



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 2, 2007

U. S. Army Corps of Engineers
Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, NC 27615

ATTN: Mr. Andy Williams
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Nationwide 13 and 23 Permits** for the replacement of Bridge No. 11 over Big Alamance Creek on SR 3394 (Company Mill Road), Guilford County. Federal Aid Project Number BRZ-3394 (1), WBS No. 33484.1.1, State Project No. 8.2497901, Division 7, T.I.P No. B-4131.

The North Carolina Department of Transportation (NCDOT) proposes to replace the 97 foot Bridge No. 11 over Big Alamance Creek with a new single span bridge approximately 110 feet in length. The new structure will be a single span steel girder bridge. The project will replace the current bridge with a new bridge on its existing location, while using an onsite detour to maintain traffic during construction. The new bridge will span the stream and no bents will be placed in the stream.

Please see the enclosed copies of the pre-construction notification (PCN), permit drawings, half size plan sheets, and Rapanos forms. A Categorical Exclusion (CE) document was completed for this project in June 2006. They were both distributed shortly thereafter. Additional copies are available upon request.

IMPACTS TO WATERS OF THE UNITED STATES

The project is located in the Cape Fear River Basin (subbasin 03-06-03). This area is part of Hydrologic Cataloging Unit 03030002. Big Alamance Creek is a perennial stream and will be bridged by the proposed project. UT1 is an intermittent stream located in the southeast portion of the project area. Big Alamance Creek has been assigned a Best Usage Classification of WS-IV NSW and a North Carolina Department of Water Quality (NCDWQ) Stream Index # 16-19-(1).

MAILING ADDRESS:

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

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:

2728 CAPITAL BLVD. SUITE 240
RALEIGH NC 27604

In a letter dated March 24, 2004, the NCDWQ incorrectly states that the bridge will cross Little Alamance Creek (W-IV NSW CA). The proposed project will bridge Big Alamance Creek (WS-IV NSW).

No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I) or Water Supply (WS-II) occur within 1.0 mile of the project area. Big Alamance Creek is not listed as a 303(d) stream according to the Final 2006 303(d) list for the Cape Fear River Basin nor does it drain into any 303(d) waters within 1-mile of the project.

One wetland, W2, located in the northeast quadrant, will be impacted by the project. W2 is considered to be non-riverine wetland and is classified as a palustrine, seasonally flooded, wetland supporting shrub-scrub vegetation (PSS1C, Cowardin classification). A site visit was held for verification of the jurisdictional delineations on May 1, 2007 with John Thomas US Army Corp of Engineers (USACE) and Sue Homewood (NCDWQ). Due to the time frame of the field visit an official jurisdictional determination notice was not issued. Therefore, included in with the application is the Rapanos forms needed to complete the jurisdictional process. Additional supporting information (wetland data forms) has already been submitted the USACE.

Permanent Impacts

There will be 26 feet of surface water impacts in Big Alamance Creek associated with riprap bank stabilization for two stormwater ditches (Site1).

There will be a total of 0.09 acres of non-riverine wetland impacts (Site 2). These consist of 0.02 acres of impact resulting from fill, 0.02 acres of impact resulting from excavation to replace a ditch, and 0.05 acres of impact resulting from mechanized clearing in the non-riverine wetland.

Utility Impacts

There are no utility impacts associated with this project.

Bridge Demolition

The existing bridge was constructed in 1957 and is 97 feet in length. It is a single span bridge. The superstructure consists of a timber deck on I-beams. The substructure consists of one concrete abutment, two concrete interior bents, and on rubble masonry abutment. All components of the bridge will be removed without dropping any of their components into Waters of the United States. Best Management Practices for Bridge Demolition and Removal will be implemented during demolition and construction.

MITIGATION OPTIONS

Avoidance and Minimization and Compensatory Mitigation

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the

planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

According to the Clean Water Act (CWA) §404(b)(1) guidelines, NCDOT must avoid, minimize, and mitigate, in sequential order, impacts to waters of the US. The following is a list of the project's jurisdictional stream avoidance/minimization activities proposed or completed by NCDOT:

Avoidance/Minimization

- Stringent erosion control methods and use of Best Management Practices (BMPs) will be implemented.
- Best Management Practices for Protection of Surface Waters and for Demolition and Removal will be implemented.
- No bents will be placed in the channel.
- A longer bridge will be constructed, which will allow for better floodplain access.

Compensatory Mitigation:

NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The project will have non-riverine wetland impacts and stream impacts from bank stabilization. However, NCDOT does not propose compensatory mitigation for the 0.09 acres of non-riverine wetland impacts and 26 feet of stream impacts because impacts are minimal and the stream impacts will not remove aquatic use.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The USFWS lists the bald eagle (*Haliaeetus leucocephalus*) for Guilford County.

The bald eagle has been delisted as of August 2007 and is not subject to Section 7 consultation and a biological conclusion is not required. However, the bald eagle remains protected by the Bald and Golden Eagle Protection Act. No nesting or foraging habitat for bald eagles is present.

In a letter dated March 19, 2004, the North Carolina Wildlife Resources Commission (NCWRC) requested a moratorium on in-stream work from April 1 to June 30 due to a significant fishery for sunfish at the bridge location. However, the letter incorrectly states that the bridge will cross Little Alamance Creek. The proposed project will bridge Big Alamance Creek. However, based on the lack of statutory regulations requiring this moratorium, NCDOT does not believe that this moratorium is warranted.

SCHEDULE

The project calls for a letting of February, 19, 2008 (review date of January 1, 2008) with a date of availability of April 1, 2008. It is expected that the contractor will choose to start construction in February.

REGULATORY APPROVALS

Section 404 Permit: Application is hereby made for the Department of Army Section 404 for the issuance of a Nationwide Permits 13 and 23 for the above-described activities.

Section 401 Permit: We also hereby request 401 General Water Quality Certifications (WQCs) 3632 and 3626. The NCDOT will adhere to all general conditions of the WQCs. Therefore, written concurrence from the NCDWQ is not required. In accordance with 15A NCAC 2H 0.0501(a) and 15A NCAC 2B 0.200 we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, as notification.

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 Deanna Riffey at (919) 715-1409.

Sincerely,



for

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

w/attachment

- Mr. John Hennessy, NCDWQ (2 Copies)
- Mr. Travis Wilson, NCWRC
- Mr. Gary Jordan, USFWS
- Dr. David Chang, P.E., Hydraulics
- Mr. Mark Staley, Roadside Environmental
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Victor Barbour, Project Services Unit
- Mr. J. M. Mills, P.E., Division 7 Engineer
- Mr. Jerry Parker, Division 7 Environmental Officer

w/o attachment

- 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. Stephen Kirby, PDEA

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:

<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Riparian or Watershed Buffer Rules
<input type="checkbox"/> Section 10 Permit	<input type="checkbox"/> Isolated Wetland Permit from DWQ
<input type="checkbox"/> 401 Water Quality Certification	<input type="checkbox"/> Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NW 23 & 13

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

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:

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:

II. Applicant Information

1. Owner/Applicant Information
Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
Mailing Address: 1598 Mail Service Center
Raleigh, NC 27699-1548

Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
E-mail Address: _____

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: N/A
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. 11 over the Big Alamance Creek on SR 3394
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4131
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Guilford Nearest Town: Climax
Subdivision name (include phase/lot number): _____
Directions to site (include road numbers/names, landmarks, etc.): see map in permit drawings
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): 35.9548 °N 79.7009 °W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Big Alamance Creek
8. River Basin: Cape Fear
(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 land use in the surrounding area consists primarily of residential development with some forested areas.

10. Describe the overall project in detail, including the type of equipment to be used: _____
Bridge No. 11 will be replaced on the existing location. Traffic will be maintain during construction by an onsite detour. Heavy duty excavation equipment will be used such as trucks, dozers, cranes and other various equipment necessary for roadway construction.

11. Explain the purpose of the proposed work: To replace a deteriorating bridge

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. N/A

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.

N/A

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: see cover letter

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)
Site 2	Permanent	Non-riverine shrub-scrub	No	200	0.09
Total Wetland Impact (acres)					0.09

3. List the total acreage (estimated) of all existing wetlands on the property: 0.09

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)
Site 1	Big Alamance Crk	Permanent Fill	P	40	26	0.01
Total Stream Impact (by length and acreage)					26	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)
Total Open Water Impact (acres)				

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

Stream Impact (acres):	0.01
Wetland Impact (acres):	0.09
Open Water Impact (acres):	
Total Impact to Waters of the U.S. (acres)	0.10
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.

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.): _____

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

Current land use in the vicinity of the pond: _____

Size of watershed draining to pond: _____ Expected pond surface area: _____

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. Please refer to the attached cover letter

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.

NCDOT does not propose compensatory mitigation.

