STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 9, 2008

N.C. Division of Water Quality
1650 Mail Service Center
Raleigh, NC 27699-1650

Attention: Mr. Brian Wrenn
NCDOT Coordinator

Dear Sir:

Subject: **Application for Neuse Riparian Buffer Authorization,** for the proposed replacement of Bridge 17 on SR 1131 over Turkey Creek in Nash County. Federal Aid Project No. BRZ-1131 (6), WBS No. 33555.1.1, TIP No. B-4209.

Please find enclosed the buffer drawings, Pre-Construction Notification form (PCN), and half-size plan sheets for the above referenced project. A Programmatic Categorical Exclusion (PCE) was completed for this project on February 6, 2006, and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace existing Bridge No. 17 on SR 1131 over Turkey Creek in Nash County. The project involves replacement of the existing five span, 86-foot bridge structure with a two span, 105-foot bridge at approximately the same location and roadway elevation as the existing structure. Impacts will consist of <0.01 acre of permanent surface water impacts to Turkey Creek and 5,763 ft^2 of impacts to riparian buffer. Traffic will be detoured off-site along surrounding roads during construction.

Impacts to Waters of the United States

General Description: The project is located in the Neuse River Basin (Hydrologic Unit 03020203, subbasin 03-04-07). A best usage classification of "C NSW" has been assigned to Turkey Creek [DWQ Index # 27-86-3-(1)]. Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project study area. Turkey Creek is not designated as a North Carolina Natural or Scenic River, or as a National Wild and Scenic River. Additionally, Turkey Creek is not listed on the Final 2006 303(d) list of impaired waters due to sedimentation for the Neuse River Basin, nor does it drain into any Section 303(d) waters within 1.0 mile of the project study area.

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Permanent Impacts: Surface waters will be impacted by the proposed project. Construction of the proposed project will result in permanent impacts of 30 ft^2 due to one interior bent on drilled piers.

Temporary Impacts: There will be no temporary impacts to wetlands or surface waters due to this project.

Utility Impacts: No impacts to jurisdictional resources will occur due to relocation of utilities in the project area. An existing overhead Embarq telephone line is in conflict with the proposed project. Wetland impacts due to the relocation of this line will be avoided by using directional bore techniques.

Bridge Demolition:
The existing superstructure consists of a five-span bridge with a concrete surface on timber joists. The existing substructure consists of timber piles with timber caps. Best Management Practices for Bridge Demolition and Removal will be followed to prevent any temporary fill from entering Waters of the United States.

Neuse River Basin Buffer Rules

This project is located in the Neuse River Basin; therefore, the regulations pertaining to the buffer rules apply. There will be a total of 5,763 ft^2 of impacts to riparian buffers. This includes 2,675 ft^2 (2,584 ft^2 in Zone 1 and 91 ft^2 in Zone 2) due to the bridge crossing. According to the buffer rules, bridges are allowable. In addition, 3,088 ft^2 (1,466 ft^2 in Zone 1 and 1,622 ft^2 in Zone 2) of impacts will occur from approach fill and mechanized clearing activities due to road crossings. This Road Crossing activity is allowable because impacts are less than the 150-foot/0.3 acre threshold, for which mitigation is required. Uses designated as allowable may proceed within the riparian buffer provided that there are no practical alternatives to the requested use pursuant to Item (8) of this rule.

Federally Protected Species

As of November 5, 2007 the US Fish and Wildlife Service (USFWS) listed four federally protected species for Nash County. The bald eagle, however, was removed from the Endangered Species List on August 8, 2007. The three remaining species are listed in Table 1. The biological conclusion for red-cockaded woodpecker remains valid. The biological conclusions for dwarf wedgemussel and Tar River spinymussel have been updated from "Unresolved" in the NRTR (2001) to "May Affect, Not Likely to Adversely Affect" following surveys on August 27, 2007. Concurrence from USFWS was received on October 15, 2007.

Table 1. Federally protected species of Nash County.

Common Name	Scientific Name	Federal Status	Habitat	Biological Conclusion
Red-cockaded woodpecker	*Picoides borealis*	E	No	No Effect
Dwarf wedgemussel	*Alasmidonta heterodon*	E	Yes	MANLAA
Tar River spinymussel	*Elliptio steinstansana*	E	Yes	MANLAA

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) was delisted from the Endangered Species Act as of August 8, 2007. However, it is still protected under the Bald and Golden Eagle Protection Act. A survey conducted on September 5, 2007 found no suitable habitat within 660 ft of the project area. No nests or eagles were observed during the survey.

Avoidance and Minimization

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". Due to the presence of surface waters and wetlands within the project study area, avoidance of all impacts is not possible. The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts. Minimization measures incorporated as part of the project design included:

- Use of an off-site detour during construction
- Construction of a 19-foot longer bridge
- The new structure will reduce the number of interior bents from four to one
- Measures used to minimize impacts to the buffer zone include using the existing alignment
- Design Standards in Sensitive Watersheds will be utilized during demolition of the existing bridge and construction of the new bridge

Mitigation

Due to the limited amount of impacts to jurisdictional surface waters, and because impacts to riparian buffers have not exceeded the threshold requiring compensatory mitigation, NCDOT is not proposing mitigation for this project.

