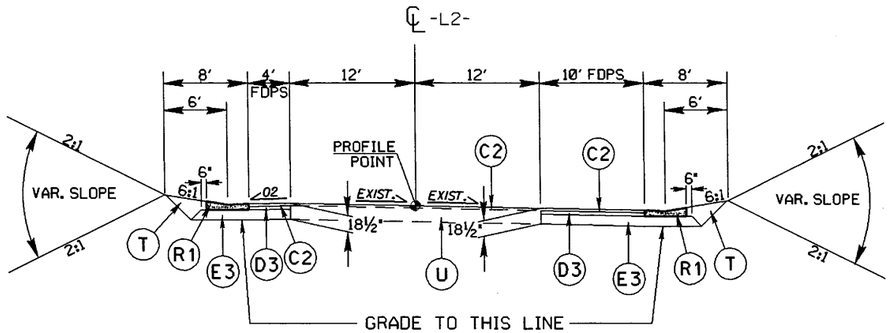
NOTES: (1) REMOVE EXISTING CURB AND GUTTER
(2) TRANSITION FROM T.S.NO.5 TO T.S.NO.6 -L2- STA. 347+40.00 TO -L2- STA. 347+81.00
(3) TRANSITION FROM T.S.NO.5 TO T.S.NO.7 -L3- STA. 347+41.42 TO -L3- STA. 347+84.00
(4) FULL DEPTH PAVEMENT REPAIR -L2- STA.343+29.23 TO -L2- STA.343+55.00
(5) FULL DEPTH PAVEMENT REPAIR -L3- STA.343+29.23 TO -L3- STA.343+55.00

PROJECT REFERENCE NO.	SHEET NO.
I-4407	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FINAL PAVEMENT SCHEDULE	
C2	3" TYPE S9.5C
D3	4" TYPE I19.0C
E3	11½" TYPE B25.0C
E5	VAR. TYPE B25.0C
R1	EXPRESSWAY GUTTER
R3	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT

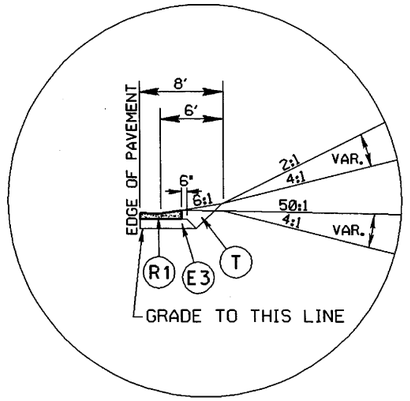
NOTE: PAVEMENT EDGE SLOPES ARE 1H UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-L2- STA. 347+81.00 TO -L2- STA. 391+00.00

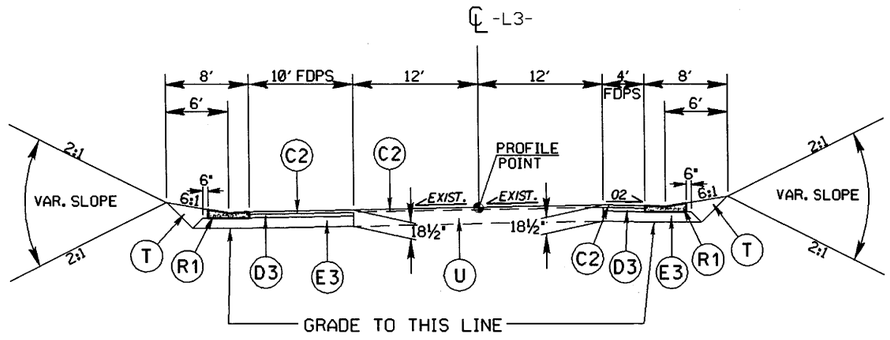
NOTES: (1) REMOVE EXISTING CURB AND GUTTER AND REPLACE WITH EXPRESSWAY GUTTER (SEE PLANS FOR LOCATIONS)
(2) TRANSITION FROM T.S.NO.6 TO T.S.NO.5 -L2- STA. 391+00.00 TO -L2- STA. 391+29.42



INSET NO. 5

INSET NO. 5
Use with Typical Section No. 6
Use with Typical Section No. 7

USE INSET NO. 5 AT THE FOLLOWING LOCATIONS:
-L2- STA. 364+44.00 (LT.) TO -L2- STA. 369+10.00 (LT.)
-L2- STA. 371+68.00 (LT.) TO -L2- STA. 372+50.00 (LT.)
-L3- STA. 367+46.00 (RT.) TO -L3- STA. 370+00.00 (RT.)



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
-L3- STA. 347+84.00 TO -L3- STA. 391+16.00

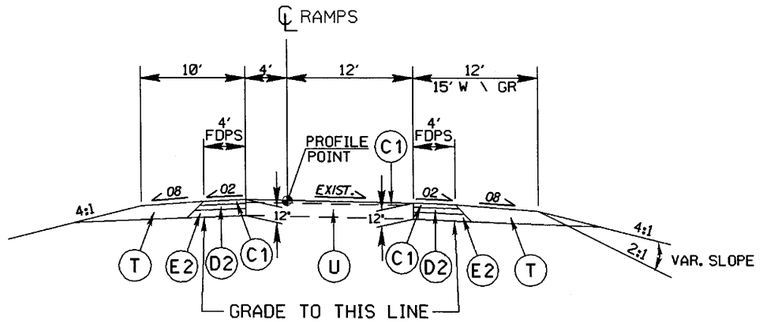
NOTES: (1) REMOVE EXISTING CURB AND GUTTER AND REPLACE WITH EXPRESSWAY GUTTER (SEE PLANS FOR LOCATIONS)
(2) TRANSITION FROM T.S.NO.7 TO T.S.NO.5 -L3- STA. 391+16.00 TO -L3- STA. 391+46.00

PROJECT REFERENCE NO.	SHEET NO.
I-4407	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

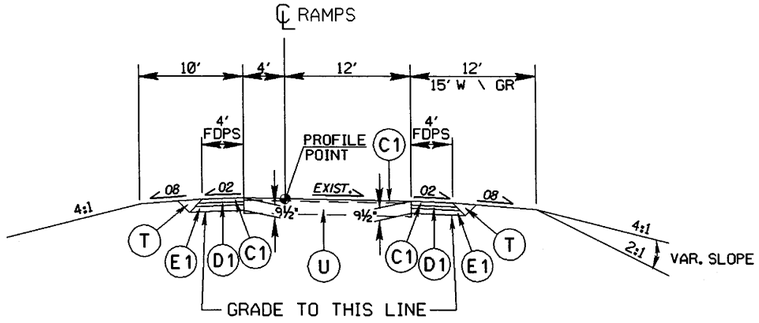
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FINAL PAVEMENT SCHEDULE	
C1	3" TYPE S9.5B
D1	2½" TYPE I19.0B
D2	4" TYPE I19.0B
E1	4" TYPE B25.0B
E2	5" TYPE B25.0B
E4	VAR. TYPE B25.0B
R1	EXPRESSWAY GUTTER
R3	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT

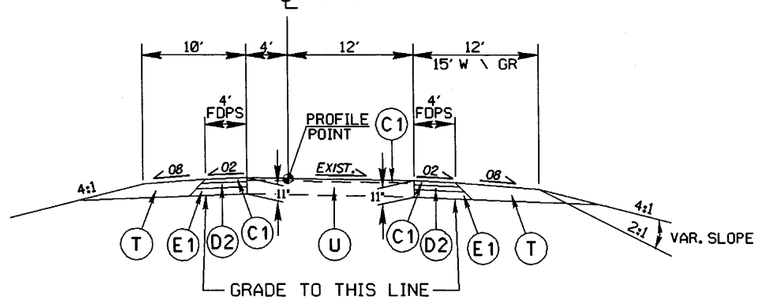
NOTE: PAVEMENT EDGE SLOPES ARE ⊬ UNLESS SHOWN OTHERWISE



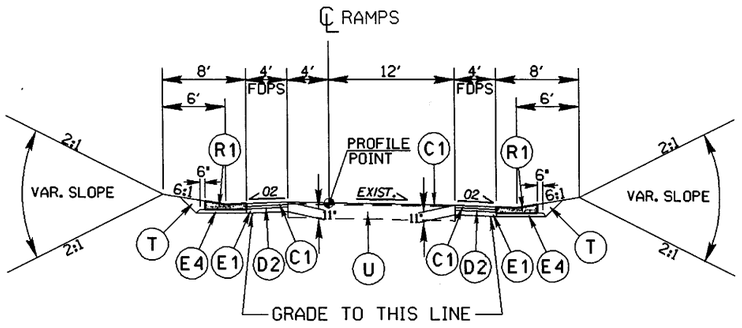
TYPICAL SECTION NO. 8



TYPICAL SECTION NO. 9



TYPICAL SECTION NO. 10



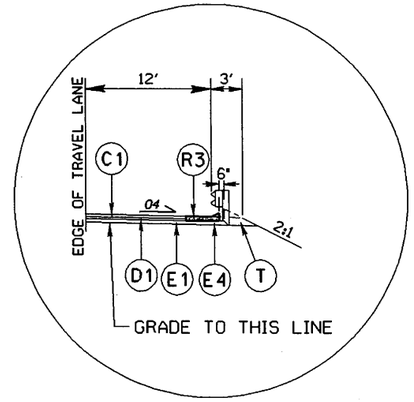
TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 8

-RAMPA1- STA. 13+14.48 TO -RAMPA1- STA. 19+88.86
-RAMPD1- STA. 13+94.35 TO -RAMPD1- STA. 20+26.97 (REVERSE)

USE TYPICAL SECTION NO. 9

-RAMPB1- STA. 14+13.23 TO -RAMPB1- STA. 19+81.52 (REVERSE)
-RAMPC1- STA. 13+67.35 TO -RAMPC1- STA. 21+01.04
-RAMPB2- STA. 13+94.08 TO -RAMPB2- STA. 20+36.40 (REVERSE)
-RAMPC2- STA. 14+71.94 TO -RAMPC2- STA. 21+96.68
-RAMPA5- STA. 13+40.71 TO -RAMPA5- STA. 22+21.29
-RAMPB5- STA. 14+75.47 TO -RAMPB5- STA. 24+33.79 (REVERSE)
-RAMPC5- STA. 15+30.14 TO -RAMPC5- STA. 23+26.18
-RAMPD5- STA. 14+08.22 TO -RAMPD5- STA. 21+86.36 (REVERSE)



INSET NO. 6

INSET NO. 6

Use with Typical Section No. 9

USE INSET NO. 6 AT THE FOLLOWING LOCATIONS:

-RAMPA5- STA. 17+00.00 (RT.) TO -RAMPA5- STA. 21+25.00 (RT.)
-RAMPC5- STA. 16+00.00 (RT.) TO -RAMPC5- STA. 22+00.00 (RT.)

USE TYPICAL SECTION NO. 10

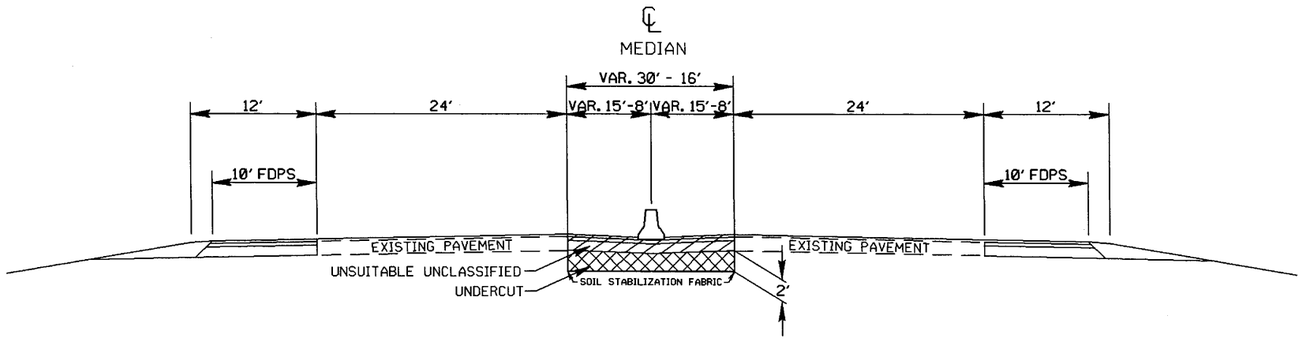
-RAMPA2- STA. 14+12.50 TO -RAMPA2- STA. 22+33.55
-RAMPD2- STA. 14+00.94 TO -RAMPD2- STA. 22+74.17 (REVERSE)

USE TYPICAL SECTION NO. 11

-RAMPB3- STA. 13+83.11 TO -RAMPB3- STA. 18+80.00
-RAMPC3- STA. 15+09.55 TO -RAMPC3- STA. 16+70.00 (REVERSE)
-RAMPA4- STA. 15+23.73 TO -RAMPA4- STA. 19+27.00 (REVERSE)
-RAMPD4- STA. 14+15.20 TO -RAMPD4- STA. 19+48.00

PROJECT REFERENCE NO.	SHEET NO.
I-4407	2-E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DETAIL NO. I FOR SHALLOW UNDERCUT

USE DETAIL NO. I

-L- STA. 262+35.00 TO -L- STA. 343+29.23
-L2- STA. 343+29.23 TO -L2- STA. 346+50.00
-LI- STA. 10+00.00 TO -LI- STA. 48+50.00

NOTE: SEE SHALLOW UNDERCUT SPECIAL PROVISION FOR DETAILS

PROJECT REFERENCE NO.	SHEET NO.
I-4407	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

BEGIN PROJECT I-4407
-L- POT STA. 14+00.00

-L- POT Sta. 10+00.00

-L- STA. 23+00.00

SEE SHEET NO. 5

MATCH LINE

ISBKBUS

CONC

WALL

CONC

PLANTER

PA BST

W/LT

W/LT

10+00

15+00

20+00

RIP RAP

60' CHL

EXISTING R/W

BM#3
-BL- STA 18+19.6
136.3' LEFT
ELEV. 802.07'

12" CONC

SOIL

NC 134

23' BST

300' TAPER

+50.00

+00.92

10' BST

4'

EOP 4' BST

EOT

BST

US 220 BYPASS SOUTH

-L- N 34° 34' 31.0" W

-BL- N 34° 08' 09.9" W

MTL

18" CONC

DI

1B

REMOVE AND REPLACE APRON

1C

HDPE PIPE AND EOT

US 220 BYPASS NORTH

12" CONC

BST

EOT 4' BST

EOT 10' BST

+57.27

POSSIBLE JB

350' FULL

300' TAPER

1A

OLD US HWY 220 SOUTH

EOP 4' BST

EOT

EOP

18" CONC

12" CONC

RIP RAP

EXISTING R/W

SR 2842 NASSAU TR.