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): NA
Amount of buffer mitigation requested (square feet): NA
Amount of Riparian wetland mitigation requested (acres): NA
Amount of Non-riparian wetland mitigation requested (acres): 0
Amount of Coastal wetland mitigation requested (acres): NA

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 _____)? 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		3 (2 for Catawba)	
2		1.5	
Total			

* 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: _____

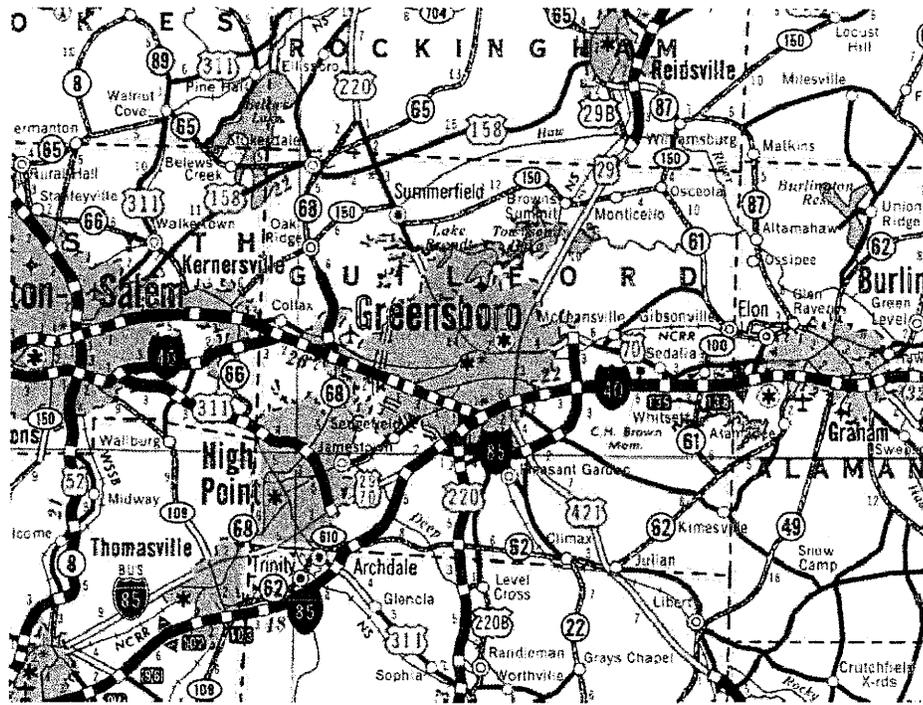
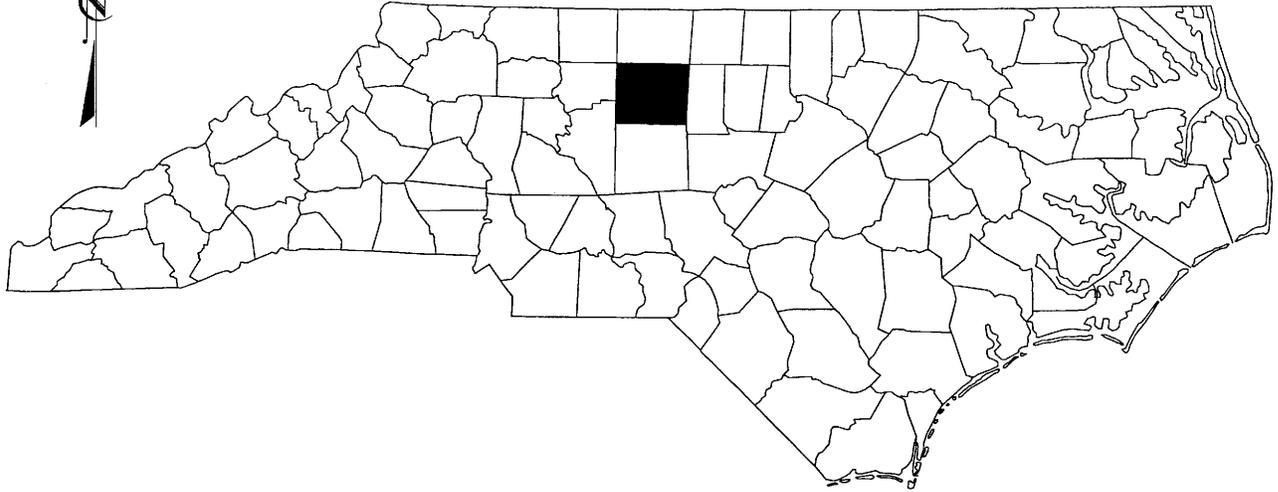
XV. Other Circumstances (Optional):

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).
None

E.L. Lueb for Gregory J. Thape, PhD 10.2.07
Applicant/Agent's Signature Date

(Agent's signature is valid only if an authorization letter from the applicant is provided.)

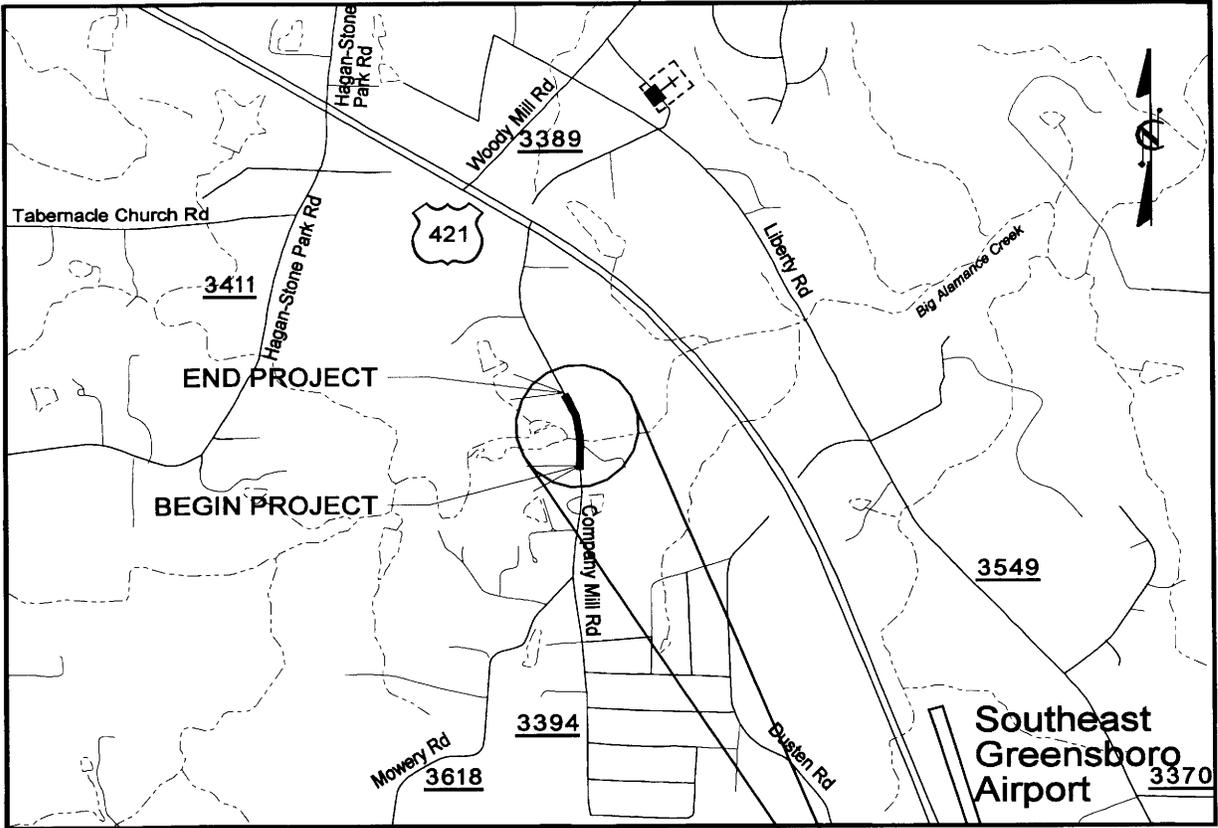
NORTH CAROLINA



VICINITY MAP

NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 33484.1.1 (B-413)
BRIDGE 11 OVER
BIG ALAMANCE CREEK
ON SR 3394

SITE MAP



SITE

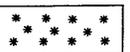
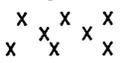
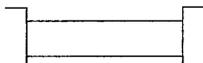
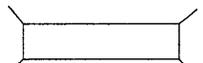
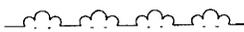
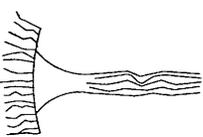
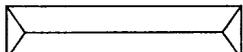


NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 33484.1.1 (B-413D)
BRIDGE 11 OVER
BIG ALAMANCE CREEK
ON SR 3394

SHEET 2 OF 13

3/20/06

WETLAND LEGEND

<p>— WLB — WETLAND BOUNDARY</p> <p> WETLAND</p> <p> DENOTES FILL IN WETLAND</p> <p> DENOTES PERMANENT SURFACE WATER IMPACTS</p> <p> DENOTES PERMANENT SURFACE WATER IMPACTS (POND)</p> <p> DENOTES TEMPORARY FILL IN WETLAND</p> <p> DENOTES EXCAVATION IN WETLAND</p> <p> DENOTES TEMPORARY SURFACE WATER IMPACTS</p> <p> DENOTES MECHANIZED CLEARING</p> <p>→ → FLOW DIRECTION</p> <p>— TB — TOP OF BANK</p> <p>— WE — EDGE OF WATER</p> <p>--- C --- PROP. LIMIT OF CUT</p> <p>--- E --- PROP. LIMIT OF FILL</p> <p>—▲— PROP. RIGHT OF WAY</p> <p>--- NG --- NATURAL GROUND</p> <p>--- PL --- PROPERTY LINE</p> <p>— TDE — TEMP. DRAINAGE EASEMENT</p> <p>— PDE — PERMANENT DRAINAGE EASEMENT</p> <p>--- EAB --- EXIST. ENDANGERED ANIMAL BOUNDARY</p> <p>--- EPB --- EXIST. ENDANGERED PLANT BOUNDARY</p> <p>—▽— WATER SURFACE</p> <p> LIVE STAKES</p> <p> BOULDER</p> <p>— — COIR FIBER ROLLS</p>	<p> PROPOSED BRIDGE</p> <p> PROPOSED BOX CULVERT</p> <p> PROPOSED PIPE CULVERT <small>12"-48" PIPES 54" PIPES & ABOVE</small></p> <p>(DASHED LINES DENOTE EXISTING STRUCTURES)</p> <p> SINGLE TREE</p> <p> WOODS LINE</p> <p> DRAINAGE INLET</p> <p> ROOTWAD</p> <p> RIP RAP</p> <p> ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE</p> <p> PREFORMED SCOUR HOLE</p> <p> LEVEL SPREADER (LS)</p> <p> DITCH / GRASS SWALE</p>
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NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 33484.1.1 (B-4131)
BRIDGE 11 OVER
BIG ALAMANCE CREEK
ON SR 3394