Regulatory Approvals

Section 404 Permit: Per conversation with William Wescott of the U.S. Army Corps of Engineers on November 19, 2007, a Section 404 permit is not required.

Section 401 Certification: A written 401 General Certification is not being requested since a 404 permit is not required.

Neuse River Basin Buffer Authorization: NCDOT requests that the NC Division of Water Quality review this application and issue a written approval for a Neuse Riparian Buffer Authorization.

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

Thank you for your time and assistance with this project. Please contact Veronica Barnes at vabarnes@dot.state.nc.us or (919) 715-7232 if you have any questions or need additional information.

Sincerely,

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

cc:
W/attachment
Mr. Rob Ridings, NCDWQ (4 Copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Michael Street, NCDMF

W/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Richard E. Greene , P.E. Division 4 Engineer
Mr. Jamie Guerrero, Division Environmental Officer
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Ms. Natalie Lockhart, PDEA Engineer

Office Use Only: Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☐ Section 404 Permit
   - ☐ Section 10 Permit
   - ☐ 401 Water Quality Certification
   - ☒ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: N/A

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☐ N/A

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☐ N/A

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐ N/A

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: 1598 Mail Service Center
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: vabarnes@dot.state.nc.us

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name:
   Company Affiliation:
   Mailing Address:
   Telephone Number: Fax Number:
   E-mail Address:

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge No. 17 on SR 1131 over Turkey Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4209

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Nash Nearest Town: Middlesex
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From US 264 take the exit to NC 231 North. Travel north approximately 2.7 miles and turn right onto SR 1131 (Bryant St.). Bridge #17 is the only bridge on that street.

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 35.833625 °N -78.166150 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Buckhorn Resevior

8. River Basin: Neuse River Basin
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is mostly forested. The surrounding area is dedicated mostly to agriculture and low density housing.

10. Describe the overall project in detail, including the type of equipment to be used:
The existing superstructure consists of a 5-span bridge with a concrete surface on timber joists. The existing substructure consists of timber piles with timber caps. The project involves replacing the old bridge on the existing location with a new two span bridge approximately 106 feet long. Traffic will be detoured off-site during construction. Standard NCDOT construction equipment will be used.

11. Explain the purpose of the proposed work: The current bridge has a sufficiency rating of 35 out of 100 and a structure apprasial of 4 out of 9. It is therefore considered structurally deficient by the Federal Highway Administration standards and rehabilitation is not feasible due to the bridge's age and condition.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. A jurisdictional determination was issued by the USACE for this project on December 10, 2007 under Action Id. 200703606.

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
No future permit requests are anticipated for this project.

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: There are no proposed permanent or temporary impacts to wetlands. There are 30 square feet of proposed permanent impacts to streams. Impacts to riparian buffer total 5,763 square feet.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
N/A					0.0
Total Wetland Impact (acres)					0.0

3. List the total acreage (estimated) of all existing wetlands on the property: 0.05 acres

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Turkey Creek	Interior Bent	Perennial	49.0	0	<0.01
Total Stream Impact (by length and acreage)					0	<0.01

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				0
Total Open Water Impact (acres)				0

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	<0.01
Wetland Impact (acres):	0.00
Open Water Impact (acres):	0.0
Total Impact to Waters of the U.S. (acres)	<0.01
Total Stream Impact (linear feet):	0

7. Isolated Waters

Do any isolated waters exist on the property? ☐ Yes ☒ No

Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.
N/A

8. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): N/A

Current land use in the vicinity of the pond: N/A

Size of watershed draining to pond: N/A Expected pond surface area: N/A

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. NCDOT has minimized impacts to the fullest extent possible. The number of bents in the water is being reduced from four for the existing bridge to one for the new bridge. In compliance with 15A NCAC 02B.0104(m) we have incorporated the use of BMP's in the design of the project. Traffic will be detoured off-site during construction.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of

aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   N/A.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:
   Amount of stream mitigation requested (linear feet): 0.0
   Amount of buffer mitigation requested (square feet): 0.0
   Amount of Riparian wetland mitigation requested (acres): 0.0
   Amount of Non-riparian wetland mitigation requested (acres): 0.0
   Amount of Coastal wetland mitigation requested (acres): 0.0

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes ☒ No ☐

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation. Yes ☒ No ☐

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify Neuse)? Yes ☒ No ☐

2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	4,050	3 (2 for Catawba)	0.0
2	1,713	1.5	0.0
Total	5,763		0.0

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. N/A

XII. Sewage Disposal (required by DWQ)

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.
N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
Yes ☐ No ☒

Is this an after-the-fact permit application? Yes ☐ No ☒

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:
The project is a relatively small bridge in a residential area. There will be no new road created and no additional lanes added, therefore it is unlikely to attract development.

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).
N/A.