BST

SOIL

W/LT

60'

NOTES: (1) SEE SHEET 35 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

-RAMPBI- CURVE DATA

PIs Sta 11+33.36	PI Sta 12+78.33	PIs Sta 14+23.21
θs = 3° 49' 11.0"	Δ = 5° 58' 43.0" (LT)	θs = 3° 49' 11.0"
Ls = 200.00'	D = 3° 49' 11.0"	Ls = 200.00'
LT = 133.36'	L = 156.52'	LT = 133.36'
ST = 66.69'	T = 78.33'	ST = 66.69'
	R = 1,500.00'	
	SE = EXISTING	

NAD 83/95

-RAMPBI- POT Sta. 19+81.52

-RAMPAI- POT Sta. 19+88.86

-RAMPBI- ST Sta. 15+56.52

-RAMPBI- CS Sta. 13+56.52

-L- POT Sta. 23+51.33 (44' LT) =
-RAMPBI- TS Sta. 10+00.00

-RAMPBI- SC Sta. 12+00.00

-BYB- 128 6+87.04 POT =
-RAMPBI- 15+56.34 (8.97' LT)

END PROPOSED WOVEN WIRE FENCE

BEGIN PROPOSED WOVEN WIRE FENCE

SR 1138 DAWSON MILLER RD.

SR 1240 COLE MT. RD.

NC 134

ABAND

+16.36
197.55

+51.10
124.67'

+40.31
272.88

-BL- 101 PNC 27+57.32 =
-BYB- 5+00.00 PNC =
-BYC- 5+00.00 PNC =
-L- 27+67.36 (6.42' RT)

-BL- 102 PNC 34+82.72 =
-BYA- 5+00.00 PNC =
-BYD- 5+00.00 PNC =
-L- 34+92.55 (11.00' LT)

-L- STA.23+00.00

-RAMPAI- STA.16+10.00

-L- STA.37+00.00

-RAMPDI- STA.18+10.00

MATCH LINE

MATCH LINE

SEE SHEET NO.4

SEE SHEET NO.6

OVERHEAD POWER CLEARANCE=19.00'

OVERHEAD POWER CLEARANCE=25.28'

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

OLD US HWY 220 SOUTH

SR 2958 PINEWOOD RD.

SR 1138 DAWSON MILLER RD.

REMOVE & RESET GUARDRAIL

REMOVE EXISTING GUARDRAIL

PROPOSED GUARDRAIL

TIE TO EXISTING WTR SECTION

REPAIR EXIT AND BOX

GRAU-350

350' FULL

-RAMPCI- PC Sta. 11+01.52

-L- POT Sta. 24+06.23 (44' RT.) =
-RAMPCI- POT Sta. 10+00.00
Δ = 2° 18' 00"

-RAMPCI- PT Sta. 15+09.10

-RAMPCI- PC Sta. 17+18.28

-RAMPCI- PT Sta. 20+59.91

-RAMPCI- POT Sta. 21+01.04

-RAMPDI- POT Sta. 20+26.97

-BYC- 129 9+02.76 POT =
-RAMPCI- 17+34.51 (19.35' RT)

-BYB- 130 7+54.48 POT =
-RAMPDI- 19+60.28 (25.61' LT)

BEGIN PROPOSED WOVEN WIRE FENCE

+57.72
340.01

+23.28
311.02

+73.43
273.15

ISFD

TRAFFIC DIAGRAM

ADT
2010 6,483 12,600
2035 19,312 38,200

DAWSON MILLER RD. SR 1138

US 220 BYPASS

100 2,400
10,038 19,400
10 700
2,312 2,200
26,608 54,200
5,186 10,600

-RAMPCI- CURVE DATA

PI Sta 13+06.57	PI Sta 18+91.18
Δ = 15° 34' 06.0" (RT)	Δ = 21° 44' 56.0" (LT)
D = 3° 49' 11.0"	D = 6° 21' 58.3"
L = 407.58'	L = 341.63'
T = 205.05'	T = 172.90'
R = 1,500.00'	R = 900.00'
SE = EXISTING	SE = EXISTING

NOTES: (1) SEE SHEET 35 FOR -L- PROFILE
(2) SEE SHEET 52 FOR -RAMPAI- PROFILE
(3) SEE SHEET 53 FOR -RAMPBI- PROFILE
(4) SEE SHEET 53 FOR -RAMPCI- PROFILE
(5) SEE SHEET 54 FOR -RAMPDI- PROFILE
(6) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(7) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(8) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

-RAMPAI- CURVE DATA
PI Sta 11+43.19
Δ = 8° 41' 31.0" (RT)
D = 4° 05' 33.2"
L = 212.38'
T = 106.40'
R = 1,400.00'
SE = EXISTING

NAD 83/95

-L- POT Sta. 43+13.94 (44' LT.) =
-RAMPAI- POT Sta. 10+00.00
Δ = 2° 18' 00"

-RAMPAI- PC Sta. 10+36.80

-RAMPAI- PT Sta. 12+49.18

-RAMPAI- STA. 16+10.00

-L- STA. 51+00.00

SEE SHEET NO. 5

SEE SHEET NO. 7

MATCH LINE

-RAMPDI- STA. 18+10.00

-L- STA. 37+00.00

BM#4
-BL- STA 38+90.5
263.1' LEFT
ELEV. 840.43'

SR 1240 COLE MT. RD.

S 23° 35' 00.0" E

S 32° 16' 31.0" E

S 41° 56' 36.0" E

-BYA- 127°T+78.90 POT =
-RAMPAI- 15+67.08 (15.89' LT)

-RAMPDI- 18' BST

-RAMPDI- CS Sta. 13+49.97

-RAMPDI- ST Sta. 15+49.97

-RAMPDI- SC Sta. 12+00.00

BEGIN PROP. EXPRESSWAY GUTTER
-L- STA. 44+00.00

END PROPOSED WOVEN WIRE FENCE

END PROP. EXPRESSWAY GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-)
-L- STA. 46+07.00

END TRANSITION
BEGIN PROP. SHLD. BERM GUTTER
-L- STA. 46+11.00

BEGIN PROP. SHLD. BERM GUTTER
-L- STA. 43+75.00

END PROPOSED WOVEN WIRE FENCE
+01.64
130.21'

-L- POT Sta. 45+09.70 (44' RT.) =
-RAMPDI- TS Sta. 10+00.00

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

N 34° 27' 39.4" W -BL-

N 34° 34' 31.0" W -L-

REMOVE EXISTING GUARDRAIL

PROPOSED GUARDRAIL

CLASS 'B' RIP RAP
EST. 22 TONS
20 SY FILTER FABRIC

CLASS 'B' RIP RAP
EST. 1 TON
5 SY FILTER FABRIC

CLASS 'B' RIP RAP
EST. 1 TON
4 SY FILTER FABRIC

RESET ONE JOINT OF PIPE

300' TAPER

40TCB

ELBOW

PSH

GRAU-350

SR 1138 DAWSON MILLER RD.

POND

DAM

PIER

ISBKD

25BKD

-RAMPDI- CURVE DATA

PIs Sta 14+16.67	PI Sta 12+75.05	PIs Sta 11+33.36
Θs = 3° 49' 11.0"	Δ = 5° 43' 43.0" (LT)	Θs = 3° 49' 11.0"
Ls = 200.00'	D = 3° 49' 11.0"	Ls = 200.00'
LT = 133.36'	L = 149.97'	LT = 133.36'
ST = 66.69'	T = 75.05'	ST = 66.69'
	R = 1,500.00'	
	SE = EXISTING	

NOTES: (1) SEE SHEET 36 FOR -L- PROFILE
(2) SEE SHEET 52 FOR -RAMPAI- PROFILE
(3) SEE SHEET 54 FOR -RAMPDI- PROFILE
(4) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(5) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(6) 30' OF SAFETY CLEARING IS REQUIRED

PROJECT REFERENCE NO.	SHEET NO.
I-4407	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

MATCH LINE

SEE SHEET NO.9

SEE SHEET NO.8

MATCH LINE

-L- STA 51+00.00

-L- STA 65+00.00

55+00

60+00

65+00

+93.29
124.10'

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY FILTER FABRIC

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY FILTER FABRIC

END PROP. SHLD. BERM GUTTER
-L- STA. 55+80.00

+81.22
124.69

BM#5
-BL- STA 59+80.9
143.5' LEFT
ELEV. 794.12'

EXISTING R/W

ELBOW

15" CSP

-BL- 103 PINC 52+68.78 =
-L- 52+78.61 (7.44' LT)

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

EXTEND 18 RCP

COLLAR

REMOVE PAVED DITCH

PAVED DITCH

GRAU-350

15" CONC

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

N 34° 22' 38.4" W

N 34° 34' 31.0" W

N 29° 30' 14.3" W

-BL-

60" CONC

72" CONC

CAT-1

CUTLET NOT FOUND

N 17° 14' 31.6" W

-BL- 104 PINC 64+30.75 =
-L- 64+42.44 (6.94' RT)

300' TAPER

+01.36
129.91'

CLASS 'B' RIP RAP
EST. 1 TON
5 SY FILTER FABRIC

-L- PC Sta. 54+34.40

NOTES: (1) SEE SHEET 36 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

-L- CURVE DATA
PI Sta 75+16.94
Δ = 39° 56' 48.4" (RT)
D = 0° 59' 59.7"
L = 3,994.97'
T = 2,082.54'
R = 5,730.00'
SE = EXISTING

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD '83/95

MATCH LINE

SEE SHEET NO.7

SEE SHEET NO.9

-L- STA.65+00.00

-L- STA.79+00.00

65+00

70+00

75+00

+01.04
130.16

+00.83
129.31

+77.80
130.41

+96.16
129.28

+99.20
130.00

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

SR 1114 PISGAH COVERED BRIDGE RD.

N 17°14' 34.6" W

-L- 66" CONC

-Y1- 24" CONC W/ FES

-Y2- 30" CONC

-Y3- 15" CONC

-Y4- 24" CONC

-Y5- 36" CONC W/ FES

-Y6- 18" CONC

-Y7- 24" CONC

-Y8- 24" CONC

-Y9- 24" CONC

-Y10- 24" CONC

-Y11- 24" CONC

-Y12- 24" CONC

-Y13- 24" CONC

-Y14- 24" CONC

-Y15- 24" CONC

-Y16- 24" CONC

-Y17- 24" CONC

-Y18- 24" CONC

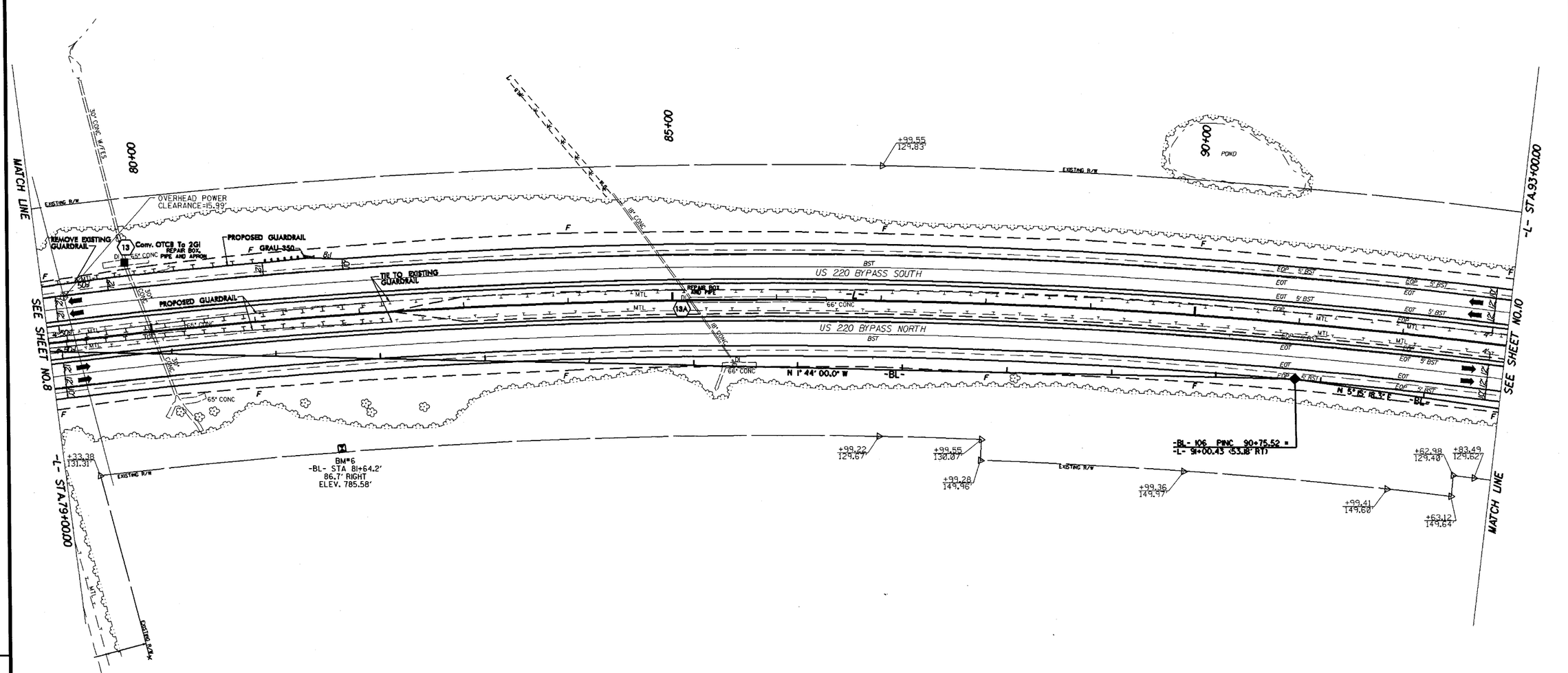
-Y19- 24" CONC

PROJECT REFERENCE NO.	SHEET NO.
I-4407	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95



-L- CURVE DATA
PI Sta 75+16.94
Δ = 39° 56' 48.4" (RT)
D = 0° 59' 59.7"
L = 3,994.97'
T = 2,082.54'
R = 5730.00'
SE = EXISTING