SHEET **3** OF **13** 4/19/07

4/20/2007
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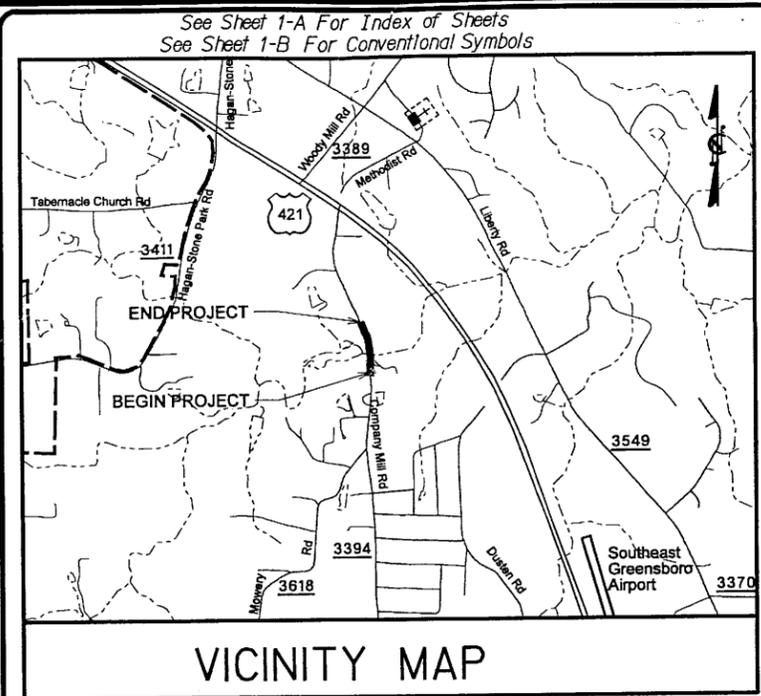
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4131	1	
W.P. PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33484.1.1	BRZ-3394(1)	P.E.	
33484.2.1	BRZ-3394(1)	RW & UTILS.	
		CONST.	
Permit Drawing			
Sheet 6 of 13			

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

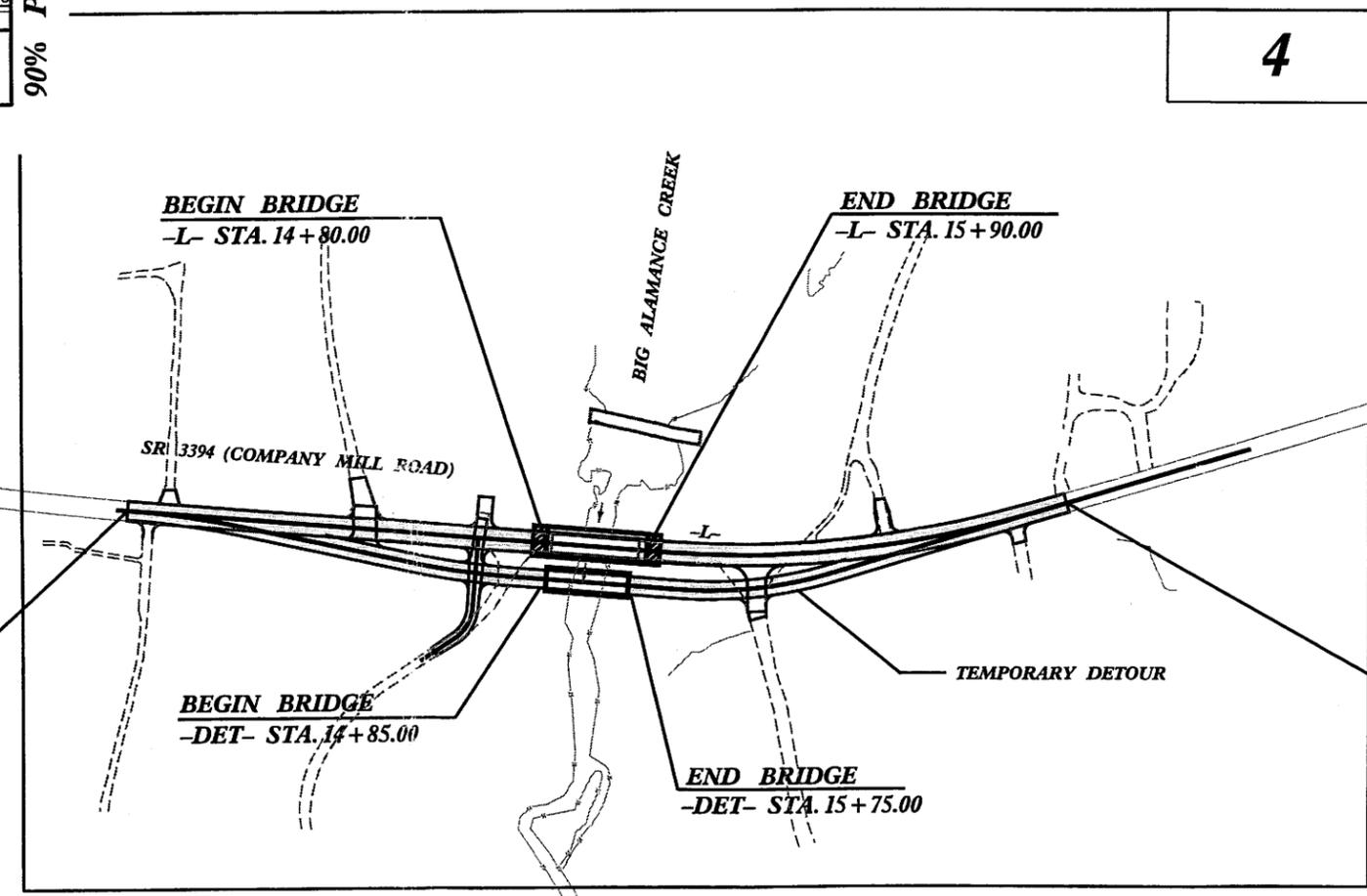
GUILFORD COUNTY

LOCATION: BRIDGE NO. 11 OVER BIG ALAMANCE CREEK ON
SR 3394 (COMPANY MILL ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING
& STRUCTURE



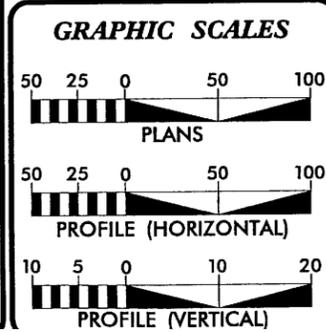
90% PLANS



** DESIGN EXCEPTION FOR VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE REQUIRED.

NCDOT CONTACT: CATHY HOUSER, P.E.
ROADWAY DESIGN - ENGINEERING COORDINATION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2007	=	3100
ADT 2027	=	5200
DHV	=	12 %
D	=	65 %
T	=	4 % *
** V	=	50 MPH
* TTST 1%		DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4131	=	0.179 MI.
LENGTH STRUCTURE TIP PROJECT B-4131	=	0.021 MI.
TOTAL LENGTH OF TIP PROJECT B-4131	=	0.200 MI.