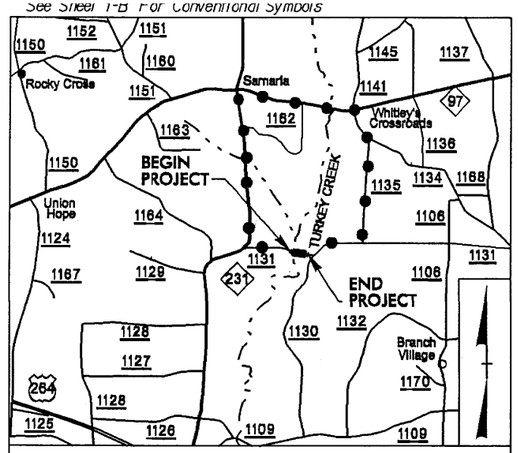
E. L. Fuller 1.9.08

Applicant/Agent's Signature **Date**
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

TIP PROJECT: B-4209

CONTRACT: C201853

See Sheet 1-B For Conventional Symbols



VICINITY MAP

OFFSITE DETOUR

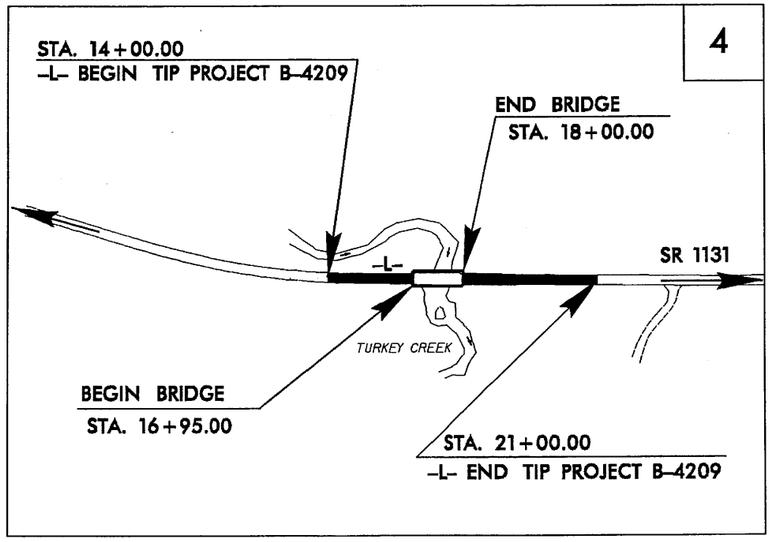
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH COUNTY

N.C.	B-4209	1
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33555.1.1	BRZ-1131(6)	P.E.
33555.2.1	BRZ-1131(6)	ROW, UTIL

LOCATION: BRIDGE NO. 17 OVER TURKEY CREEK ON SR 1131

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE, AND GUARDRAIL

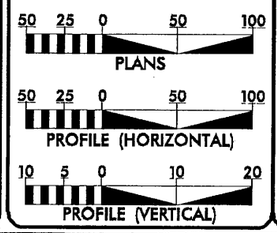


NEUSE RIVER BUFFER PERMIT

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

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

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 430
ADT 2028 = 750
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH

* TTST 1% + DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4209	=	0.113 MI
LENGTH STRUCTURE TIP PROJECT B-4209	=	0.020 MI
TOTAL LENGTH TIP PROJECT B-4209	=	0.133 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 15, 2007