NOTES: (1) SEE SHEET 37 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

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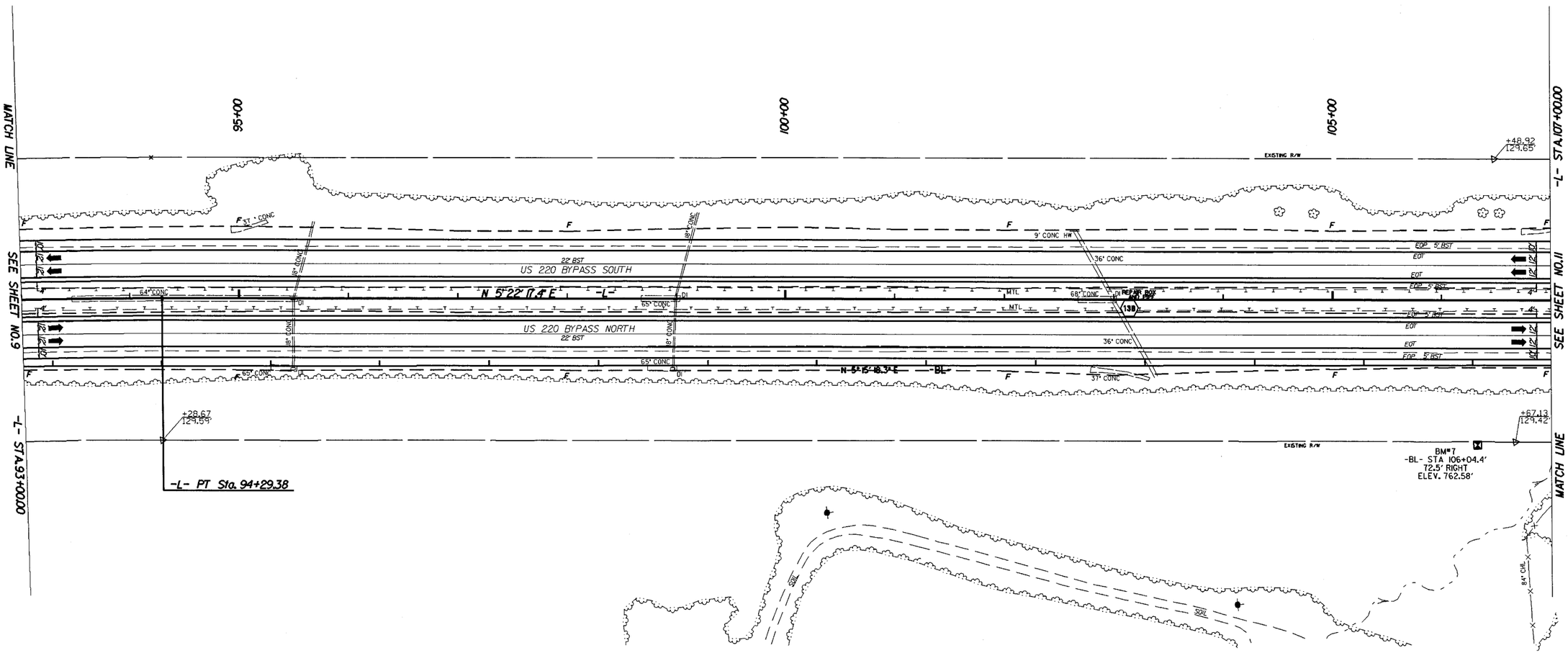
PROJECT REFERENCE NO.	SHEET NO.
I-4407	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95



-L- CURVE DATA
PI Sta 75+16.94
Δ = 39° 56' 48.4" (RT)
D = 0° 59' 59.7"
L = 3,994.97'
T = 2,082.54'
R = 5,730.00'
SE = EXISTING

NOTES: (1) SEE SHEET 38 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

-L- STA.107+00.00

110+00

115+00

120+00

-L- STA.121+00.00

SEE SHEET NO.10

SEE SHEET NO.12

MATCH LINE

MATCH LINE

F 37" CONC

CAT-1

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

GRAD-350

40" CONC

MTL

15" CMP

61" CONC

18" CONC

22' BST

US 220 BYPASS SOUTH

N 5°22'11.4"E -L-

US 220 BYPASS NORTH

EOT 5' BST

EOP

N 4°55'46.6"E -BL-

-BL- N 5°15'18.3"E

PROPOSED GUARDRAIL

-BL- 107 PINC 110+22.52 =
-L- 110+50.67 (58.57' RT)

84" CHL

RIP RAP

SOIL

ST

36" CONC

PA BST

CONC

NOTES: (1) SEE SHEET 38 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95

-L- STA.121+00.00

125+00

130+00

135+00

MATCH LINE

SEE SHEET NO.11

SEE SHEET NO.13

-L- STA.135+00.00

+36.18
129.54

+99.24
129.80

+36.16
129.92

+97.52
129.94

EXISTING R/W

6" CONC

24" CONC W/ FES

18" CONC

12" CONC

N 5°22'11.4" E

22' BST
US 220 BYPASS SOUTH

US 220 BYPASS NORTH

MTL

54" CONC

N 6°36'34.3" W

N 4°55'16.6" E

-BL-

-L-

BM#8
-BL- STA 128+49.9'
86.1' RIGHT
ELEV. 794.88'

84" CHL

-BL- 108 PNC 127+53.29 =
-L- 127+78.28 (53.30' RT)

-L- PC Sta. 124+35.93

ST

S

A/G TANKS

RIP RAP

96" CONC

PA BST

PA SOIL

CONC

POND

SOIL

ISMTL BUS

-L- CURVE DATA
PI Sta 134+49.95
Δ = 20°04'16.4" (LT)
D = 0°59'59.7"
L = 2,007.27'
T = 1,014.03'
R = 5,730.00'
SE = EXISTING

NOTES: (1) SEE SHEET 39 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

PROJECT REFERENCE NO.	SHEET NO.
1-4407	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

-L- STA.135+00.00

135+00

140+00

145+00

+98.57
124.70'

+40.62
127.34'

EXISTING R/W

SR 1145 SOUTHMONT DR.

MATCH LINE

SEE SHEET NO.12

SEE SHEET NO.14

-L- STA.149+00.00

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

22' BST

EOP 5' BST

EOT 5' BST

EOP

EOT

-L-

-BL-

N 6° 36' 32.3" W

N 14° 41' 50" W

N 18° 03' 57.8" W

TIE TO EXISTING GUARDRAIL

TIE B-77 TO EXISTING SINGLE FACED CONC. BARRIER

REMOVE EXISTING GUARDRAIL

PROPOSED GUARDRAIL

GRAU-350

TYPE B-77

CONC BRIDGE COLUMNS

OVERHEAD POWER CLEARANCE=30.09'

LOWEST OVERHEAD CLEARANCE= 14.54'

-BL- 109 PINC 144+62.33 =
-L- 144+77.80 (53.34' RT)

-L- PT Sta. 144+43.20

+98.34
124.54'

+88.72
129.58'

BM#9
-BL- STA 146+58.5'
98.9' RIGHT
ELEV. 842.92'

ISFD BUS

ISFD

HTR

CONC

PA SOIL

PLANTERS

MTL CANOPY

12" CONC

18" CONC

61" CONC

84" CMP

60' CHL

-L- CURVE DATA
PI Sta 134+49.95
Δ = 20° 04' 16.4" (LT)
D = 0° 59' 59.7"
L = 2,007.27'
T = 1,014.03'
R = 5,730.00'
SE = EXISTING

NOTES: (1) SEE SHEET 39 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

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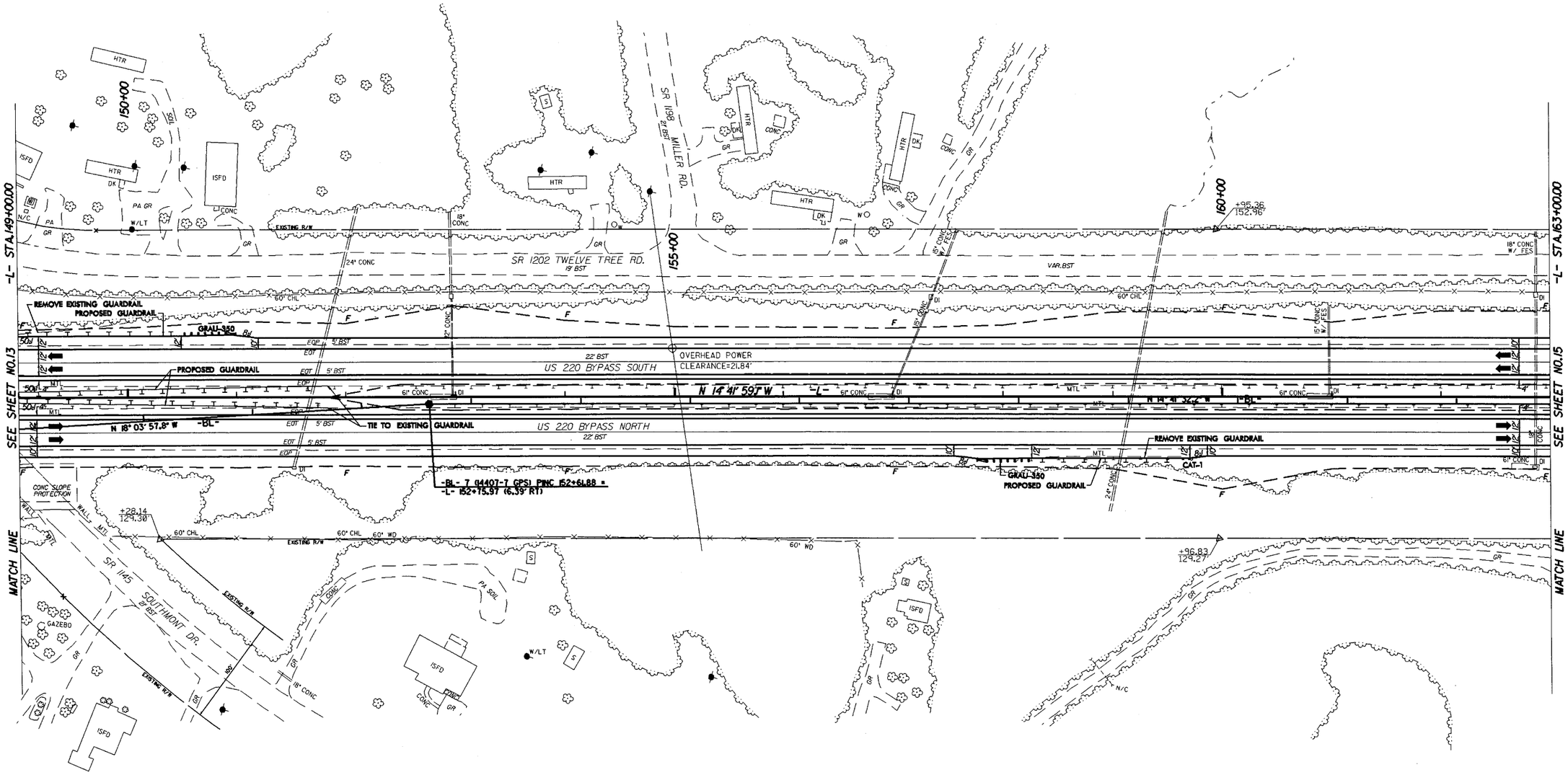
PROJECT REFERENCE NO.	SHEET NO.
I-4407	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95



NOTES: (1) SEE SHEET 40 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

PROJECT REFERENCE NO.	SHEET NO.
1-4407	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

-L- STA.163+00.00

MATCH LINE

SEE SHEET NO.14

165+00

170+00

175+00

-L- STA.177+00.00

SEE SHEET NO.16

MATCH LINE

SR 1202 TWELVE TREE RD.

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

N 14° 41' 59.5" W -L-

-BL- N 14° 41' 32.2" W

EXISTING R/W

60' CHL

19' BST

22' BST

5' BST

EOT

EOP

15" CONC W/ FES

15" CONC

6" CONC

DI

OVERHEAD POWER CLEARANCE=30.23'

OVERHEAD POWER CLEARANCE=25.12'

+13.26 124.77'

+53.24 130.01'

+36.22 129.63'

+26.13 96.49'

+29.53 129.49'

PROPOSED GUARDRAIL

CAT-1

REMOVE EXISTING GUARDRAIL

2GI

16'

37" CONC

GRAU-350

3' CONC HW

15" CSP W/ FES

CLASS 'B' RIP RAP
EST. 1 TON
& ST FILTER FABRIC

-BL- & (4407-B GPS) PINC 170+78.27 ±
-L- 170+92.36 (6.63' RT)

BEGIN PROP. SHLD. BERM GUTTER
-L- STA 172+05.00

BM#10
-BL- STA 168+85.3'
127.4' RIGHT
ELEV. 819.14'

W/LT

HTR

SOIL

GR

CHL

CONC

ISBKD

MTL CANOPY

ISFD

G

S

NOTES: (1) SEE SHEET 40 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

26-JUN-2009 10:43
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PROJECT REFERENCE NO.	SHEET NO.
1-4407	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

MATCH LINE

SEE SHEET NO.15

SEE SHEET NO.17

180+00

185+00

190+00

-L- STA.177+00.00

-L- STA.191+00.00

+95.39
130.12'

EXISTING R/W

60' CHL

+38.86
129.80'

SR 1203 SKYCREST COUNTRY RD.

20' BST

60' CHL

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

22' BST

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

15" CMP

15" CONC W/ FES

60" CONC

72" CONC

18" CONC

EOP 5' BST

EOT

MTL

DI

N 14° 41' 59.1" W -L-

N 0° 08' 30.6" W -L-BL-

END PROP SHLD BERM GUTTER
-L- STA.182+15.00

-BL- BO PINC 183+36.89 =
-L- 183+57.25 (53.16' RT)

REMOVE CONC. DITCH

CAT-1

REMOVE EXISTING GUARDRAIL

PROPOSED GUARDRAIL

WELDONS

15' CSP

EXISTING R/W

+05.25
129.23

+05.71
174.58

+72.77
129.34'

+69.79
174.23'

+46.89
129.76'

+29.00
129.68'

CLASS 'B' RIP RAP
EST. 1 TON
5 SY FILTER FABRIC

-L- PC Sta. 178+31.01

BASE DITCH
SEE DETAIL "A"
EST CY DDE
CLASS 'B' RIP RAP
EST. 55 TONS
150 SY FILTER FABRIC
GRADE = 19.5%

DETAIL "A"
STANDARD 2' BASE DITCH
(Not to Scale)

Natural Ground | 2V | D | 2H | Natural Ground
Filter Fabric | B
Min. D= 1 Ft.
Max. d= 2 Ft.
B= 2 Ft.
*When B is < 6.0'

Type of Liner= Class 'B' Rip Rap
-L- STA. 182+50 TO -L- STA. 183+25 (RT.)

BM"11
-BL- STA 190+21.2'
61.2' RIGHT
ELEV. 796.94'

-L- CURVE DATA
PI Sta 191+42.58
Δ = 37° 53' 56.9" (RT)
D = 1° 29' 59.6"
L = 2,526.80'
T = 1,311.57'
R = 3,820.00'
SE = EXISTING

NOTES: (1) SEE SHEET 41 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

MATCH LINE

SEE SHEET NO.16

-L- STA.191+00.00

SR 1203 SKYCREST COUNTRY RD.