Prepared In the Office of:

KO & ASSOCIATES, P.C.
Consulting Engineers
1011 Schaub Dr., Suite 202, Raleigh, NC 27606
919.851.6266

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 15, 2006

LETTING DATE: FEBRUARY 19, 2008

BRIAN A. WILES, P.E.
PROJECT ENGINEER

MICHAEL A. YOUNG, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

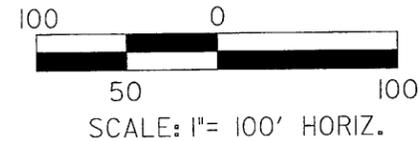
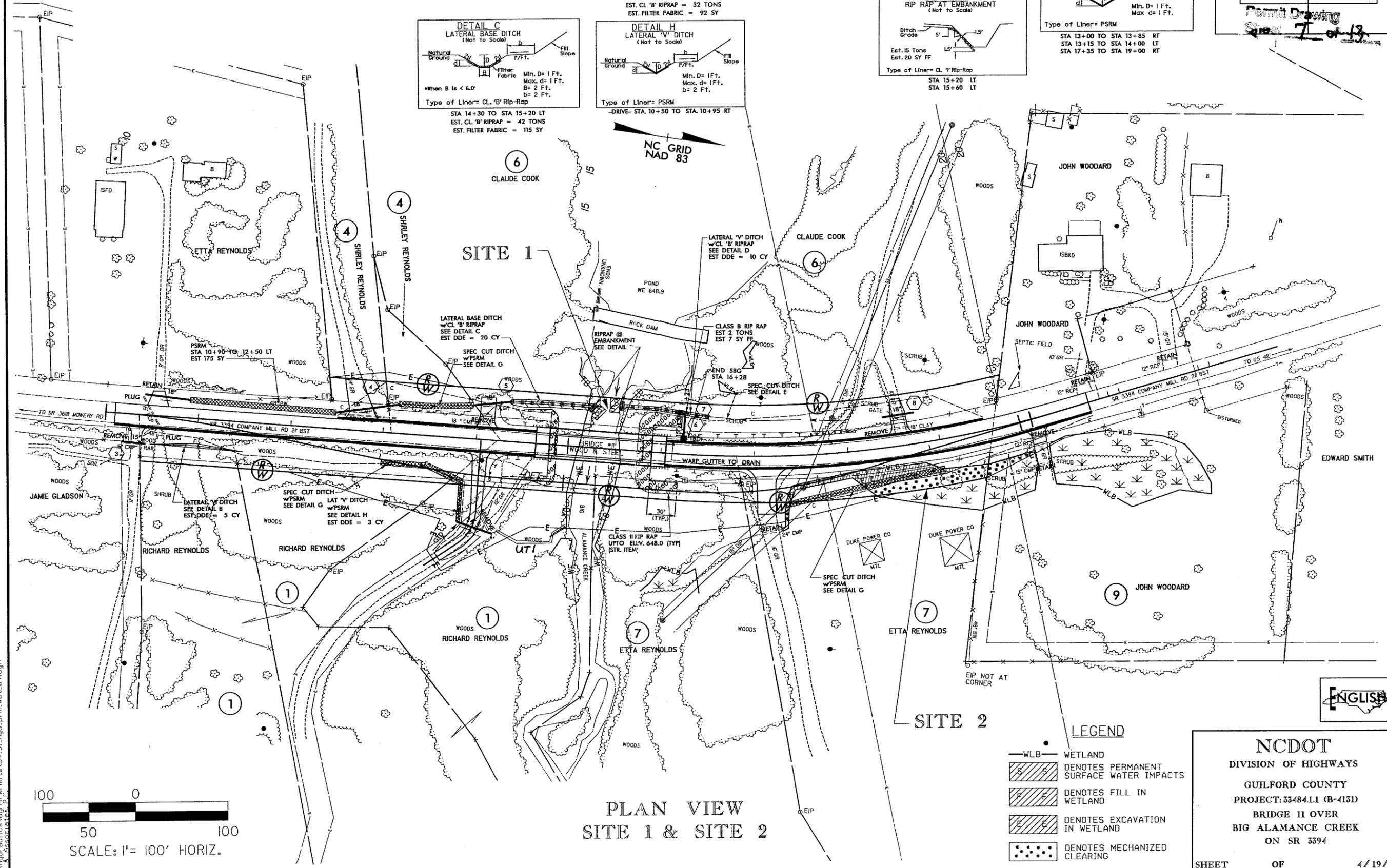
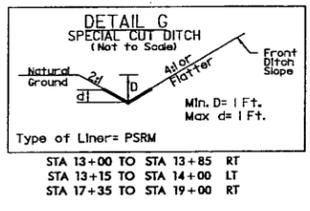
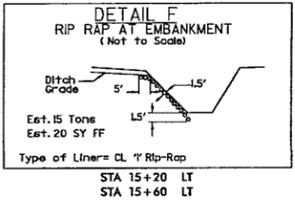
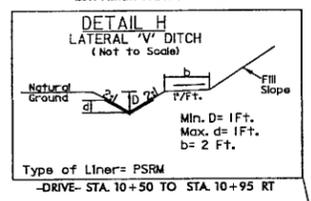
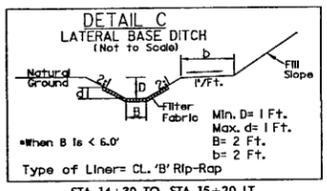
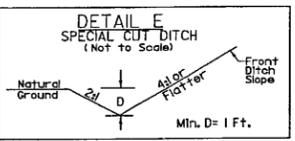
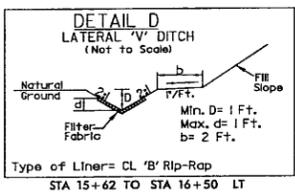
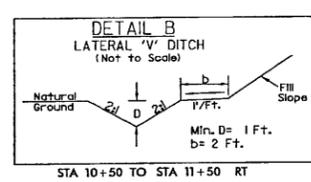
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

CONTRACT: TIP PROJECT: B-4131

2/28/2007 N:\poc\proj\B4131_Rdy_tsh.dgn KO & Associates, P.C.

B-17/99



PLAN VIEW
SITE 1 & SITE 2

- LEGEND**
- WLB WETLAND
 - [Hatched pattern] DENOTES PERMANENT SURFACE WATER IMPACTS
 - [Hatched pattern] DENOTES FILL IN WETLAND
 - [Hatched pattern] DENOTES EXCAVATION IN WETLAND
 - [Dotted pattern] DENOTES MECHANIZED CLEARING

NCDOT
 DIVISION OF HIGHWAYS
 GUILFORD COUNTY
 PROJECT: 35484.1.1 (B-4131)
 BRIDGE 11 OVER
 BIG ALAMANCE CREEK
 ON SR 3394

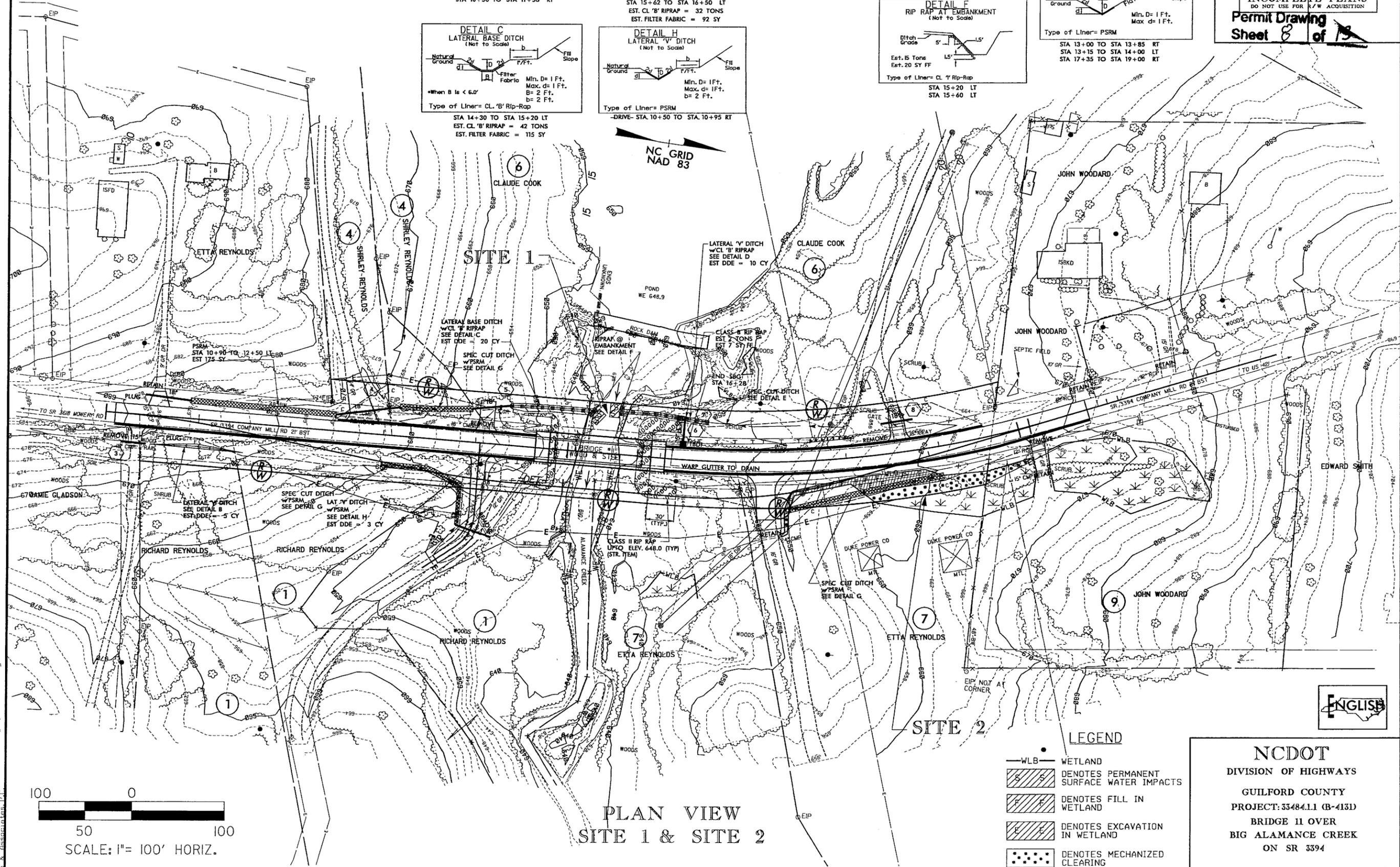
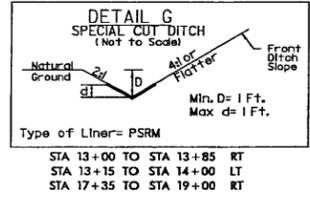
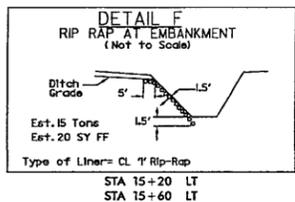
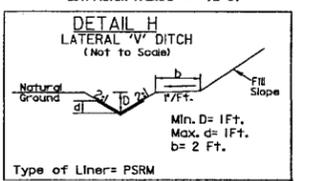
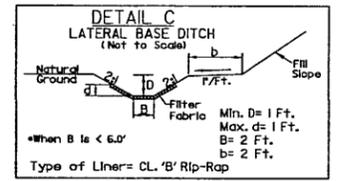
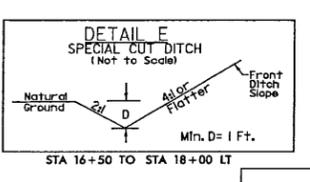
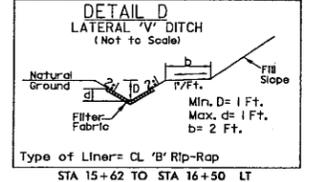
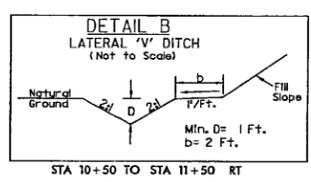
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 KO & ASSOCIATES, P.C.