LETTING DATE: JUNE 17, 2008

BRENDA MOORE, P.E.
PROJECT ENGINEER

THAD F. DUNCAN, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

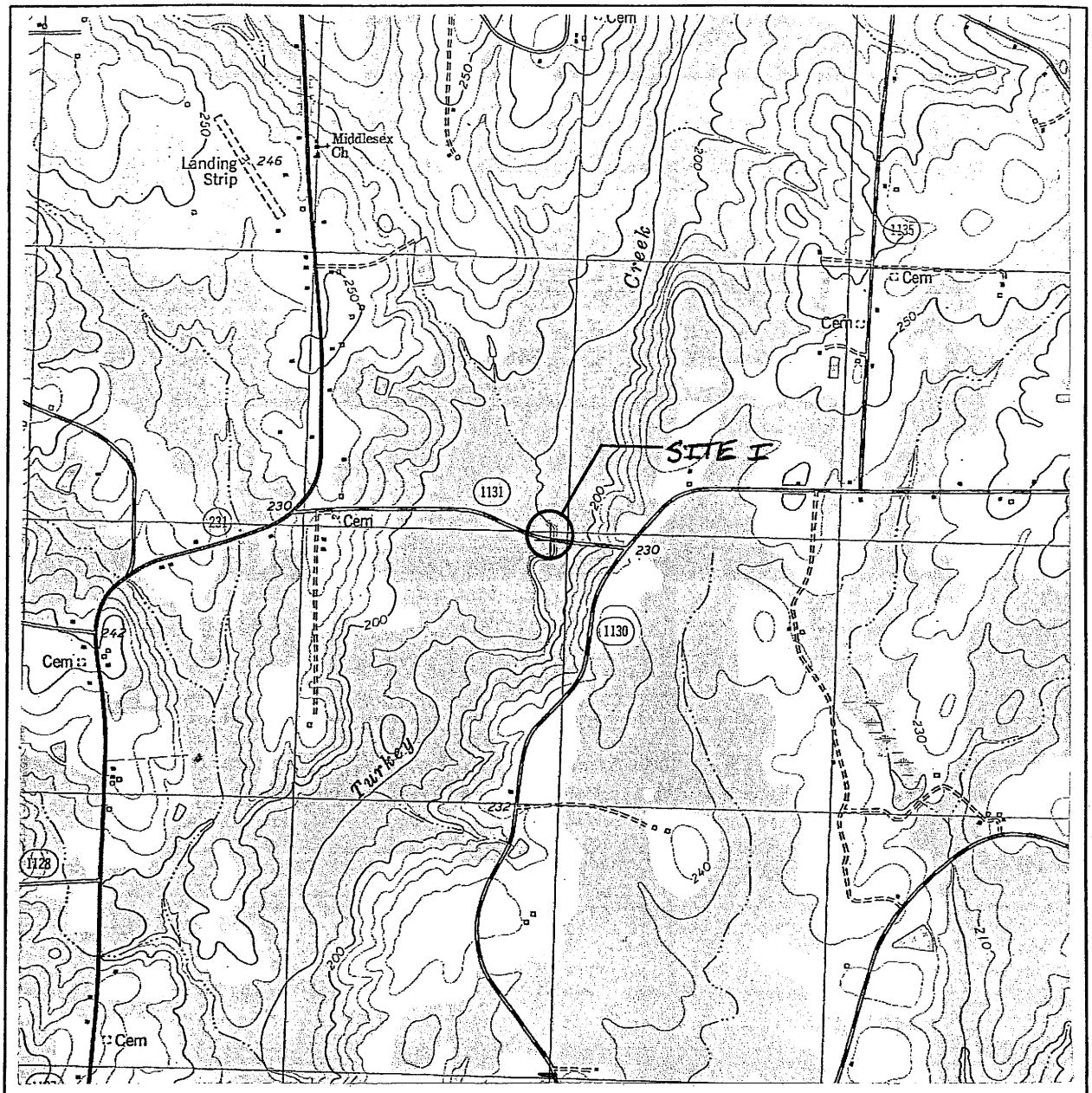
P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

20-SEP-2007 10:49
n:\hydraulics\permits\b4209_hyd_tsh_buff.dgn
mshown AT H239382

Buffer Drawing
Sheet 1 of 5



VICINITY MAP

NCDOT

DIVISION OF HIGHWAYS

NASH COUNTY

PROJECT: 33555.1.1 (B-4209)

BRIDGE NO.17 OVER TURKEY CREEK ON SR 1131

SHEET **OF** **9/19/07**

Buffer Drawing
Sheet 2 of 5

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	Bridge	STA. 17+47.5 -L-		X		2584.0	91.0	2675.0					
	2@52.5'		X			1466.0	1622.0	3088.0					
	21" CORED SLAB												
TOTAL:						4050.0	1713.0	5763.0	0.0	0.0	0.0		

LINEAR IMPACTS - BRIDGE 92 FT.
ROAD CROSSING 143 FT.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

NASH COUNTY
PROJECT: 33555.1.1 (B-4209)