12" CONC

20' BST

60' CHL

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

GRAU-350

OVERHEAD POWER CLEARANCE=17.21'

OVERHEAD POWER CLEARANCE=17.69'

US 220 BYPASS SOUTH

22' BST

US 220 BYPASS NORTH

22' BST

60' CONC

-L-

-BL- N 0°-08' 30.5" W

-BL- N 13° 03' 25.6" E

-BL- ■ PINC 192+14.68 =
-L- 192+49.42 (52.76' RT)

-BL- 12 PINC 200+56.26 =
-L- 201+04.61 (53.71' RT)

ZION PRAISE AND WORSHIP CENTER

2SFCH

STEPS

RAMP

ISBKD

NO CANOPY

MTL CANOPY

W/LT

50'L

50'R

12' BST

ISFD

A/G TANK

12" CONC

S

G

W

191+00

195+00

200+00

205+00

+94.46
124.73

+94.45
129.88

SOIL

CONC

WALL

ISFBUS

A/C TANK

PA SOIL

EXISTING R/W

BEGIN PROP. SHLD. BERM GUTTER
-L- STA. 202+50.00

BEGIN PROP. SHLD. BERM GUTTER
-L- STA. 202+40.00

CA

8d

M/L

24" CONC W/FES

-L- N 23° 11' 57.8" E

-L- PT Sta. 203+57.80

-L- STA.205+00.00

SEE SHEET NO.18

MATCH LINE

-L- CURVE DATA
PI Sta 191+42.58
Δ = 37° 53' 56.9" (RT)
D = 1° 29' 59.6"
L = 2,526.80'
T = 1,311.57'
R = 3,820.00'
SE = EXISTING

NOTES: (1) SEE SHEET 41 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

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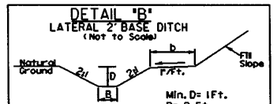
PROJECT REFERENCE NO.	SHEET NO.
I-4407	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

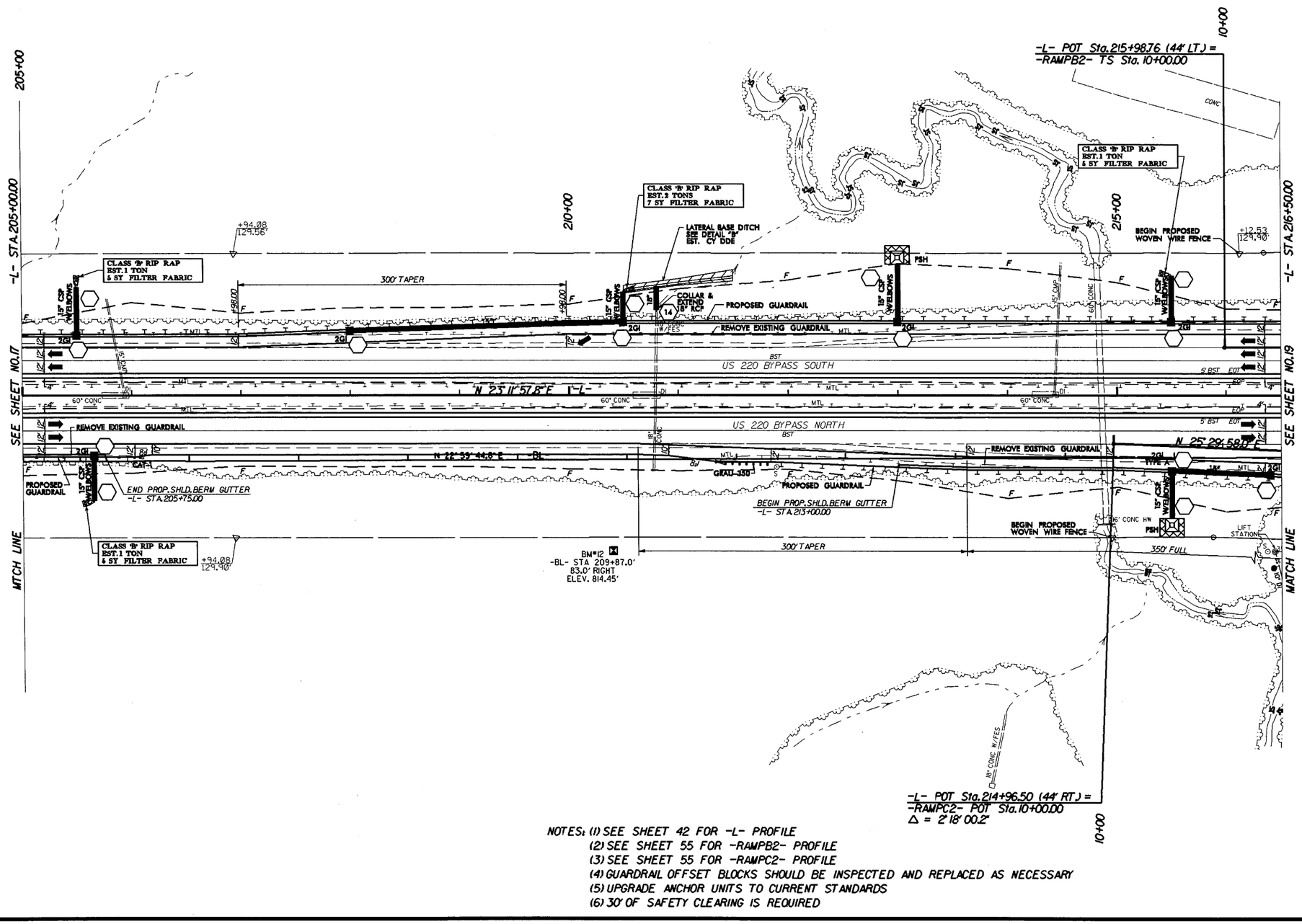
REVISIONS

DETAIL "B"
LATERAL 2' BASE DITCH
(NOT TO Scale)



-L- STA. 210+50 TO -L- STA. 211+50 (LT.)

NAD 83/95



NOTES: (1) SEE SHEET 42 FOR -L- PROFILE
(2) SEE SHEET 55 FOR -RAMPB2- PROFILE
(3) SEE SHEET 55 FOR -RAMPC2- PROFILE
(4) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(5) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(6) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
1-4407	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

-RAMPB2- CURVE DATA
PI Sta 11+33.36
Δs = 3° 49' 11.0"
Ls = 200.00'
LT = 133.36'
ST = 66.69'
PI Sta 14+39.20
Δ = 18° 07' 14.9" (LT)
D = 3° 49' 11.0"
L = 474.40'
T = 239.20'
R = 1,500.00'
SE = EXISTING
PI Sta 17+41.10
Δs = 3° 49' 11.0"
Ls = 200.00'
LT = 133.36'
ST = 66.69'

NAD 83/95

-RAMPB2- POT Sta. 20+36.40
END PROPOSED WOVEN WIRE FENCE

-RAMPA2- POT Sta. 22+33.55
TIE TO EXISTING GUARDRAIL
BEGIN PROPOSED WOVEN WIRE FENCE

-BYIA- 14407-3 Sta 18+53.56 POT =
-RAMPA2- 21+62.56 (28.76' LT)

-RAMPB2- ST Sta. 18+74.40
-RAMPB2- CS Sta. 16+74.40
-RAMPB2- +49.63 85.25'
-RAMPB2- SC Sta. 12+00.00
+25.30 134.59'
+89.98 133.29'
+96.84 201.14'

-L- STA. 216+50.00
-L- STA. 230+50.00
SEE SHEET NO.18
SEE SHEET NO.20
MATCH LINE
MATCH LINE

220+00
15+00
225+00
20+00

SR 1150 MCDOWELL RD.
SR 1191 INDUSTRIAL PARK AVE.
US 220 BYPASS SOUTH
US 220 BYPASS NORTH

REMOVE 10FT. OF 12" RCP
REMOVE EXISTING GUARDRAIL
PROPOSED GUARDRAIL
GRAU-350
END PROP.SHLD.BERM GUTTER -RAMPB2- ST A.13+05.00
END PROP.SHLD.BERM GUTTER -RAMPC2- ST A.11+55.00
TIE TO EXISTING GUARDRAIL
REPLACE SECT. OF CONC. DITCH
CONC BRIDGE COLUMNS
CONC SLOPE PROTECTION
TIE B-77 TO EXISTING SINGLE FACED CONC. BARRIER
REMOVE EXISTING GUARDRAIL
REPAIR BOX AND PIPE
Conv. OTCB To 2GI
REMOVE EXISTING GUARDRAIL
END PROPOSED WOVEN WIRE FENCE
BEGIN PROPOSED WOVEN WIRE FENCE

OVERHEAD POWER CLEARANCE=16.37'
LOWEST OVERHEAD CLEARANCE= 15.23'
OVERHEAD POWER CLEARANCE=29.23'
OVERHEAD POWER CLEARANCE=27.16'

-BYIB- 132 9+71.32 POT =
-RAMPB2- 18+16.69 (0.56' RT)

-BL- 113 219+46.74 PINC =
-BYIB- 5+00.00 PINC =
-BYIC- 5+00.00 PINC =
-L- 219+98.89 (55.32' RT)

-BYIC- 133 8+33.03 POT =
-RAMPC2- 21+26.77 (23.73' RT)

-RAMPC2- PC Sta. 12+16.69
-RAMPC2- PT Sta. 17+27.36
-RAMPC2- POT Sta. 21+96.68
-RAMPD2- POT Sta. 22+74.17

-BL- N 23° 29' 38.0" E
-RAMPC2- N 22° 59' 44.8" E
-BL- N 21° 47' 30.6" E
-BYIB- N 9° 54' 20.2" W
-BYIC- N 45° 52' 56.3" E
-RAMPB2- N 2° 33' 39.0" W
N 23° 11' 57.8" E
-RAMPA2- S 34° 40' 22.6" W
-BYIA- S 39° 40' 54.0" W
-RAMPC2- N 42° 13' 08.0" E
-RAMPD2- S 7° 42' 51.0" W

A
B
C
D

TRAFFIC DIAGRAM
ADT
2010 2035
MCDOWELL RD. SR 1150
6,250 11,400
588 1,600
2,260 3,600
US 220 BYPASS
26,060 46,800
2,428 3,800
5,786 10,600
32,466 55,800
10,926 20,000

-RAMPC2- CURVE DATA
PI Sta 14+73.85
Δ = 16° 43' 10.0" (RT)
D = 3° 16' 26.6"
L = 510.67'
T = 257.16'
R = 1,750.00'
SE = EXISTING

NOTES:
(1) SEE SHEET 42 FOR -L- PROFILE
(2) SEE SHEET 54 FOR -RAMPA2- PROFILE
(3) SEE SHEET 55 FOR -RAMPB2- PROFILE
(4) SEE SHEET 55 FOR -RAMP C2- PROFILE
(5) SEE SHEET 56 FOR -RAMP D2- PROFILE
(6) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(7) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(8) 30' OF SAFETY CLEARING IS REQUIRED

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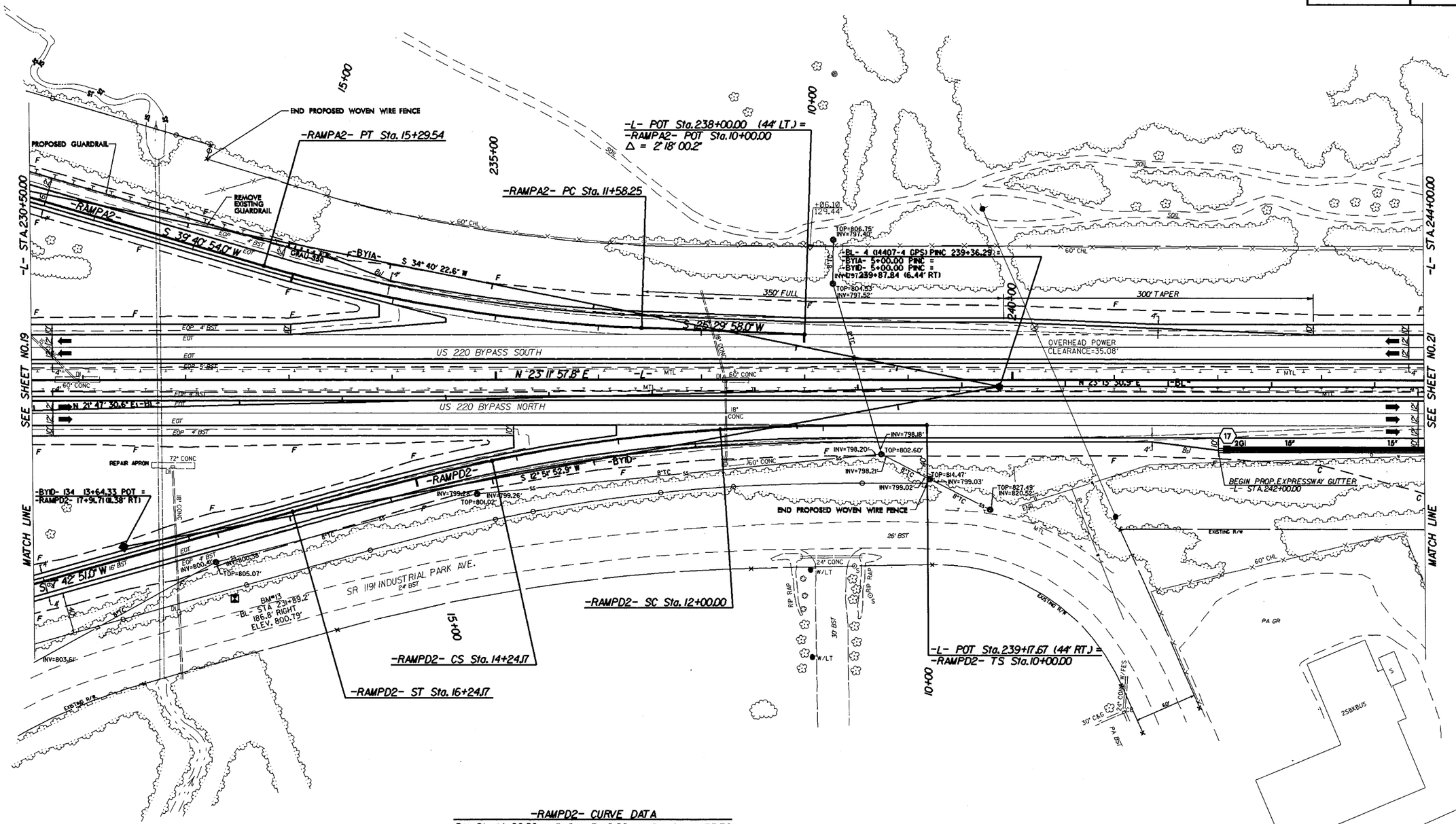
PROJECT REFERENCE NO.	SHEET NO.
I-4407	20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

-RAMPA2- CURVE DATA
PI Sta 13+44.85
Δ = 14° 10' 56.0" (RT)
D = 3° 49' 11.0"
L = 371.29'
T = 186.60'
R = 1,500.00'