8/17/99

KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE 202 RALEIGH, N.C. 27606
(919) 851-6666

PROJECT REFERENCE NO. B-4131	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
Permit Drawing Sheet 8 of 19	



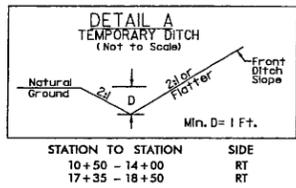
LEGEND

	WETLAND
	DENOTES PERMANENT SURFACE WATER IMPACTS
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING

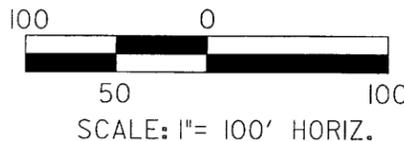
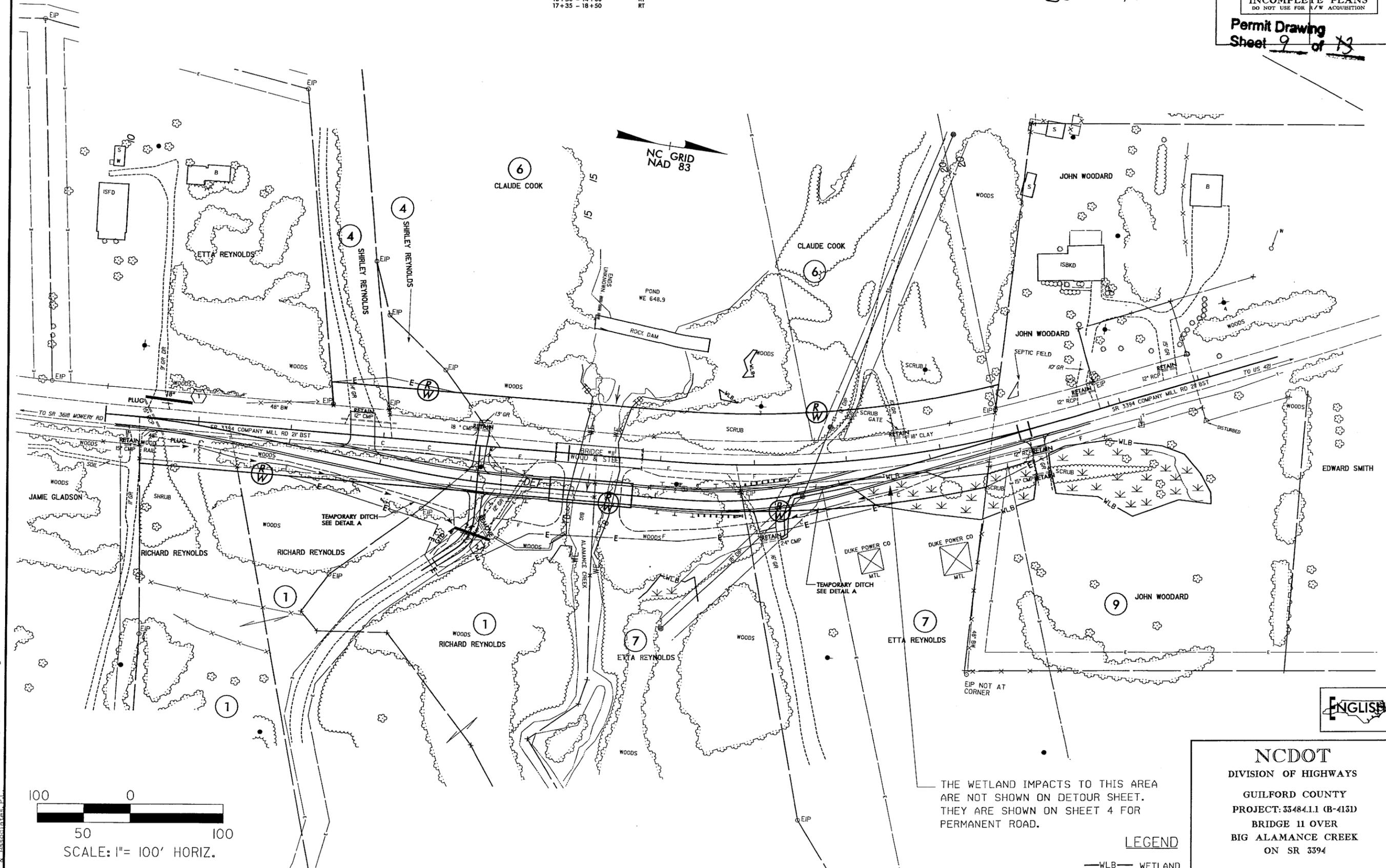
NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 33484.11 (B-4131)
BRIDGE 11 OVER
BIG ALAMANCE CREEK
ON SR 3394

SHEET OF 4 / 19 / 07

4/20/2007
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DETOUR



THE WETLAND IMPACTS TO THIS AREA ARE NOT SHOWN ON DETOUR SHEET. THEY ARE SHOWN ON SHEET 4 FOR PERMANENT ROAD.

LEGEND

—WLB— WETLAND

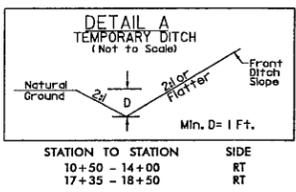
NCDOT
 DIVISION OF HIGHWAYS
 GUILFORD COUNTY
 PROJECT: 33484.1.1 (B-4131)
 BRIDGE II OVER
 BIG ALAMANCE CREEK
 ON SR 3394

4/20/2007 R:\Hydraulics\vdgn\Permits\B4131_hyd_perm_wet_det.dgn KO & Associates, P.C.