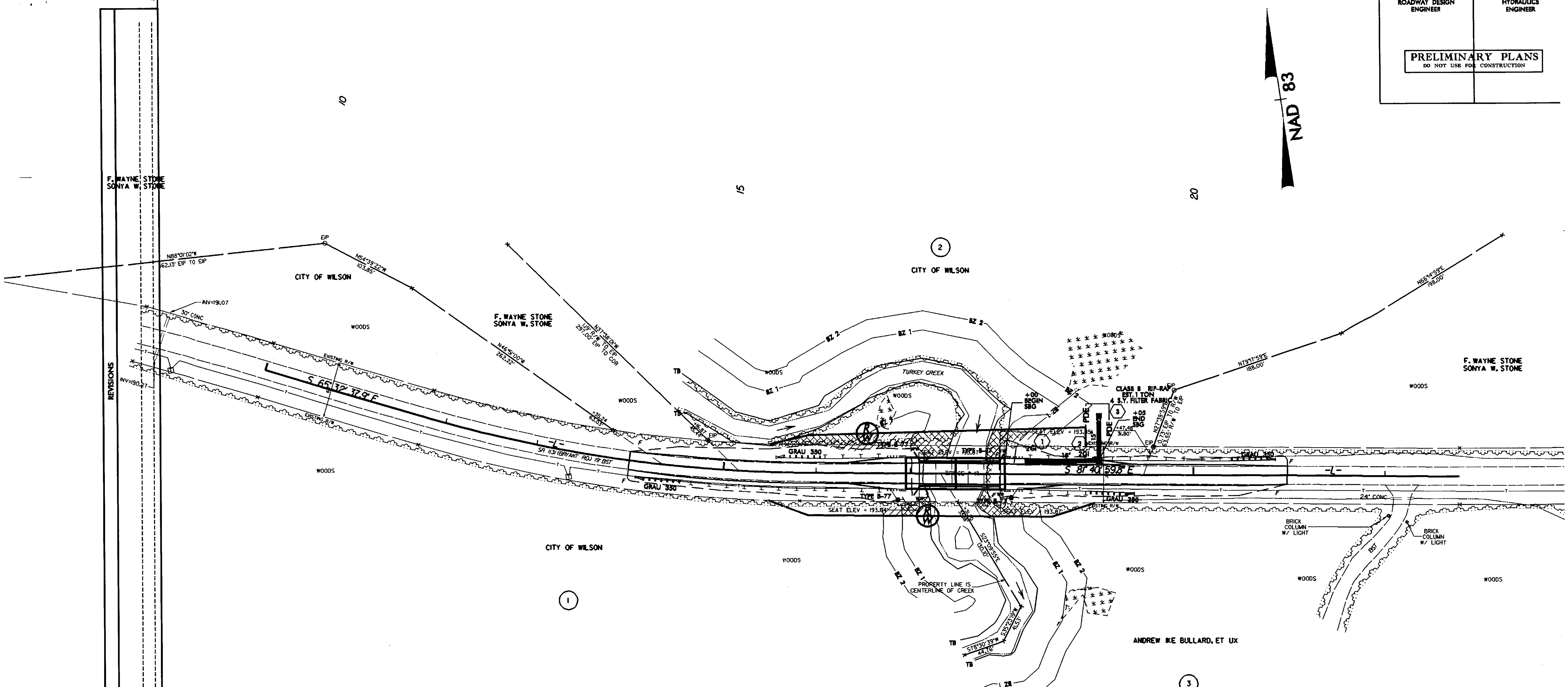
9/20/2007

SHEET OF

Buffer Drawing
Sheet 2 of 5

R/W SHEET NO.

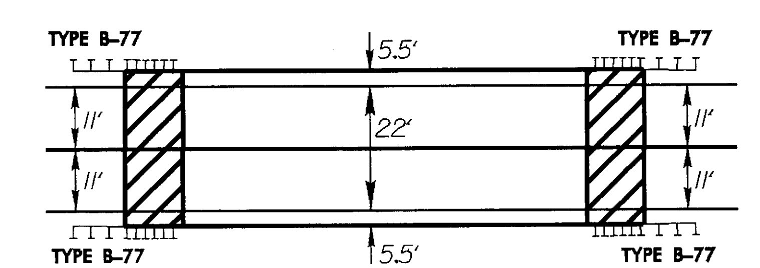
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



NAD 83
REVISIONS
F. WAYNE STONE
SONYA W. STONE
CITY OF WILSON
WOODS
N88°01'02"W
162.13' EIP TO EIP
N54°39'22"W
103.85'
N46°15'00"W
262.22'
INV=191.07
30" CONC
INV=190.27
S 65°32' 37.9" E
SR 1131 (BRYANT RD) 19' BST
EXISTING R/W
GRAU 350
TURKEY CREEK
BZ 1
BZ 2
TB
EIP
CLASS B RIP-RAP
EST. 1 TON
4 S.Y. FILTER FABRIC
+00 BEGIN SBG
+05 END SBG
PDE
S 81°40' 59.8" E
-L-
TYPE B-77
SEAT ELEV = 193.84
SEAT ELEV = 193.87
N79°17'59"E
188.00'
N66°4'59"E
198.00'
24" CONC
BRICK COLUMN W/ LIGHT
BST
PROPERTY LINE IS CENTERLINE OF CREEK
ANDREW IKE BULLARD, ET UX