NAD 83/95



-RAMPD2- CURVE DATA

PIs Sta 14+90.86	PI Sta 13+12.28	PIs Sta 11+33.36
θs = 3° 38' 57.9"	Δ = 8° 10' 51.1" (LT)	θs = 3° 38' 57.9"
Ls = 200.00'	D = 3° 38' 57.9"	Ls = 200.00'
LT = 133.36'	L = 224.17'	LT = 133.36'
ST = 66.69'	T = 112.28'	ST = 66.69'
	R = 1,570.00'	
	SE = EXISTING	

NOTES: (1) SEE SHEET 43 FOR -L- PROFILE
(2) SEE SHEET 54 FOR -RAMPA2- PROFILE
(3) SEE SHEET 56 FOR -RAMPD2- PROFILE
(4) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(5) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(6) 30' OF SAFETY CLEARING IS REQUIRED

PROJECT REFERENCE NO.	SHEET NO.
I-4407	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

-LLT- CURVE DATA
PI Sta 18+73.57
Δ = 33° 38' 14.6" (LT)
D = 1° 58' 57.2"
L = 1,696.67'
T = 873.57'
R = 2,890.00'
SE = EXISTING

-L- CURVE DATA
PI Sta 261+31.66
Δ = 34° 06' 48.1" (LT)
D = 2° 00' 00.0"
L = 1,705.67'
T = 878.95'
R = 2,864.79'
SE = EXISTING

-L- STA 244+00.00

245+00

250+00

255+00

15+00

MATCH LINE

SEE SHEET NO. 20

SEE SHEET NO. 22

-L- STA 258+00.00

BM#14
-BL- STA 248+65.6'
149.7' LEFT
ELEV. 806.63'

+53.74
130.83

+89.58
129.67

60' CHL

EXISTING R/W

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

-L- N 23° 11' 57.8" E

N 20° 21' 16.0" E

-LLT-

-LRT-

-BL-

N 23° 13' 30.9" E

N 0° 05' 44.6" W

N 20° 05' 04.0" E

EQUALITY:
-L- SC Sta. 252+52.71 (20' LT) LB =
-LLT- PC Sta. 10+00.00 LA
Δ = 0° 09' 18.3"

EQUALITY:
-L- SC Sta. 252+52.71 (20' RT) LB =
-LRT- POT Sta. 10+00.00 LA
Δ = 0° 05' 53.7"

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

REMOVE DI

COLLAR REMOVE

GRAU-350

CAT-1

300' TAPER

END PROP. EXPRESSWAY GUTTER
-L- STA 247+30.00

+94.78
129.28

+91.45
144.43

+54.00
129.24

-L- TS Sta. 249+52.71

-LRT- PC Sta. 10+00.01

-BL- #4 PINC 255+59.45
-LRT- 13+53.88 (34.8' RT)

+89.01
129.40

INV=788.52'
TOP=796.88'
INV=788.51'
INV=788.81'
TOP=795.66'
INV=788.79'
TOP=795.40'
BOLTED SHUT

TOP=793.28'
INV=787.26'

-LRT- CURVE DATA
PI Sta 18+84.66
Δ = 34° 41' 43.0" (LT)
D = 2° 01' 23.4"
L = 1,714.91'
T = 884.65'
R = 2,832.00'
SE = EXISTING

-L- SPIRAL DATA
PIs Sta 251+52.74
θs = 3° 00' 00.0"
Ls = 300.00'
LT = 200.03'
ST = 100.03'

NOTES: (1) SEE SHEET 43 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

PA BST

ISBLKBUS

25BKBUS

CONC WALL

30' CMG

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95

-LLT- CURVE DATA
PI Sta 18+73.57
Δ = 33° 38' 14.6" (LT)
D = 1° 58' 57.2"
L = 1,696.67'
T = 873.57'
R = 2,890.00'
SE = EXISTING

-L- CURVE DATA
PI Sta 261+31.66
Δ = 34° 06' 48.1" (LT)
D = 2° 00' 00.0"
L = 1,705.67'
T = 878.95'
R = 2,864.79'
SE = EXISTING

EQUALITY:
-LLT- PT Sta. 26+96.67 LB =
-L- CS Sta. 269+58.38 (8' LT.) LA

-L- STA. 258+00.00

-L- STA. 269+50.00
TIE TO EXISTING

SEE SHEET NO. 21

MATCH LINE

SEE SHEET NO. 23

-L- STA. 272+00.00

PROPOSED GUARDRAIL
N 0° 00' 44.6" W
600' FULL
CAT-1 T

REMOVE EXISTING GUARDRAIL

REMOVE DI

REMOVE CS

COLLAR

REMOVE EXISTING GUARDRAIL

-LRT-

-LLT-

-BL-

-BY2B-

-BY2C-

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

BEGIN PROPOSED MEDIAN CONCRETE BARRIER
-L- STA. 262+35.00

TOP=800.60'
INV=793.25'
+89.25
129.54'

+88.21
129.38'

+88.67
109.71'

INV=801.57'
TOP=807.71'
INV=801.57'
300' TAPER

+89.23
129.67'

+88.70
129.46'

INV=802.71'
TOP=813.36'
INV=802.72'
INV=802.84'
TOP=814.84'

+89.12
90.04'

-BL- PINC 268+54.01 =
-BY2B- 5+00.00 PINC =
-BY2C- 5+00.00 PINC =
-LRT- 26+43.67 (36.27' RT)

-LRT- PT Sta. 27+14.91

EQUALITY:
-LRT- POT Sta. 27+14.92 LB =
-L- CS Sta. 269+58.38 (8' RT.) LA

-LRT- N 13° 16' 58.6" W

-LRT- N 14° 35' 39.0" W

-BY2B- 21° 04' 11.0" W

-BL- BY2C- N 16° 37' 06.6" W

OVERHEAD POWER CLEARANCE=17.77'

-LRT- CURVE DATA
PI Sta 18+84.66
Δ = 34° 41' 43.0" (LT)
D = 2° 01' 23.4"
L = 1,714.91'
T = 884.65'
R = 2,832.00'
SE = EXISTING

NOTES: (1) SEE SHEET 44 FOR -L- PROFILE
(2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
(3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
(4) 30' OF SAFETY CLEARING IS REQUIRED

-L- SPIRAL DATA
PIs Sta 270+58.40
θs = 3° 00' 00.0"
Ls = 300.00'
LT = 200.03'
ST = 100.03'

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PROJECT REFERENCE NO.	SHEET NO.
1-4407	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95

-64RAMPB- CURVE DATA
PIs Sta 11+33.49
Θs = 8° 33' 05.8"
Ls = 200.00'
LT = 133.49'
ST = 66.81'

PI Sta 13+39.05
Δ = 23° 26' 58.2" (LT)
D = 8° 33' 05.8"
L = 274.21'
T = 139.05'
R = 670.00'
SE = EXISTING

PIs Sta 15+41.02
Θs = 8° 33' 05.8"
Ls = 200.00'
LT = 133.49'
ST = 66.81'

PI Sta 18+05.78
Δ = 21° 47' 30.0" (RT)
D = 10° 58' 34.3"
L = 198.54'
T = 100.48'
R = 522.00'
SE = EXISTING

-64RAMPB- PC Sta. 17+05.29
-64RAMPB- ST Sta. 16+74.21
-64RAMPB- PT Sta. 19+03.83
-BY2B- 137 17+85.40 POT =
-64RAMPB- 18+58.34 (34.64' LT)

-L- POT Sta. 273+13.28 (32' LT) =
-64RAMPB- TS Sta. 10+00.00
-64RAMPB- CS Sta. 14+74.21
-64RAMPB- SC Sta. 12+00.00
-BY2B- 161 12+94.41 PINC =
-64RAMPB- 13+67.79 (19.15' LT)

-64LOOPB- CURVE DATA
PI Sta 10+68.18
Δ = 30° 30' 40.2" (RT)
D = 22° 55' 05.9"
L = 133.13'
T = 68.18'
R = 250.00'
SE = EXISTING

-64LOOPB- PT Sta. 11+33.13
END TRANSITION
BEGIN PROP. EXPRESSWAY GUTTER
-64LOOPB- Sta. 11+13.00

-L- POT Sta. 282+77.48 (32' LT) =
-64LOOPB- PC Sta. 10+00.00
END PROP. EXPRESSWAY GUTTER
BEGIN PROP. SINGLE FACE BARRIER
-L- Sta. 284+50.00

END PROP. SINGLE FACE BARRIER
BEGIN PROP. 2'-6" CURB & GUTTER
-L- Sta. 285+70.00

-L- POT Sta. 285+76.02 (32' LT) =
-64LOOPA- ST Sta. 10+00.00

-L- POT Sta. 283+02.12 (32' RT) =
-64LOOPC- PC Sta. 10+00.00
END PROP. 2'-6" CURB & GUTTER
BEGIN PROP. SINGLE FACE BARRIER
-L- Sta. 284+58.00

END PROP. SINGLE FACE BARRIER
BEGIN PROP. EXPRESSWAY GUTTER
-L- Sta. 285+73.00

-64LOOPC- PT Sta. 11+70.75

-64LOOPC- CURVE DATA
PI Sta 10+87.93
Δ = 33° 44' 08.8" (LT)
D = 19° 45' 25.8"
L = 170.75'
T = 87.93'
R = 290.00'
SE = EXISTING

-L- ST Sta. 272+58.38
-L- POT Sta. 274+76.87 (32' RT) =
-64RAMPC- PC Sta. 10+00.00

-64RAMPC- PT Sta. 15+39.03
-64RAMPC- PC Sta. 17+42.97
-BY2C- 138 18+49.77 POT =
-64RAMPC- 17+47.38 (25.73' RT)
-64RAMPC- PT Sta. 18+78.18
-64RAMPC- POT Sta. 20+15.32

-BY2C- 135 13+61.49 PINC =
-64RAMPC- 12+64.12 (29.87' LT)

-64RAMPC- CURVE DATA

PI Sta 12+81.41	PI Sta 18+11.83
Δ = 40° 38' 12.2" (RT)	Δ = 26° 42' 48.0" (LT)
D = 7° 32' 20.1"	D = 19° 45' 25.8"
L = 539.03'	L = 135.21'
T = 281.41'	T = 68.86'
R = 760.00'	R = 290.00'
SE = EXISTING	SE = EXISTING

-L- SPIRAL DATA
PIs Sta 270+58.40
Θs = 3° 00' 00.0"
Ls = 300.00'
LT = 200.03'
ST = 100.03'

TRAFFIC DIAGRAM
ADT
2010 25,400 / 27,700
2035
DIXIE DRIVE US 64
US 220 BYPASS
32,466 / 55,800
31,897 / 58,100
32,944 / 41,000

NOTES:
(1) SEE SHEET 44 FOR -L- PROFILE
(2) SEE SHEET 56 FOR -64RAMPB- PROFILE
(3) SEE SHEET 57 FOR -64RAMPC- PROFILE
(4) SEE SHEET 58 FOR -64LOOPA- PROFILE
(5) SEE SHEET 58 FOR -64LOOPB- PROFILE
(6) SEE SHEET 58 FOR -64LOOPC- PROFILE
(7) 30' OF SAFETY CLEARING IS REQUIRED

SEE SHEET NO.22
SEE SHEET NO.24
MATCH LINE
MATCH LINE

26-JUN-2009 10:43
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PROJECT REFERENCE NO.	SHEET NO.
I-4407	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

-64LOOPA- CURVE DATA

PIs Sta 11+35.55 | PI Sta 12+42.24 | PIs Sta 13+51.68
Θs = 3° 49' 51.6" | Δ = 26° 24' 56.7" (LT) | Θs = 3° 49' 51.6"
Ls = 200.00' | D = 3° 49' 51.6" | Ls = 200.00'
LT = 135.55' | L = 82.99' | LT = 135.55'
ST = 68.69' | T = 42.24' | ST = 68.69'
| R = 180.00'
| SE = EXISTING

-64LOOPA- ST Sta. 14+82.99

-64LOOPA- SC Sta. 12+00.00

-64LOOPA- CS Sta. 12+82.99

-64LOOPD- PT Sta. 11+39.53

-64LOOPD- PC Sta. 10+00.00

-64LOOPD- CURVE DATA
PI Sta 10+71.14
Δ = 27° 34' 03.8" (RT)
D = 19° 45' 25.8"
L = 139.53'
T = 71.14'
R = 290.00'
SE = EXISTING

-64RAMPD- CURVE DATA
PI Sta 10+74.28
Δ = 26° 56' 54.8" (LT)
D = 18° 28' 57.0"
L = 145.81'
T = 74.28'
R = 310.00'
SE = EXISTING

-64RAMPD- PT Sta. 11+45.81

-64RAMPD- PC Sta. 10+00.00

-L- POT Sta. 291+98.46 (32' RT.) =

-BY2D- 139 10+18.58 POT =
-L- 286+62.04 (536.14' RT)

-BY2A- S 83° 36' 12.8" W

-BY3A- S 0° 41' 53.9" W

-BY3A-140 13+63.04 POT =
-L- 292+33.10 (245.85' LT)

-BY3D-141 12+59.15 POT
-L- 293+26.27 (225.70' RT)

-1713RAMPA- POT Sta. 19+04.17

-1713RAMPA- ST Sta. 18+00.74

-1713RAMPA- CS Sta. 16+00.74

-1713RAMPA- SC Sta. 14+17.75

-1713RAMPA- PT Sta. 18+66.18

-1713RAMPD- PT Sta. 11+45.81

-1713RAMPD- PC Sta. 10+00.00

-L- TS Sta. 294+73.60

-L- SC Sta. 296+73.60

-L- SPIRAL DATA
PIs Sta 296+06.94
Θs = 0° 45' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

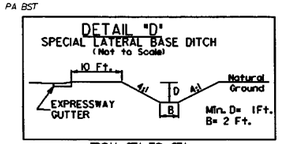
-1713RAMPA- CURVE DATA

PIs Sta 16+67.47	PI Sta 15+09.48	PIs Sta 13+51.15
Θs = 5° 27' 24.3"	Δ = 9° 59' 07.2" (RT)	Θs = 5° 27' 24.3"
Ls = 200.00'	D = 5° 27' 24.3"	Ls = 200.00'
LT = 133.40'	L = 182.99'	LT = 133.40'
ST = 66.72'	T = 91.73'	ST = 66.72'
	R = 1,050.00'	
	SE = EXISTING	

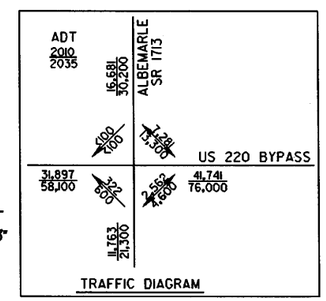
-1713RAMPD- CURVE DATA

PIs Sta 11+33.37	PI Sta 15+39.04
Θs = 3° 56' 16.3"	Δ = 26° 14' 00.2" (LT)
Ls = 200.00'	D = 3° 56' 16.3"
LT = 133.37'	L = 666.18'
ST = 66.70'	T = 339.04'
	R = 1,455.00'
	SE = EXISTING

DETAIL "D"
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. TO STA.