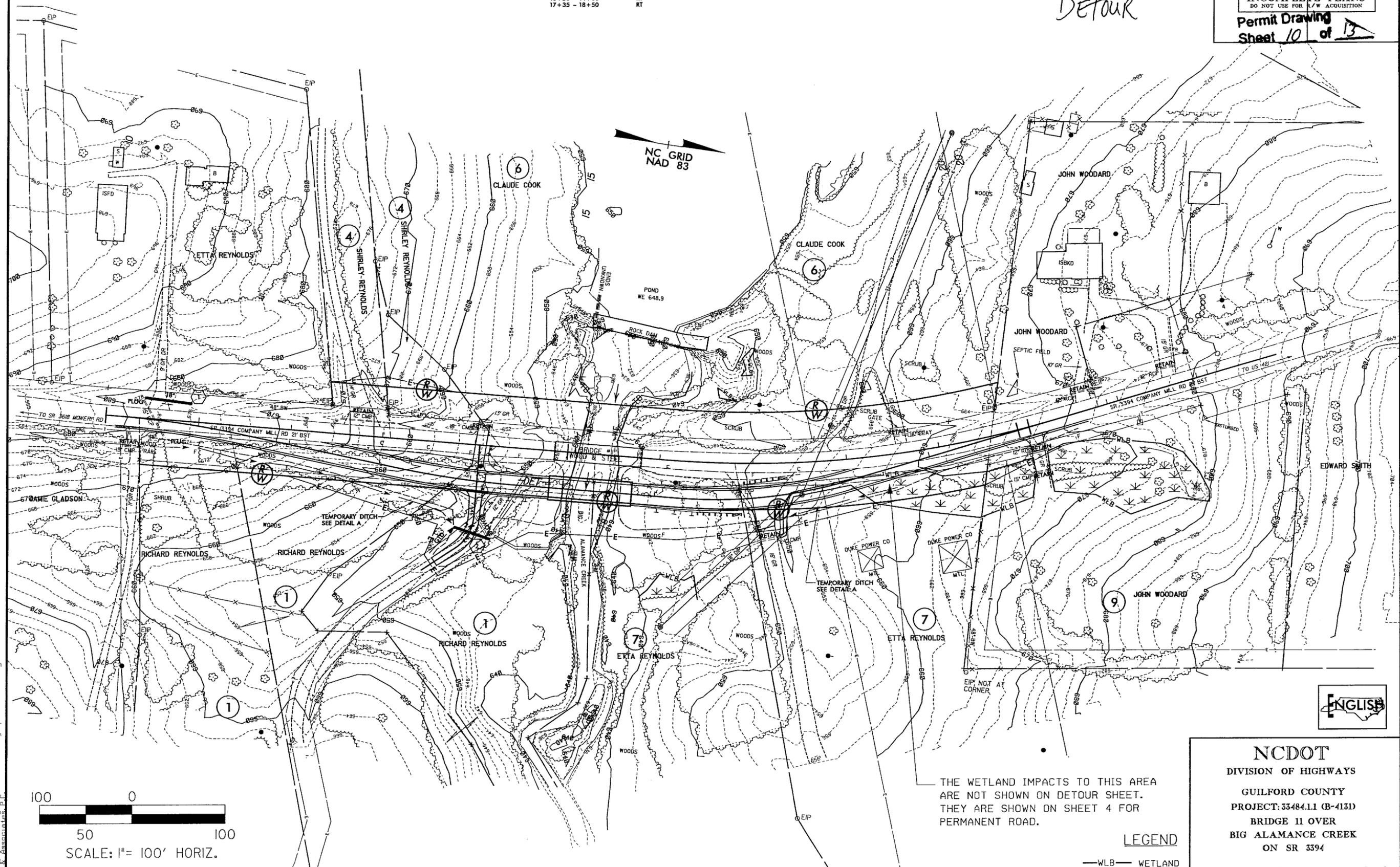
B/17/99

KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHUB DR., SUITE 202 RALEIGH, N.C. 27606
(919) 851-6866

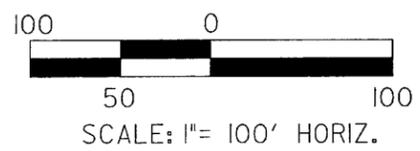
PROJECT REFERENCE NO. B-4131	SHEET NO. 2-B
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
Permit Drawing Sheet 10 of 13	



DETOUR



6/20/2007 10:54:00 AM C:\Users\jg\Documents\Projects\B-4131\hyd-prm\wt.de.t.dgn



THE WETLAND IMPACTS TO THIS AREA ARE NOT SHOWN ON DETOUR SHEET. THEY ARE SHOWN ON SHEET 4 FOR PERMANENT ROAD.

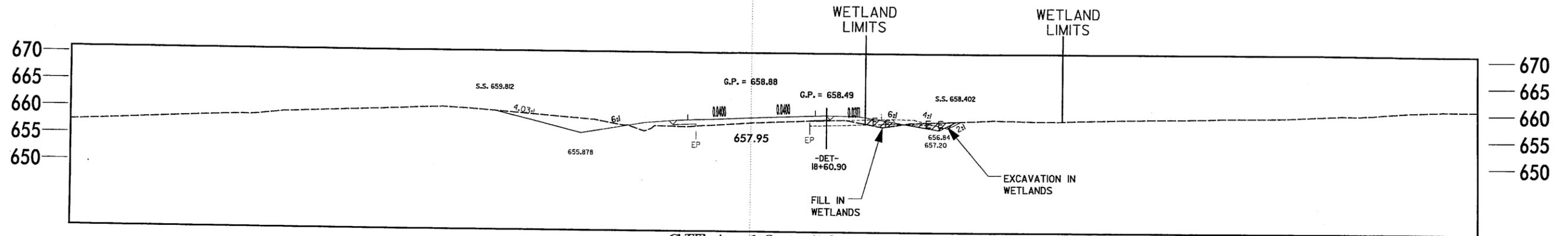
LEGEND
—WLB— WETLAND

NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 33484.11 (B-4131)
BRIDGE 11 OVER
BIG ALAMANCE CREEK
ON SR 3394

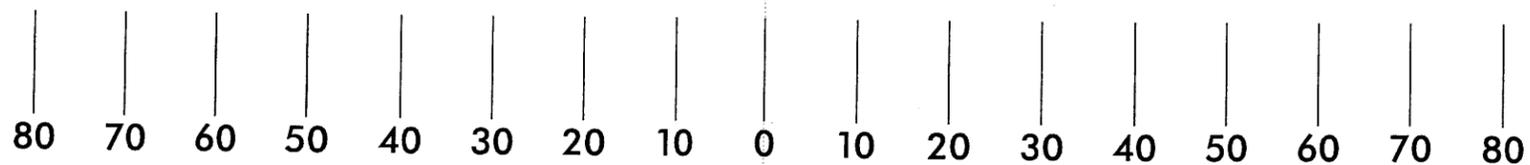
SHEET OF 4719/07



ENGLISH



STA. 18 + 50
 SITE 1



TYPICAL X-SECTIONS

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND

NCDOT
 DIVISION OF HIGHWAYS
 GUILFORD COUNTY
 PROJECT: 33484.1.1 (B-4131)
 BRIDGE 11 OVER
 BIG ALAMANCE CREEK
 ON SR 3394
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 20'

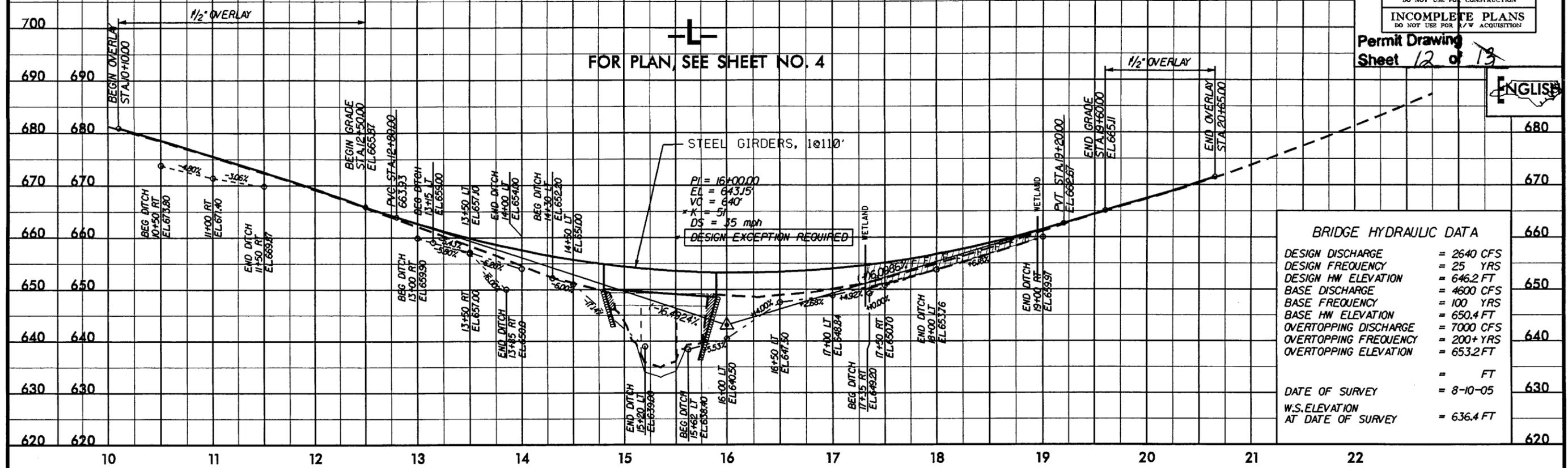
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 KO & ASSOCIATES, P.C.

5/28/99

B.M. #1 EL = 652.71'
RR SPIKE IN IN POLE
210' RT OF -BL- STA 15+01
210' RT OF -L- STA 17+69

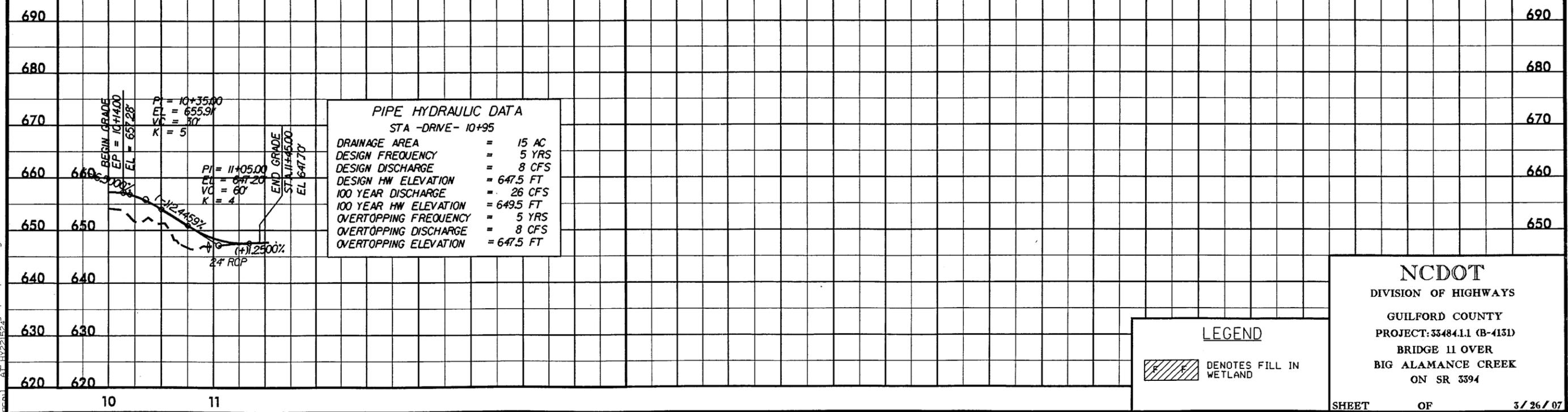
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE 203 RALEIGH, N.C. 27604
(919) 882-6666