SITE 1

SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT



ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

-L-

PI Sta 13+82.13
Δ = 16°08' 21.9" (LT)
D = 3°49' 11.0"
L = 422.53'
T = 212.67'
R = 1,500.00'
RO = 200'
SE= .08

SBG: SHOULDER BERM GUTTER

FOR -L- PROFILE SEE SHEET 5
FOR STRUCTURE SEE SHEETS S1-SX

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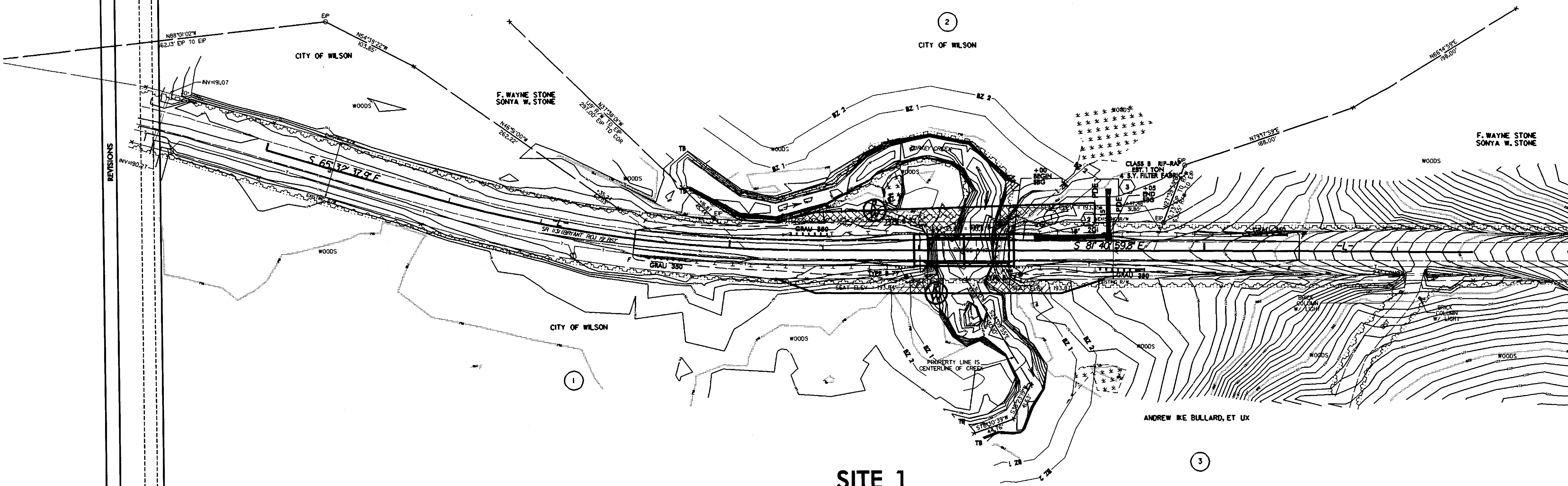
Buffer Drawing
Sheet 4 of 5

R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

REVISIONS



SITE 1

ALLOWABLE IMPACTS ZONE 1

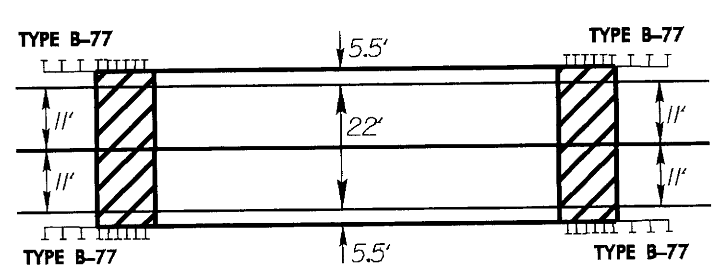
ALLOWABLE IMPACTS ZONE 2

-L-

PI Sta 13+82.13
Δ = 16° 08' 21.9" (LT)
D = 3° 49' 11.0"
L = 422.53'
T = 212.67'
R = 1,500.00'
RO = 200'
SE= .08

SBG: SHOULDER BERM GUTTER

SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT



FOR -L- PROFILE SEE SHEET 5
FOR STRUCTURE SEE SHEETS S1-SX

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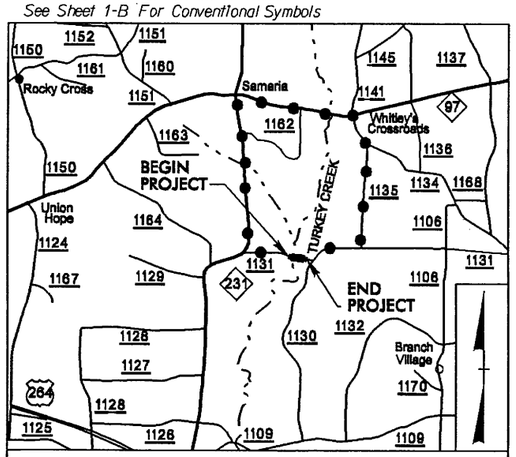
Buffer Drawing
Sheet 5 of 5

09/08/95

TIP PROJECT: B-4209

CONTRACT: C201853

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



VICINITY MAP

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

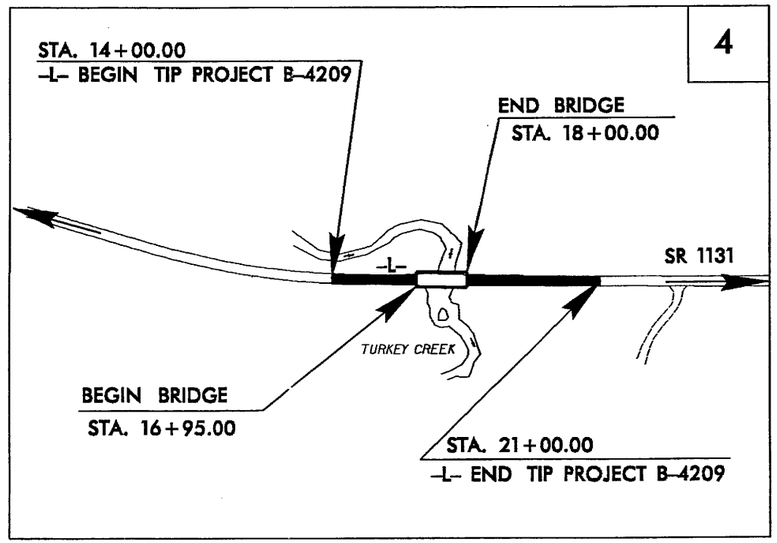
NASH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4209	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33555.1.1	BRZ-1131(6)	P.E.
33555.2.1	BRZ-1131(6)	ROW, UTIL