TRAFFIC DIAGRAM

NOTES: (1) SEE SHEET 45 FOR -L- PROFILE
(2) SEE SHEET 57 FOR -64RAMPD- PROFILE
(3) SEE SHEET 58 FOR -1713RAMPA- PROFILE
(4) SEE SHEET 59 FOR -1713RAMPD- PROFILE
(5) SEE SHEET 58 FOR -64LOOPA- PROFILE
(6) SEE SHEET 58 FOR -64LOOPD- PROFILE
(7) 30' OF SAFETY CLEARING IS REQUIRED

SEE SHEET NO.23

SEE SHEET NO.25

MATCH LINE

MATCH LINE

US 220 BYPASS SOUTH -L- STA.291+09.50

US 220 BYPASS NORTH

SR 1713 ALBEMARLE

UWHARRIE RD.

END PROP.SINGLE FACED BARRIER BEGIN PROP.CONC.MEDIAN BARRIER -L- STA.286+07.50

END PROP.CONC.MEDIAN BARRIER BEGIN PROP.SINGLE FACED BARRIER -L- STA.291+50.50

END PROP.SINGLE FACED BARRIER BEGIN PROP.CONC.MEDIAN BARRIER -L- STA.292+64.50

END PROP.SINGLE FACE BARRIER BEGIN PROP.EXPRESSWAY GUTTER -L- Sta. 292+35.00

END PROP.SINGLE FACE BARRIER BEGIN PROP.SHLD.BERM GUTTER -L- Sta. 292+91.00

END PROP.SHLD.BERM GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -L- Sta. 293+19.00

END TRANSITION BEGIN PROP.EXPRESSWAY GUTTER -L- STA.293+59.00

END PROP.SINGLE FACE BARRIER BEGIN PROP.SINGLE FACE BARRIER -L- Sta. 291+40.00

END PROP.2'-6" CURB & GUTTER TIE TO EXIST.CURB & GUTTER -64LOOPA- Sta.11+99.00

BEGIN PROP.2'-6" CURB & GUTTER (RT) TIE TO EXIST.CURB & GUTTER -64RAMPD- Sta.11+45.00

END TRANSITION TIE TO EXIST.CURB & GUTTER -64LOOPD- Sta.11+39.00

END PROP.EXPRESSWAY GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -64LOOPA- Sta.11+19.00

END CURB & GUTTER BEGIN PROP.SINGLE FACE BARRIER -64RAMPD- Sta.10+44.00

TIE TO EXIST.CURB & GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -1713RAMPA- Sta.16+07.00

END TRANSITION BEGIN PROP.EXPRESSWAY GUTTER -1713RAMPA- STA.15+81.00

END PROP.EXPRESSWAY GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -1713RAMPA- STA.14+72.00

END TRANSITION BEGIN PROP.SHLD.BERM GUTTER -1713RAMPA- STA.14+62.00

END TRANSITION BEGIN PROP.EXPRESSWAY GUTTER -1713RAMPD- STA.14+60.00

TIE TO EXIST.CURB & GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -1713RAMPD- Sta.14+80.00

BEGIN PROPOSED WOVEN WIRE FENCE

END PROPOSED WOVEN WIRE FENCE

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

REMOVE EXISTING GUARDRAIL

OVERHEAD POWER CLEARANCE=25.93'

OVERHEAD POWER CLEARANCE= 15.11'

OVERHEAD POWER CLEARANCE=40.86'

OVERHEAD POWER CLEARANCE=23.14'

5' MONOLITHIC CONC.ISLAND

5' MONOLITHIC CONC.ISLAND

5' MONOLITHIC CONC.ISLAND

Convert CB To 2GI

CONVERT CB TO 2GI

REMOVE CB

REMOVE CB

REMOVE CB

REMOVE CB

CONC BRIDGE COLUMNS

CONC SLOPE PROTECTION

OUTLET NOT FOUND

OUTLET NOT FOUND

2' BASE DITCH SEE DETAIL "D" 9'-0" ± 0.6 %

HOLD TO EXIST.EOP

30' TIE TO EXISTING EOP

30' TAPER HOLD TO EXISTING EOP

20' TAPER TIE TO EXIST.(F)

145' TAPER

300' TAPER

300' FULL

EXACT LOCATION OF 2GIs TO BE DETERMINED IN THE FIELD

UNKNOWN JB LOCATION TO BE DETERMINED IN THE FIELD

BL- RS 287+99.58 PNC =
-BY2A- 5+00.00 PNC =
-BY2D- 5+00.00 PNC =
-L- 288+29.08 (45.20' RT)

-BL- N 18° 18' 39.6" W

BM#16
-BL- STA 298+81.2'
100.7' LEFT
ELEV. 848.79'

CAT-1

ISBKBUS

ISBLKBUS

ISBKD

ISFD

3SBKD

25BLKBUS

POOL

MTL CANOPY

PA BST

PA SOIL

PA GR

W/LT

W/FES

DI

CB

CONC CURB

6" CONC CURB

24' C&G

18" C&G

2' BASE DITCH

RIP RAP

EXISTING R/W

WOVEN WIRE FENCE

+80.23
300.20'

+70.94
432.31

+47.61
536.47'

+67.26
140.13'

+50.86
114.59'

+21.13
566.26'

DETAIL "D"

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

MATCH LINE

SEE SHEET NO.24

SEE SHEET NO.26

-L- STA.314+00.00

-L- STA.300+00.00

300+00

305+00

310+00

-1713RAMPA- TS Sta. 12+17.75

-L- POC Sta. 302+38.88 (32' LT) =
-1713RAMPA- POT Sta. 10+00.00

END PROP. SHLD BERM GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-)
-L- STA.304+10.00

END TRANSITION
BEGIN PROP. EXPRESSWAY GUTTER
-L- STA.305+00.00

END PROPOSED EXPRESSWAY GUTTER
-L- Sta. 307+50.00

-BL- 117 PINC 300+25.57 =
-BY3A- 5+00.00 PINC
-BY3D- 5+00.00 PINC
-L- 300+55.99 (0.15' LT)

-BL- 118 PINC 309+73.08 =
-L- 310+04.17 (1.12' RT)

-1713RAMPA- S 11° 55' 21.7" E

-BL- N 9° 39' 48.0" W

-BL- N 0° 45' 03.3" W

-BY3D- S 33° 00' 00.1" E

-1713RAMPD-

END TRANSITION
BEGIN PROPOSED EXPRESSWAY GUTTER
-L- Sta. 305+60.00

END PROP. SHLD BERM GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-)
-L- STA.305+50.00

END PROP. EXP. GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-)
-1713RAMPD- Sta.13+06.00

END TRANSITION
BEGIN PROP. SHLD BERM GUTTER
-1713RAMPD- Sta.12+34.00

-1713RAMPD- SC Sta. 12+09.00

-L- POC Sta. 303+27.00 (32' RT) =
-1713RAMPD- TS Sta.10+00.00

SR 1446 LEWALLEN RD.

BREEZE HILL RD.

BREEZE WOOD CT

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

REMOVE CB

REMOVE 18" CONC

Conv. CB To JB w/HH

CLASS 'B' RIP RAP
EST. 1 TON
1 ST FILTER FABRIC

300' TAPER

GRAU-350

EXISTING R/W

2SFD

ISFD

ISBKAPT

ISFAPT

PA BST

24" C&G

18" C&G

8" CONC PARKING CURB STOPS

3-FLAG POLES

PAVED DITCH

-1713RAMPD- CURVE DATA

PIs Sta 11+33.37	PI Sta 15+39.04
θs = 3° 56' 16.3"	Δ = 26° 14' 00.2" (LT)
Ls = 200.00'	D = 3° 56' 16.3"
LT = 133.37'	L = 666.18'
ST = 66.70'	T = 339.04'
	R = 1,455.00'
	SE = EXISTING

-L- CURVE DATA

PI Sta 308+35.55
Δ = 17° 17' 48.0" (RT)
D = 0° 45' 00.0"
L = 2,306.22'
T = 1,161.95'
R = 7,639.44'
SE = EXISTING

NOTES: (1) SEE SHEET 45 FOR -L- PROFILE
(2) SEE SHEET 58 FOR -1713RAMPA- PROFILE
(3) SEE SHEET 59 FOR -1713RAMPD- PROFILE
(4) 30' OF SAFETY CLEARING IS REQUIRED

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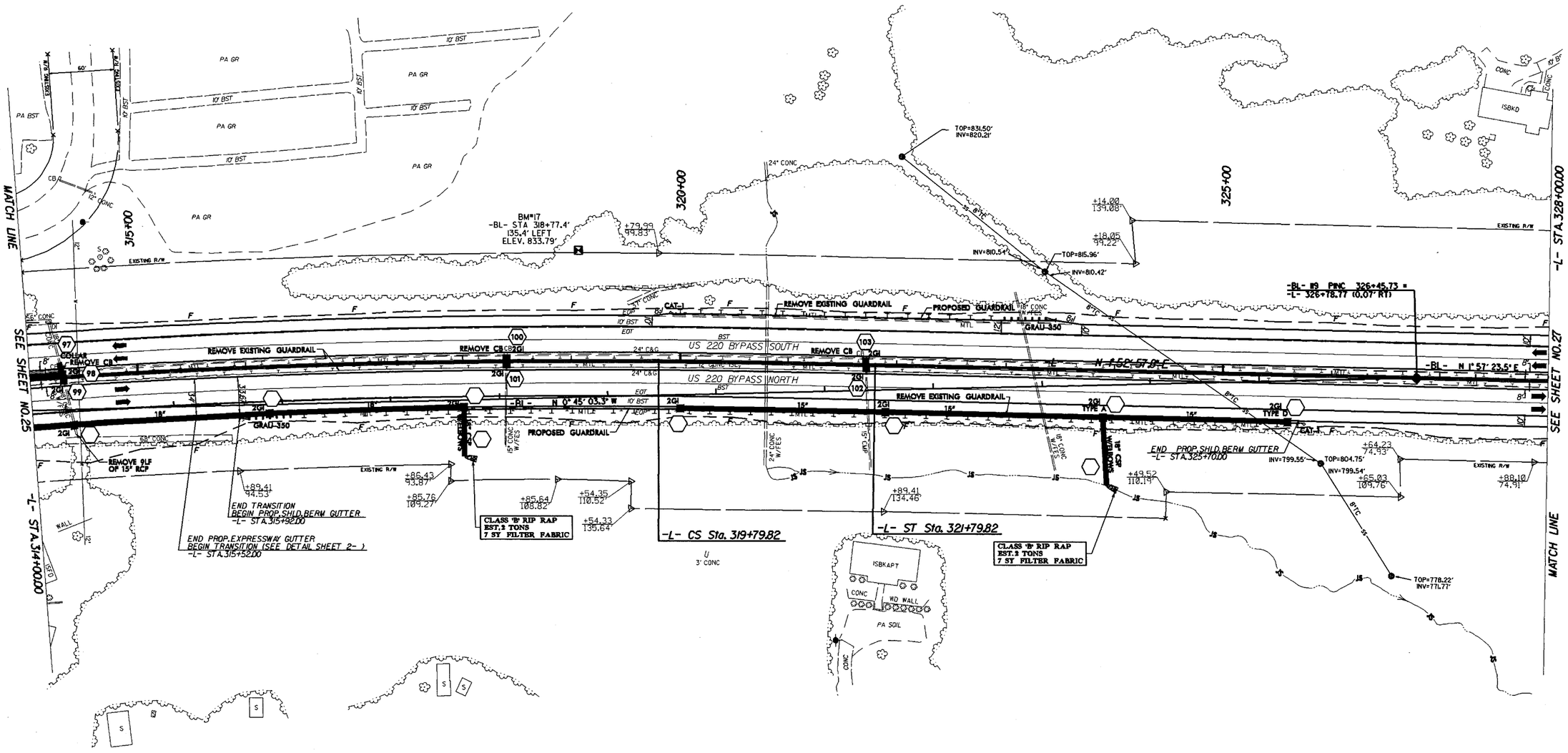
PROJECT REFERENCE NO.	SHEET NO.
I-4407	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95



-L- CURVE DATA

PI Sta 308+35.55	PIs Sta 320+46.49
Δ = 17° 17' 48.0" (RT)	θs = 0° 45' 00.0"
D = 0° 45' 00.0"	Ls = 200.00'
L = 2,306.22'	LT = 133.33'
T = 1,161.95'	ST = 66.67'
R = 7,639.44'	
SE = EXISTING	

NOTES: (1) SEE SHEET 46 FOR -L- PROFILE
(2) 30' OF SAFETY CLEARING IS REQUIRED

PROJECT REFERENCE NO.	SHEET NO.
I-4407	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS

-L- STA.328+00.00

-L- STA.341+00.00

330+00

335+00

340+00

SR 1424 OLD FARMER

EXISTING R/W

+82.38
138.50'

+86.95
139.59'

+91.85
138.07'

+91.02
114.28'

+39.25
114.78'

+39.26
74.85'

BM#18
-BL- STA 337+28.7
87.66' LEFT
ELEV. 798.73'

REMOVE EXISTING GUARDRAIL

PROPOSED GUARDRAIL

US 220 BYPASS SOUTH

US 220 BYPASS NORTH

-L- STA. 332+57.8

-BL-

24" C&G

24" BST

GRAU-350

46" CONC

24" CONC W/FES

+94.12
74.40'

+95.58
104.93'

+89.20
104.76'

+89.25
74.74'

+89.51
104.87'

ISFD

ISMTLBUS

ISBLK BUS

ISBKBUS

ISBKAPT

PA GR

PA SOIL

PA CONC

PA BST

CONC

WALL

RIP RAP

BREEZE HILL RD.