PROJECT REFERENCE NO. B-4131	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
Permit Drawing Sheet 12 of 19	



BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 2640 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 646.2 FT
BASE DISCHARGE	= 4600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 650.4 FT
OVERTOPPING DISCHARGE	= 7000 CFS
OVERTOPPING FREQUENCY	= 200+ YRS
OVERTOPPING ELEVATION	= 653.2 FT
	= FT
DATE OF SURVEY	= 8-10-05
W.S. ELEVATION AT DATE OF SURVEY	= 636.4 FT

-DRIVE-
FOR PLAN, SEE SHEET NO. 4



PIPE HYDRAULIC DATA	
STA -DRIVE- 10+95	
DRAINAGE AREA	= 15 AC
DESIGN FREQUENCY	= 5 YRS
DESIGN DISCHARGE	= 8 CFS
DESIGN HW ELEVATION	= 647.5 FT
100 YEAR DISCHARGE	= 26 CFS
100 YEAR HW ELEVATION	= 649.5 FT
OVERTOPPING FREQUENCY	= 5 YRS
OVERTOPPING DISCHARGE	= 8 CFS
OVERTOPPING ELEVATION	= 647.5 FT

LEGEND

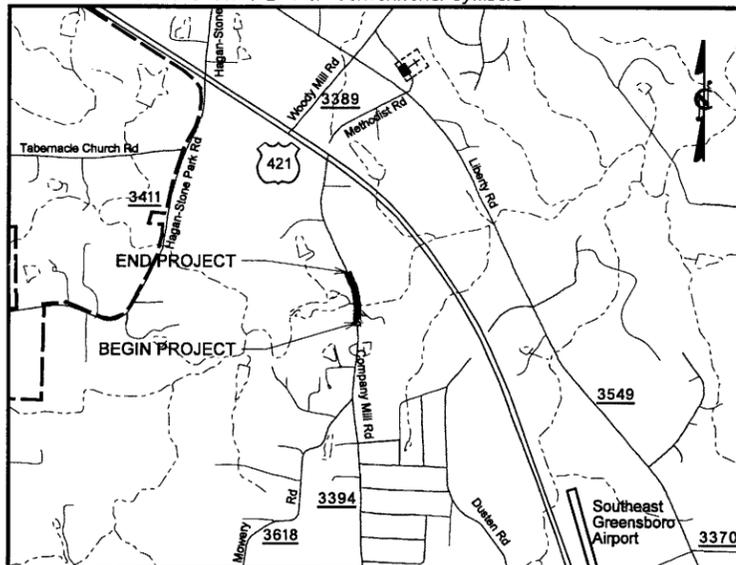
DENOTES FILL IN WETLAND

NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 33484.1.1 (B-4131)
BRIDGE 11 OVER
BIG ALAMANCE CREEK
ON SR 3394

SHEET OF 3 / 26 / 07

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



VICINITY MAP

90% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
GUILFORD COUNTY

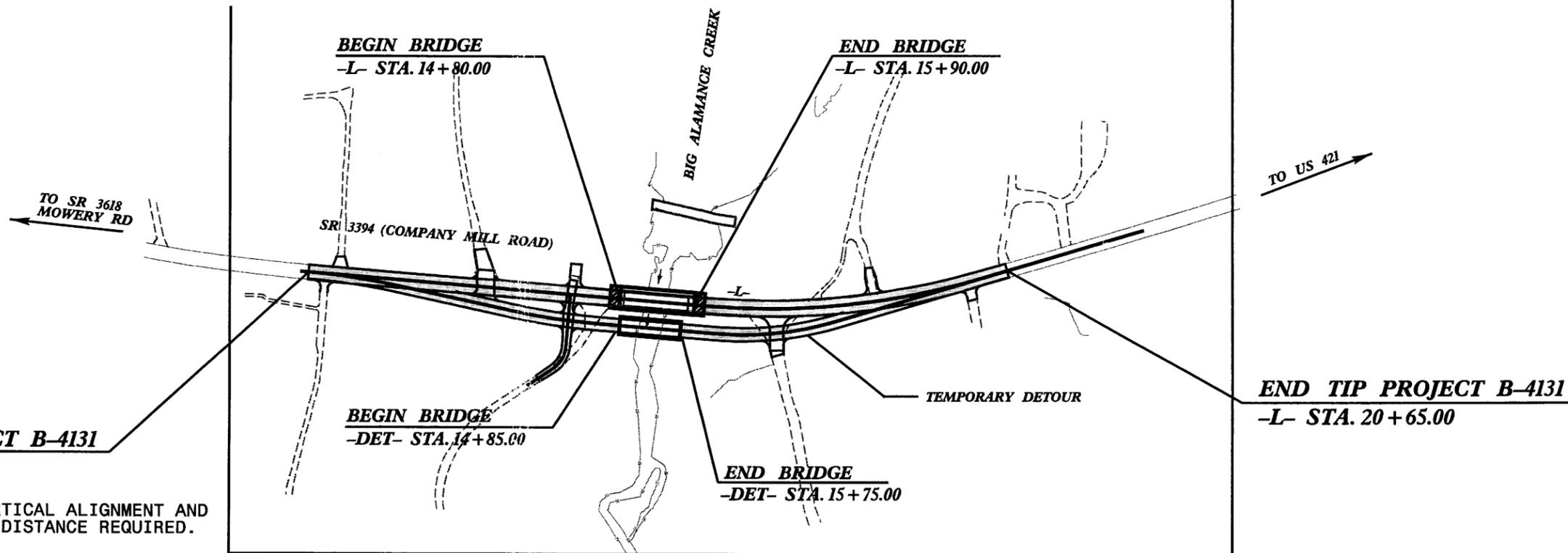
LOCATION: BRIDGE NO. 11 OVER BIG ALAMANCE CREEK ON
SR 3394 (COMPANY MILL ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING
& STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4131	1	
WBS PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
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33484.2.1	BRZ-3394(1)	RW & UTILS.	
		CONST.	



4

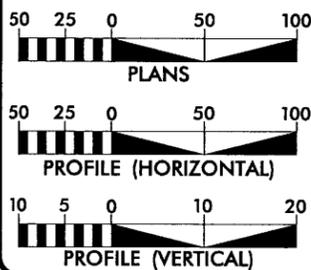


** DESIGN EXCEPTION FOR VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE REQUIRED.

NCDOT CONTACT: CATHY HOUSER, P.E.
ROADWAY DESIGN - ENGINEERING COORDINATION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2007 = 3100
ADT 2027 = 5200
DHV = 12 %
D = 65 %
T = 4 % *
** V = 50 MPH
* TTST 1% DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4131 = 0.179 MI.
LENGTH STRUCTURE TIP PROJECT B-4131 = 0.021 MI.
TOTAL LENGTH OF TIP PROJECT B-4131 = 0.200 MI.

Prepared in the Office of:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 Schaub Dr. Suite 202 Raleigh, NC 27606
(919) 851-6066

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 15, 2006

LETTING DATE:
FEBRUARY 19, 2008

BRIAN A. WILES, P.E.
PROJECT ENGINEER

MICHAEL A. YOUNG, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



STATE HIGHWAY DESIGN ENGINEER P.E.

3/28/2007
R:\Roadway\proj\B4131_Rdy_tsh.dgn
KO & Associates, P.C.

CONTRACT: B-4131

05/08/99

10/25/05

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for boundaries and property: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, Property Corner, Property Monument, Parcel/Sequence Number, Existing Fence Line, Proposed Woven Wire Fence, Proposed Chain Link Fence, Proposed Barbed Wire Fence, Existing Wetland Boundary, Proposed Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for buildings and other culture: Gas Pump Vent or UG Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing symbols for hydrology: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Swamp Marsh, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for right of way: Baseline Control Point, Existing Right of Way Marker, Existing Right of Way Line, Proposed Right of Way Line, Proposed Right of Way Line with Iron Pin and Cap Marker, Proposed Right of Way Line with Concrete or Granite Marker, Existing Control of Access, Proposed Control of Access, Existing Easement Line, Proposed Temporary Construction Easement, Proposed Temporary Drainage Easement, Proposed Permanent Drainage Easement, Proposed Permanent Utility Easement.

ROADS AND RELATED FEATURES:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Curb Cut for Future Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for existing structures: MAJOR: Bridge, Tunnel or Box Culvert, Bridge Wing Wall, Head Wall and End Wall; MINOR: Head and End Wall, Pipe Culvert, Footbridge, Drainage Box: Catch Basin, DI or JB, Paved Ditch Gutter, Storm Sewer Manhole, Storm Sewer.

UTILITIES:

Table listing symbols for utilities: POWER: Existing Power Pole, Proposed Power Pole, Existing Joint Use Pole, Proposed Joint Use Pole, Power Manhole, Power Line Tower, Power Transformer, UG Power Cable Hand Hole, H-Frame Pole, Recorded UG Power Line, Designated UG Power Line (S.U.E.*).

TELEPHONE:

Table listing symbols for telephone: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, UG Telephone Cable Hand Hole, Recorded UG Telephone Cable, Designated UG Telephone Cable (S.U.E.*), Recorded UG Telephone Conduit, Designated UG Telephone Conduit (S.U.E.*), Recorded UG Fiber Optics Cable, Designated UG Fiber Optics Cable (S.U.E.*).