LOCATION: BRIDGE NO. 17 OVER TURKEY CREEK ON SR 1131

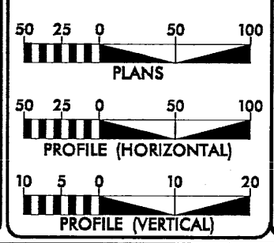
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE, AND GUARDRAIL



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

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

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 430
ADT 2028 = 750
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH

* TTST 1% + DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4209 = 0.113 MI
LENGTH STRUCTURE TIP PROJECT B-4209 = 0.020 MI
TOTAL LENGTH TIP PROJECT B-4209 = 0.133 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 15, 2007

LETTING DATE: JUNE 17, 2008

BRENDA MOORE, P.E.
PROJECT ENGINEER

THAD F. DUNCAN, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

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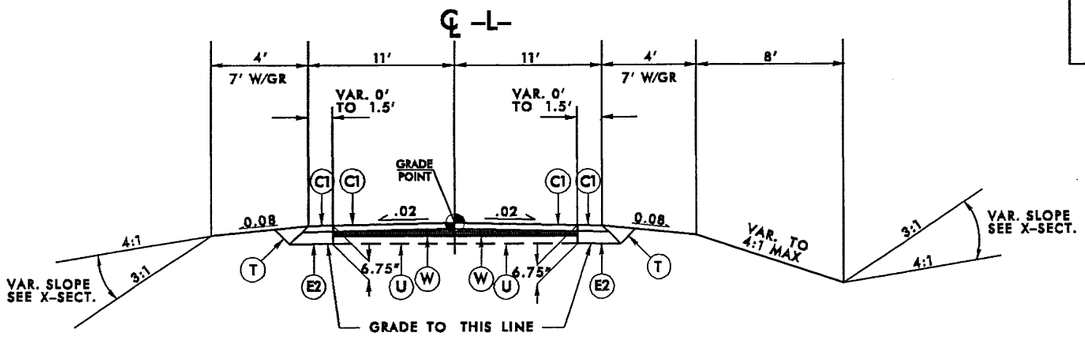
PROJECT REFERENCE NO.	SHEET NO.
B-4209	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
U	EXISTING PAVEMENT.
T	EARTH MATERIAL.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET.)

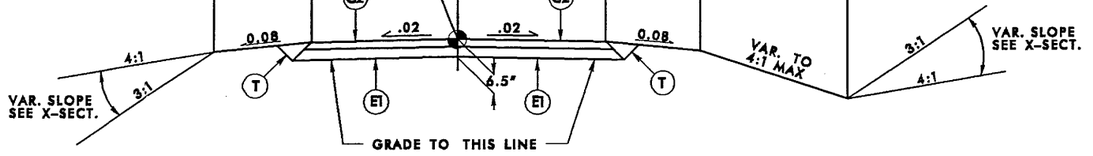
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

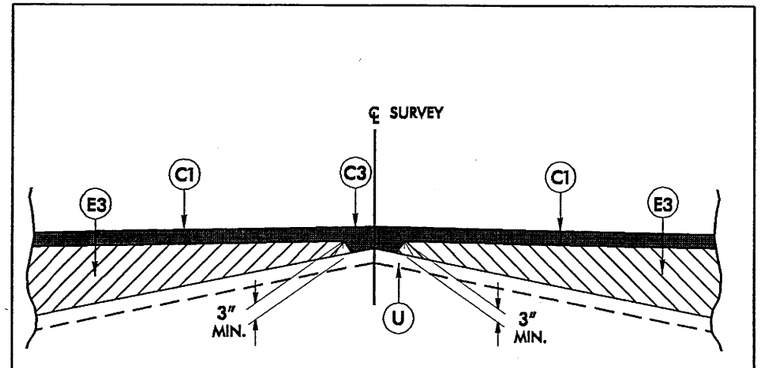
–L– STA. 14+00.00 TO –L– STA. 14+50.00 TAPER FROM EXIST.
–L– STA. 14+50.00 TO –L– STA. 16+50.00
–L– STA. 18+50.00 TO –L– STA. 20+50.00
–L– STA. 20+50.00 TO –L– STA. 21+00.00 TAPER TO EXIST.