24" BST

10" CONC

12" CONC

SEE SHEET NO.26

SEE SHEET NO.28

MATCH LINE

MATCH LINE

NOTES: (1) SEE SHEET 46 FOR -L- PROFILE
(2) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95

-L3- CURVE DATA

PIs Sta 349+46.29	PI Sta 359+24.85
θs = 1° 44' 58.2"	Δ = 31° 07' 07.3" (RT)
Ls = 200.00'	D = 1° 44' 58.2"
LT = 133.34'	L = 1,778.73'
ST = 66.67'	T = 911.89'
	R = 3,275.00'
	SE = EXISTING

-L- STA.341+00.00

345+00

350+00

10+00

-L3- STA.355+00.00

-L3- POC Sta.350+73.73 (12' RT.) =
-RAMPB3- PC Sta. 10+00.00

SR 1438 NORMAN ST. 12' BST

-L3- TS Sta. 348+12.95

-L3- SC Sta. 350+12.95

SR 1439 HAMILTON ST. 12' BST

SR 1424 OLD FARMER

EQUALITY:
-L- POT Sta. 343+29.23 (20' LT.) LB =
-L3- POT Sta. 343+29.23 LA

TOP=774.77'
INV=767.88'

BEGIN PROP. SHLD. BERM GUTTER
-L3- STA.347+84.00

END SHLD. BERM GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-)
-L3- STA.350+46.00

END TRANSITION
BEGIN PROP. EXP. GUTTER
-L3- STA.350+86.00

REMOVE EXISTING GUARDRAIL
PROPOSED GUARDRAIL

GRAU-350

300' TAPER

-L3- N 1° 52' 57.8" E

TIE TO EXISTING WTR SECTION

US 220 BYPASS SBL

US 220 BYPASS NBL

-RAMPB3-

-L- N 1° 57' 23.5" E

-BL- N 1° 52' 57.8" E

-L2- N 1° 52' 57.8" E

-BL- 9 04+07.9 (25') PI NC 340+94.06 =
-L- 341+27.09 (1.93' RT)

N 7° 16' 49.5" E -BL-

N 16° 18' 07.6" E

CLEARANCE=23.81'

OVERHEAD POWER
CLEARANCE=24.46'

-L2- TS Sta. 343+33.50

-L2- SC Sta. 345+33.50

EQUALITY:
-L- POT Sta. 343+29.23 (20' RT.) LB =
-L2- POT Sta. 343+29.23 LA

-L2- POC Sta. 352+57.71 (12' LT.) =
-RAMPC3- POT Sta. 10+00.00

-BL- 10 04+07.10 (25') PI NC 353+62.40 =
-BY4- 5°00.00 PNC =
-RAMPC3- 0+35.74 (25.41' LT)

BEGIN PROP. SHLD. BERM GUTTER
-L2- STA.347+81.00

END PROP. MEDIAN CONCRETE BARRIER
-L2- STA.347+40.00

END PROP. EXP. GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-)
-RAMPC3- STA.11+58.00

END TRANSITION
BEGIN SHLD. BERM GUTTER
-RAMPC3- STA.11+98.00

END SHLD. BERM GUTTER
BEGIN TRANSITION (SEE DETAIL SHEET 2-)
-L2- STA.350+40.00

END TRANSITION
BEGIN PROP. EXP. GUTTER
-L2- STA.350+50.00

-L2- STA.354+80.00

SEE SHEET NO.27

SEE SHEET NO.29

MATCH LINE

MATCH LINE

BREEZE HILL RD.

FARMER RD.

-L2- CURVE DATA

PIs Sta 344+66.84	PI Sta 353+84.00
θs = 1° 44' 58.2"	Δ = 29° 06' 55.6" (RT)
Ls = 200.00'	D = 1° 44' 58.2"
LT = 133.34'	L = 1,664.22'
ST = 66.67'	T = 850.49'
	R = 3,275.00'
	SE = EXISTING

NOTES:
(1) SEE SHEETS 47 & 49 FOR -L- PROFILE
(2) SEE SHEET 47 FOR -L2- PROFILE
(3) SEE SHEET 49 FOR -L3- PROFILE
(4) SEE SHEET 59 FOR -RAMPB3- PROFILE
(5) SEE SHEET 60 FOR -RAMPC3- PROFILE
(6) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
1-4407	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RAMPB3- CURVE DATA

PI Sta 12+31.79	PI Sta 18+59.14	PI Sta 21+36.32
Δ = 18° 48' 06.3" (RT)	Δ = 1° 20' 50.0" (LT)	Δ = 10° 54' 49.0" (RT)
D = 4° 05' 33.2"	D = 1° 38' 13.3"	D = 5° 35' 23.4"
L = 459.41'	L = 82.30'	L = 195.24'
T = 231.79'	T = 41.15'	T = 97.92'
R = 1,400.00'	R = 3,500.00'	R = 1,025.00'
SE = EXISTING	SE = EXISTING	SE = EXISTING

-L3- CURVE DATA

PI Sta 359+24.85	Pls Sta 368+58.36
Δ = 31° 07' 07.3" (RT)	Θs = 1° 44' 58.2"
D = 1° 44' 58.2"	Ls = 200.00'
L = 1,778.73'	LT = 133.34'
T = 911.89'	ST = 66.67'
R = 3,275.00'	
SE = EXISTING	

-RAMPC3- CURVE DATA

PI Sta 17+94.51
Δ = 16° 42' 19.4" (RT)
D = 3° 34' 51.6"
L = 466.50'
T = 234.92'
R = 1,600.00'
SE = EXISTING

-L2- CURVE DATA

PI Sta 353+84.00	Pls Sta 362+64.40
Δ = 29° 06' 55.6" (RT)	Θs = 1° 44' 58.2"
D = 1° 44' 58.2"	Ls = 200.00'
L = 1,664.22'	LT = 133.34'
T = 850.49'	ST = 66.67'
R = 3,275.00'	
SE = EXISTING	

NAD 83/95

-L3- STA.355+00.00

-L3- STA.369+00.00

-L2- STA.354+80.00

-L2- STA.367+95.00

MATCH LINE

SEE SHEET NO.28

SEE SHEET NO.30

-RAMPB3- PT Sta. 14+59.41

-RAMPB3- PC Sta. 16+17.99

-RAMPB3- PC Sta. 20+38.40

-RAMPB3- PT Sta. 19+00.29

-RAMPB3- PT Sta. 22+33.64

-RAMPB3- POT Sta. 23+85.57

-RAMPC3- PC Sta. 15+59.59

-RAMPC3- PT Sta. 20+26.10

-RAMPC3- POT Sta. 21+55.47

-L2- CS Sta. 361+97.73

-L2- ST Sta. 363+97.73

-L3- CS Sta. 367+91.68

WEST ST.

US 220 BYPASS

SR 1004 LEXINGTON RD.

WINSLOW AVE.

EAST ST.

FARMER RD.

SUNSET AVE.

LINKTOWN

BEGIN PROP.EXPRESSWAY GUTTER -L3- STA.351+74.00

END PROP.EXP.GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -RAMPB3- STA.18+60.00

END TRANSITION TIE TO EXIST.CURB & GUTTER -RAMPB3- STA.18+80.00

END PROP.EXPRESSWAY GUTTER BEGIN PROP.SINGLE FACE BARRIER -L3- STA.365+25.00

END PROP.SINGLE FACE BARRIER BEGIN PROP.SHLD.BERM GUTTER -L3- STA.366+48.00

END PROP.SHLD.BERM GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -L3- STA.367+48.00

END TRANSITION BEGIN EXPRESSWAY GUTTER -L3- STA.367+88.00

END PROP.EXPRESSWAY GUTTER -RAMPB3- STA.18+05

END PROP.EXPRESSWAY GUTTER BEGIN PROP.SINGLE FACE BARRIER -L3- STA.364+86.00

END PROP.SINGLE FACE BARRIER -L3- STA.366+06.00

END PROP.SHLD.BERM GUTTER BEGIN PROP.SINGLE FACE BARRIER -L2- STA.363+54.00

END PROP.SINGLE FACE BARRIER -L2- STA.364+44.00

END PROP.SHLD.BERM GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -L3- STA.367+06.00

END PROP.EXP.GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -L2- STA.362+44.00

END TRANSITION BEGIN SHLD.BERM GUTTER -L2- STA.362+64.00

END PROP.EXP.GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -RAMPB3- STA.16+50.00

END TRANSITION TIE TO EXIST.CURB & GUTTER -RAMPC3- STA.16+10.00

END PROP.EXP.GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -L2- STA.359+52.00

END TRANSITION BEGIN PROP.EXP.GUTTER -L2- STA.359+82.00

END TRANSITION BEGIN PROP.EXP.GUTTER -RAMPC3- STA.13+26.00

END SHLD.BERM GUTTER BEGIN TRANSITION (SEE DETAIL SHEET 2-) -RAMPC3- STA.13+16.00

END PROP.SHLD.BERM GUTTER BEGIN PROP.SINGLE FACE BARRIER -L2- STA.365+52.00

END PROP.SINGLE FACE BARRIER -L2- STA.364+42.00

END PROP.EXPRESSWAY GUTTER -RAMPC3- STA.15+95 LT.

END PROP.EXPRESSWAY GUTTER -RAMPB3- STA.18+05

-BY4- 142 15+05.80 PRC = -RAMPB3- 23+51.96 (14.13' LT)

-BY4- 159 9+44.04 PRC = -RAMPC3- 15+79.49 (16.89' LT)

-BL- 120 PRC 366+02.17 = -L2- 366+27.48 (21.04' LT)

-BL- STA 357+22.6' 43.7' RIGHT ELEV. 753.48'

BM#19

PROPOSED GUARDRAIL

REMOVE EXISTING GUARDRAIL

REMOVE DI

REMOVE CB

REMOVE PORTION OF 18" CONC

PLUG & FILL W/GROUT

RESET CURB

Conv. DI to 2GI

Conv. CB To 2GI

Conv. CB To JB w/HH

PROPOSED EXPRESSWAY GUTTER

PROP.EXPRESSWAY GUTTER

OVERHEAD POWER CLEARANCE= 45.19'

OVERHEAD CLEARANCE= 15.34'

OVERHEAD CLEARANCE= 15.05'

CONC BRIDGE COLUMNS

CONC SLOPE PROTECTION

PLACE SINGLE FACE BARRIER AGAINST CONC BRIDGE COLUMNS

TRAFFIC DIAGRAM

ADT 2010 2035

20,870 / 38,000	2,531 / 5,000	18,485 / 33,300
2,386 / 4,100	KOR 2006	4,144 / 7,000
2,918 / 5,200	5,363 / 9,900	4,118 / 5,600
	SIA 2,600	8,237 / 13,700
20,870 / 38,000	7,926 / 12,000	17,893 / 32,800

LEXINGTON ROAD SR 1004

US 220 BYPASS

SUNSET AVE.

NOTES: (1) SEE SHEET 47 FOR -L2- PROFILE
(2) SEE SHEET 49 FOR -L3- PROFILE
(3) SEE SHEET 59 FOR -RAMPB3- PROFILE
(4) SEE SHEET 60 FOR -RAMPC3- PROFILE
(5) 30' OF SAFETY CLEARING IS REQUIRED

REVISIONS

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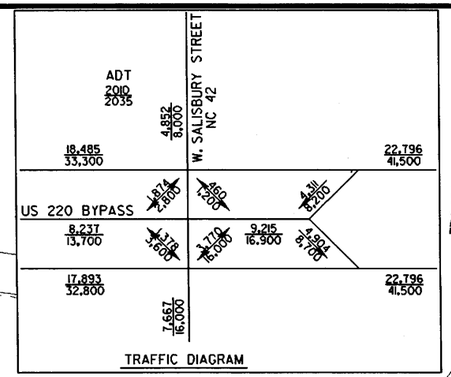
PROJECT REFERENCE NO.	SHEET NO.
I-4407	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



TRAFFIC DIAGRAM

-L3- CURVE DATA

PIs Sta 373+25.25
Θs = 1° 30' 06.7"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 383+52.85
Δ = 28° 16' 32.3" (LT)
D = 1° 30' 06.7"
L = 1,882.71'
T = 960.94'
R = 3,815.00'
SE = EXISTING

-RAMPA4- CURVE DATA

PI Sta 18+64.85
Δ = 10° 44' 42.4" (RT)
D = 3° 49' 11.0"
L = 281.31'
T = 141.07'
R = 1,500.00'
SE = EXISTING

-RAMPD4- CURVE DATA

PI Sta 18+32.83
Δ = 2° 06' 22.0" (RT)
D = 1° 08' 45.3"
L = 183.79'
T = 91.91'
R = 5,000.00'
SE = EXISTING

PI Sta 12+59.90
Δ = 16° 25' 56.6" (RT)
D = 3° 10' 59.2"
L = 516.24'
T = 259.90'
R = 1,800.00'
SE = EXISTING

-L2- CURVE DATA

PIs Sta 369+53.35
Θs = 1° 29' 59.6"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 379+11.64
Δ = 26° 16' 34.8" (LT)
D = 1° 29' 59.6"
L = 1751.88'
T = 891.62'
R = 3,820.00'
SE = EXISTING

NOTES: (1) SEE SHEET 48 FOR -L2- PROFILE
(2) SEE SHEET 50 FOR -L3- PROFILE
(3) SEE SHEET 60 FOR -RAMPA4- PROFILE
(4) SEE SHEET 61 FOR -RAMPD4- PROFILE
(5) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

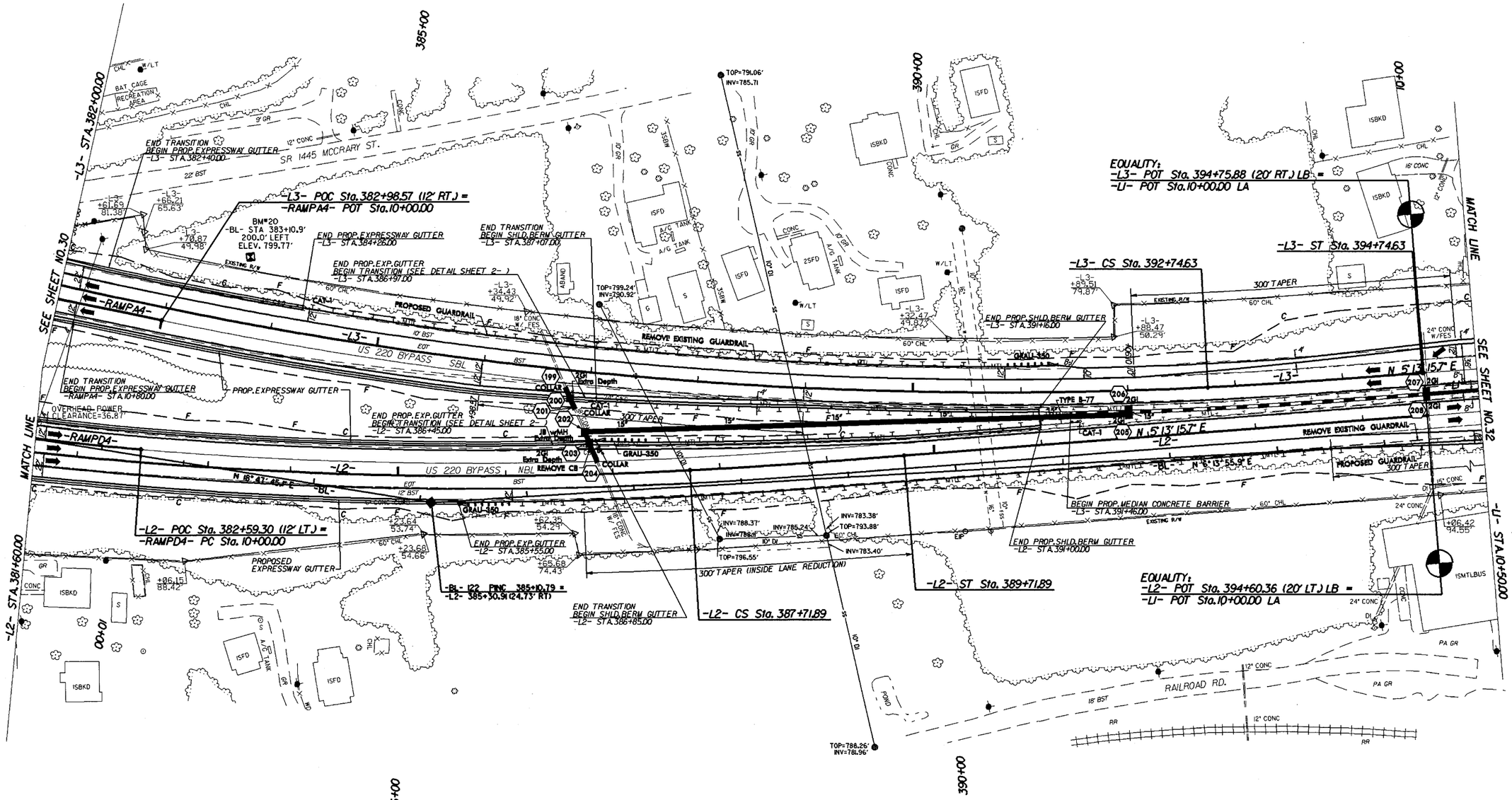
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

-L3- CURVE DATA

PI Sta 383+52.85	PIs Sta 393+41.30
Δ = 28° 16' 32.3" (LT)	Θs = 1° 30' 06.7"
D = 1° 30' 06.7"	Ls = 200.00'
L = 1,882.71'	LT = 133.34'
T = 960.94'	ST = 66.67'
R = 3,815.00'	
SE = EXISTING	

NAD 83/95



-L2- CURVE DATA

PI Sta 379+11.64	PIs Sta 388+38.57
Δ = 26° 16' 34.8" (LT)	Θs = 1° 29' 59.6"
D = 1° 29' 59.6"	Ls = 200.00'
L = 1,751.88'	LT = 133.34'
T = 891.62'	ST = 66.67'
R = 3,820.00'	
SE = EXISTING	

NOTES: (1) SEE SHEETS 48 & 50 FOR -LI- PROFILE
(2) SEE SHEET 48 FOR -L2- PROFILE
(3) SEE SHEET 50 FOR -L3- PROFILE
(4) SEE SHEET 60 FOR -RAMPA4- PROFILE
(5) SEE SHEET 61 FOR -RAMPD4- PROFILE
(6) 30' OF SAFETY CLEARING IS REQUIRED

PROJECT REFERENCE NO.	SHEET NO.
I-4407	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

-RAMPB5- CURVE DATA

PIs Sta 11+33.34	PI Sta 14+02.51	PIs Sta 16+70.79
Θs = 2° 20' 19.0"	Δ = 9° 27' 01.7" (LT)	Θs = 2° 20' 19.0"
Ls = 200.00'	D = 2° 20' 19.0"	Ls = 200.00'
LT = 133.34'	L = 404.11'	LT = 133.34'
ST = 66.68'	T = 202.51'	ST = 66.68'
	R = 2,450.00'	
	SE = EXISTING	

NAD 83/95

-RAMPB5- STA.18+20.00

-RAMPB5- ST Sta. 18+04.11

-RAMPB5- CS Sta. 16+04.11

-RAMPB5- SC Sta. 12+00.00

-LI- POT Sta.16+32.27 (32' LT.) =
-RAMPB5- TS Sta. 10+00.00

MATCH LINE

-LI- STA.10+50.00

SEE SHEET NO.31

-LI- STA.24+50.00

SEE SHEET NO.33

MATCH LINE

SR 1792 LORD RANDOLPH CR.

ISFD

CANVAS CANOPY

MTL CANOPY

EXISTING R/W

60' CHL

-LI- +16.50 94.57

-LI- +90.82 134.95

-LI- +56.62 159.80

-LI- +57.60 134.91

-LI- +66.22 159.49

15+00

10+00

20+00

-RAMPB5-

-BY5B- N 5°09'28.5" W

US 220 BYPASS SBL

US 220 BYPASS NBL

REMOVE EXISTING GUARDRAIL

300' TAPER

PROPOSED GUARDRAIL

-BL- N 6°13'55.9" E

+57.76 74.94

+59.14 94.67

350' FULL

N 7°52'10.0" E

-BL- 123 PNC 398+92.02 =
-BY5B- 5+00.00 PNC =
-RAMPC5- 10+50.75 (19.04' RT)

+68.88 74.83

-RAMPC5- PC Sta. 11+58.40

-LI- POT Sta. 14+00.00 (32' RT.)=
-RAMPC5- POT Sta. 10+00.00
Δ = 2°38'54.3"

WOOD RETENSION

ISMTLBUS

PA SOIL

-LI- PC Sta. 21+78.13

N 8°37'55.6" E -BL-

REMOVE EXISTING GUARDRAIL

PROPOSED GUARDRAIL

GRAU-350

BEGIN PROP SHLD BERM GUTTER
-RAMPC5- STA.16+00.00

-LI- CURVE DATA
PI Sta 26+23.52
Δ = 8°53'21.5" (RT)
D = 0°59'59.7"
L = 889.00'
T = 445.39'
R = 5,730.00'
SE = EXISTING

-RAMPC5- PT Sta. 19+31.41

LATERAL 'V' DITCH
SEE DETAIL "C"
EST. CY DDE

-RAMPC5- STA.20+40.00

DETAIL "C"
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground | 2d | D | 2d | b | F/Ff. | Fill Slope

Min. D= 1Ft.
b= 3 Ft.

-RAMPC5- STA. 19+00 TO -RAMPC5- STA. 19+50 (RT.)

-RAMPC5- CURVE DATA
PI Sta 15+45.36
Δ = 6°48'50.0" (RT)
D = 0°52'53.3"
L = 773.01'
T = 386.96'
R = 6,500.00'
SE = EXISTING

NOTES: (1) SEE SHEET 51 FOR -LI- PROFILE
(2) SEE SHEET 62 FOR -RAMPB5- PROFILE
(3) SEE SHEET 63 FOR -RAMPC5- PROFILE
(4) 30' OF SAFETY CLEARING IS REQUIRED

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PROJECT REFERENCE NO.	SHEET NO.
I-4407	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83/95

-RAMPB5- CURVE DATA
PI Sta 21+70.81
Δ = 17° 50' 29.0" (RT)
D = 4° 57' 38.4"
L = 359.66'
T = 181.30'
R = 1,155.00'
SE = EXISTING

-LI- CURVE DATA
PI Sta 26+23.52
Δ = 8° 53' 21.5" (RT)
D = 0° 59' 59.7"
L = 889.00'
T = 445.39'
R = 5,730.00'
SE = EXISTING

-RAMPB5- PC Sta. 19+89.52
-RAMPB5- PT Sta. 23+49.17
-RAMPB5- POT Sta. 22+21.29
-RAMPA5- POT Sta. 24+33.79
-RAMPA5- +49.21 160.36
-BY5B-144 20+68.93 POT = -RAMPB5- 23+76.89 (22.84' LT)
-BY5A-143 13+69.83 POT = -RAMPA5- 21+85.65 (14.00' LT)
-LI- PT Sta. 30+67.13
-RAMPC5- POT Sta. 23+26.18
-RAMPD5- POT Sta. 21+86.36
-RAMPD5- PC Sta. 17+75.34
-RAMPD5- PT Sta. 20+14.36
-RAMPD5- ST Sta. 15+25.96
-RAMPD5- CS Sta. 13+25.96
-RAMPD5- SC Sta. 12+00.00
-RAMPA5- +00.36 89.08
-RAMPA5- +00.57 72.26
-RAMPD5- 32.41 67.21

BM#21 -BL- STA 408+98.0' 418.6' LEFT ELEV. 854.13'

BEGIN PROPOSED WOVEN WIRE FENCE
END PROP. SHLD. BERM GUTTER -RAMPA5- STA. 21+25.00
TIE TO EXISTING GUARDRAIL
PROPOSED GUARDRAIL
REMOVE EXISTING GUARDRAIL
CLASS 'B' RIP RAP EST. 1 TON 5 SY FILTER FABRIC
BEGIN PROP. SHLD. BERM GUTTER -RAMPA5- STA 17+00.00
END PROP. CONC. MEDIAN BARRIER
BEGIN PROP. SINGLE FACED BARRIER -LI- STA 27+88.50
REMOVE CB
REMOVE EXISTING GUARDRAIL
TIE B-77 TO EXISTING SINGLE FACED CONC. BARRIER
REMOVE CB
PROPOSED GUARDRAIL
GRAU-350
LOWEST OVERHEAD CLEARANCE = 14.1'
REMOVE PORTION OF 18" CONC
US 220 BYPASS SBL
US 220 BYPASS NBL
END PROP. SINGLE FACED BARRIER
BEGIN PROP. CONC. MEDIAN BARRIER -LI- STA 29+28.50
-BL- 124 PINC 412+58.20 = -RAMPD5- 21+19.31 (65.49' RT)
REMOVE EXISTING GUARDRAIL
TIE TO EXISTING GUARDRAIL
PROPOSED GUARDRAIL 15" CSP
REMOVE EXISTING GUARDRAIL W/ELBOWS
END PROP. SHLD. BERM GUTTER -RAMPC5- STA 22+00.00
OVERHEAD POWER CLEARANCE=24.89'
SR 1479 LITTLE GATE DR.
PRESNELL ST.
COLLAR
CAT-1

SEE SHEET NO.32 -LI- STA.24+50.00
SEE SHEET NO.34 -LI- STA.38+00.00
MATCH LINE -RAMPA5- STA.14+25.00
MATCH LINE -RAMPC5- STA.20+40.00
MATCH LINE -RAMPD5- STA.11+37.00

TRAFFIC DIAGRAM

ADT 2010 2035	PRESNELL STREET 4,081 7,600	538 1,000
45,592 83,000	2,698 5,000	49,230 89,600
	5,400 10,000	8,100 15,000

US 220 BYPASS

NOTES:
(1) SEE SHEET 51 FOR -LI- PROFILE
(2) SEE SHEET 61 FOR -RAMPA5- PROFILE
(3) SEE SHEET 62 FOR -RAMPB5- PROFILE
(4) SEE SHEET 63 FOR -RAMPC5- PROFILE
(5) SEE SHEET 63 FOR -RAMPD5- PROFILE
(6) 30' OF SAFETY CLEARING IS REQUIRED

-RAMPD5- CURVE DATA

PI Sta 18+95.31	PIs Sta 13+92.66	PI Sta 12+63.02	PIs Sta 11+33.36
Δ = 12° 16' 56.0" (RT)	θs = 3° 49' 11.0"	Δ = 4° 48' 41.2" (LT)	θs = 3° 49' 11.0"
D = 5° 08' 19.1"	Ls = 200.00'	D = 3° 49' 11.0"	Ls = 200.00'
L = 239.02'	LT = 133.36'	L = 125.96'	LT = 133.36'
T = 119.97'	ST = 66.69'	T = 63.02'	ST = 66.69'
R = 1,115.00'		R = 1,500.00'	
SE = EXISTING		SE = EXISTING	

26-JUN-2009 10:44
I:\projects\I-4407\rdy_psh33.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-4407	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

-RAMPA- CURVE DATA
PI Sta 12+03.33
Δ = 10° 23' 33.0" (RT)
D = 3° 49' 11.0"
L = 272.08'
T = 136.41'
R = 1,500.00'
SE = EXISTING

NAD 83/95

40+00 10+00 45+00 50+00

-RAMPA5- STA.14+25.00

-RAMPA5- PT Sta. 13+38.99

-RAMPA5- PC Sta. 10+66.92

-L1- POT Sta. 42+27.31 (32' LT) =
-RAMPA5- POT Sta. 10+00.00
Δ = 2° 17' 59.8"

END PROJECT I-4407
-L1- POT STA. 48+50.00

MATCH LINE
SEE SHEET NO.33
-L1- STA.38+00.00

-RAMPA5-
S 16° 24' 37.0" W

-RAMPD5-
N 73° 05' 24" E

N 74° 06' 37.2" E

N 24° 34.2' E
-BL-

N 13° 51' 43.5" E -BL-

-L1- +15.70 104.86
-L1- +66.91 119.47
-L1- +66.49 104.61
-L1- +66.02 119.73
-L1- +66.02 131.70
-L1- +65.90 119.70
-L1- +65.90 131.17
-L1- +44.91 175.62
-L1- +47.31 140.61
-L1- +16.04 101.32
-L1- +15.87 109.91
-L1- +74.81 109.98
-L1- +65.23 109.68
-L1- +65.49 99.92

POND

END PROPOSED WOVEN WIRE FENCE

BM#22
-BL- STA 430+14.6'
169.6' LEFT
ELEV. 804.36'

EXISTING R/W

8" CONC. TIN

500' TAPER

36' BST US 220 BYPASS SBL

24" C&G

END PROPOSED MEDIAN CONCRETE BARRIER
-L1- STA.47+50.00

TIE TO EXISTING

OVERHEAD POWER
CLEARANCE=26.48'

US 220 BYPASS NBL

PROPOSED GUARDRAIL

GRAU-350

COLLAR 224 225 226 227

CAT-1

-BL- I26 PINC 430+59.48 =
-L1- 46+30.39 (46.54' RT)

300' TAPER

-BL- N 8° 44' 18.5" E

-L1- POT Sta. 39+37.35 (32' RT) =
-RAMPD5- TS Sta. 10+00.00

-BL- I25 PINC 423+08.74 =
-BT5A- 5+00.00 PINC =
-RAMPD5- 10+57.78 (22.06' LT)

-L1- PC Sta. 48+96.14

-RAMPD5- STA.11+37.00

SR 1479 LITTLE GATE DR.

CONC

ISFD

W/LT

NO ACCESS

-RAMPD5- SPIRAL DATA
PIs Sta 11+33.36
Θs = 3° 49' 11.0"
Ls = 200.00'
LT = 133.36'
ST = 66.69'

NOTES: (1) SEE SHEET 52 FOR -L1- PROFILE
(2) SEE SHEET 61 FOR -RAMPA5- PROFILE
(3) SEE SHEET 63 FOR -RAMPD5- PROFILE
(4) 30' OF SAFETY CLEARING IS REQUIRED

-L1- CURVE DATA
PI Sta 58+25.91
Δ = 18° 26' 00.0" (LT)
D = 0° 59' 59.7"
L = 1,843.41'
T = 929.77'
R = 5,730.00'
SE = EXISTING