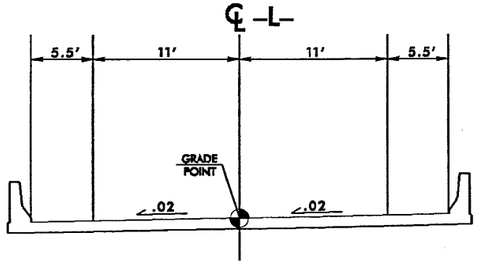
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

–L– STA. 16+50.00 TO –L– STA. 16+95.00 (BEG. BRIDGE)
–L– STA. 18+00.00 (END BRIDGE) TO –L– STA. 18+50.00



Detail Showing Method of Wedging



TYPICAL BRIDGE DETAIL NO. 1

–L– STA. 16+95.00 TO STA. 18+00.00

6/2/9

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PROJECT REFERENCE NO.	SHEET NO.
B-4209	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

NAD 83

STA. 14+00.00 -L- BEGIN STATE PROJECT B-4209

POT Sta. 10+00.00

PC Sta. 11+69.46

PT Sta. 15+91.99

POT Sta. 22+79.77

CITY OF WILSON
DB 1584 PG 982
DB 1594 PG 767
PB 20 PG 130
TRACT 4-A

F. WAYNE STONE
SONYA W. STONE
DB 1446 PG 264

CITY OF WILSON
DB 1615 PG 281
DB 1615 PG 286

F. WAYNE STONE
SONYA W. STONE
DB 866 PG 336

CITY OF WILSON
DB 1584 PG 982
DB 1594 PG 767
DB 1584 PG 153
PB 20 PG 130
TRACT 3-A

ANDREW IKE BULLARD, ET UX
DB 1483 PG 638
PB 15 PG 90
LOT 4

BM #2
-BL- STA 9+36.21
24.33' RIGHT
ELEV=196.81'

BM #3
-BL- STA 13+32.61
51.70' LEFT
ELEV=191.05'

BL-102
-L- 13+80.09
18.88' RT

BL-103
-L- 18+00.85
14.13' RT

BL-104
-L- 21+60.55
16.26' RT

BEGIN APPROACH SLAB
STA. 16+81.00

BEGIN BRIDGE
STA. 16+95.00

END BRIDGE
STA. 18+00.00

END APPROACH SLAB
STA. 18+14.00

CLASS B RIP-RAP
EST. 1 TON
4 S.Y. FILTER FABRIC

PROPERTY LINE IS CENTERLINE OF CREEK

TURKEY CREEK

WOODS

BRICK COLUMN W/ LIGHT

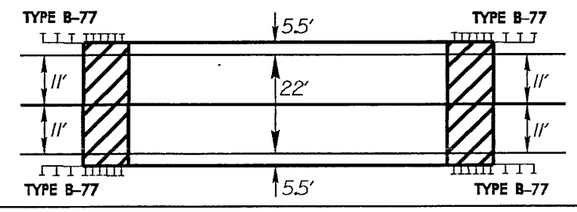
STA. 21+00.00 -L- END STATE PROJECT B-4209

-L-
PI Sta 13+82.13
Δ = 16°08'21.9" (LT)
D = 3°49'11.0"
L = 422.53'
T = 212.67'
R = 1,500.00'
RO = 200'
SE = .08

SBG: SHOULDER BERM GUTTER

FOR -L- PROFILE SEE SHEET 5
FOR STRUCTURE SEE SHEETS S1-SX

SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT



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PROJECT REFERENCE NO.	SHEET NO.
B-4209	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

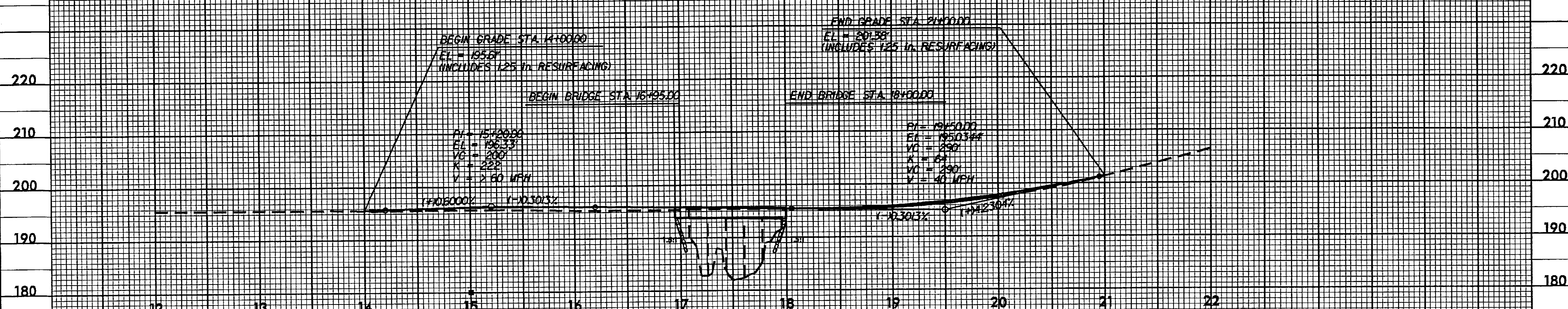
5/14/99

-L-

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	4200	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	194.0	FT
BASE DISCHARGE	=	6200	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	195.2	FT
OVERTOPPING DISCHARGE	=	6200	CFS
OVERTOPPING FREQUENCY	=	100	YRS
OVERTOPPING ELEVATION	=	195.5	FT

BM #3
NAIL SET IN 24" OAK
51.70' LEFT OF -BL- STA. 13+26.61 ELEV. 191.05



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