WATER:

Table listing symbols for water: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded UG Water Line, Designated UG Water Line (S.U.E.*), Above Ground Water Line.

TV:

Table listing symbols for TV: TV Satellite Dish, TV Pedestal, TV Tower, UG TV Cable Hand Hole, Recorded UG TV Cable, Designated UG TV Cable (S.U.E.*), Recorded UG Fiber Optic Cable, Designated UG Fiber Optic Cable (S.U.E.*).

GAS:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded UG Gas Line, Designated UG Gas Line (S.U.E.*), Above Ground Gas Line.

SANITARY SEWER:

Table listing symbols for sanitary sewer: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, UG Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.*).

MISCELLANEOUS:

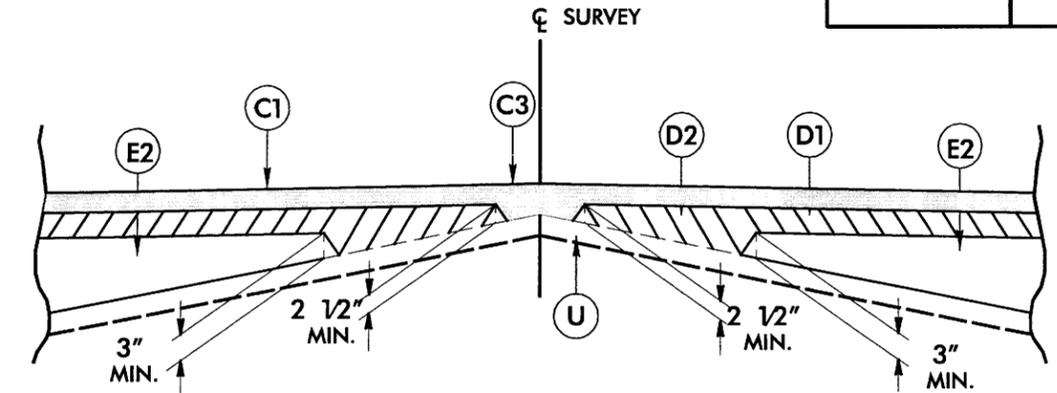
Table listing symbols for miscellaneous: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown UG Line, UG Tank; Water, Gas, Oil, AG Tank; Water, Gas, Oil, UG Test Hole (S.U.E.*), Abandoned According to Utility Records, End of Information.

6/2/99

PAVEMENT SCHEDULE

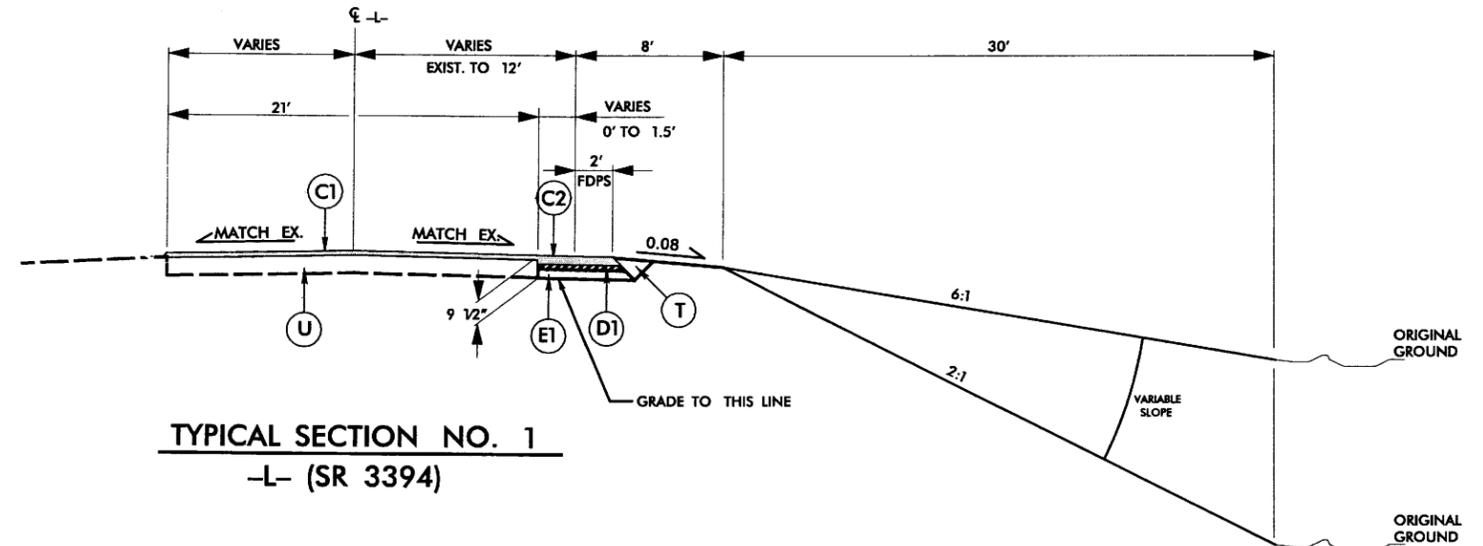
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
C2	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.	J	PROP. 8" AGGREGATE BASE COURSE.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 458 LBS. PER SQ. YD.		

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



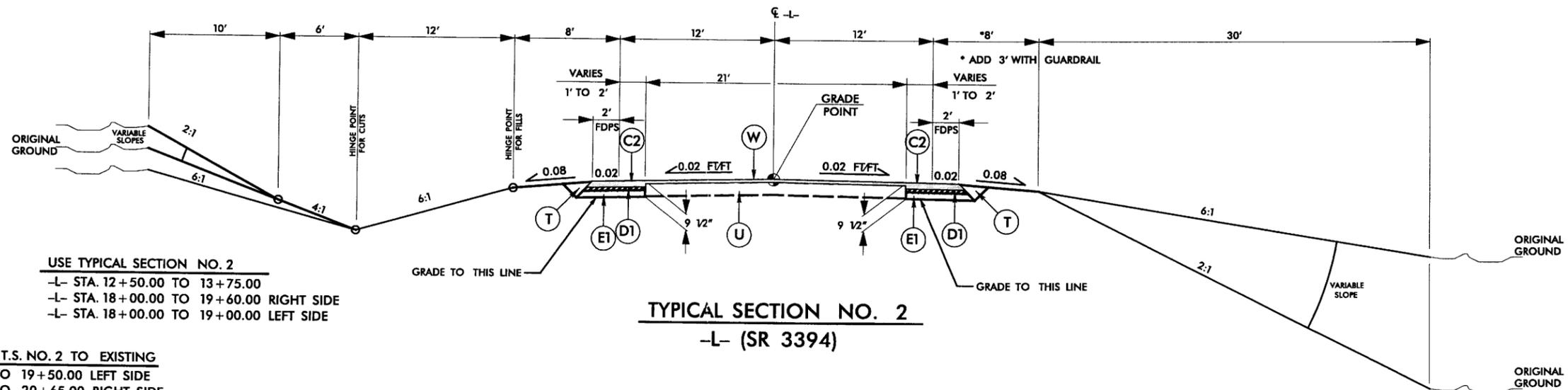
Detail Showing Method of Wedging

TRANSITION FROM EXISTING TO T.S. NO. 1
 -L- STA. 10+10.00 TO 10+60.00



TYPICAL SECTION NO. 1
 -L- (SR 3394)

USE TYPICAL SECTION NO. 1
 -L- STA. 10+60.00 TO 12+50.00



TYPICAL SECTION NO. 2
 -L- (SR 3394)

TRANSITION FROM T.S. NO. 2 TO EXISTING
 -L- STA. 19+00.00 TO 19+50.00 LEFT SIDE
 -L- STA. 19+60.00 TO 20+65.00 RIGHT SIDE

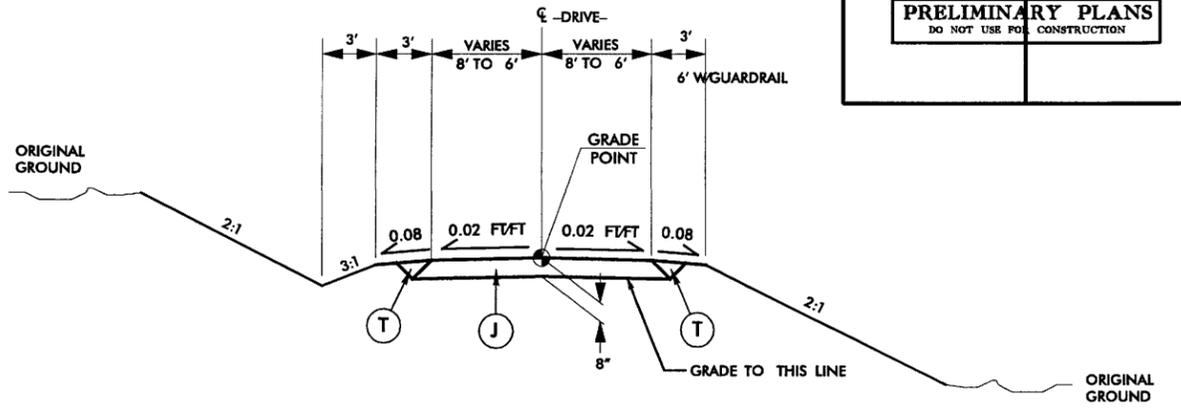
3/28/2007
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 Ko & Associates, P.C.

6/2/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E2	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.
C2	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.	J	PROP. 8" AGGREGATE BASE COURSE.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.		

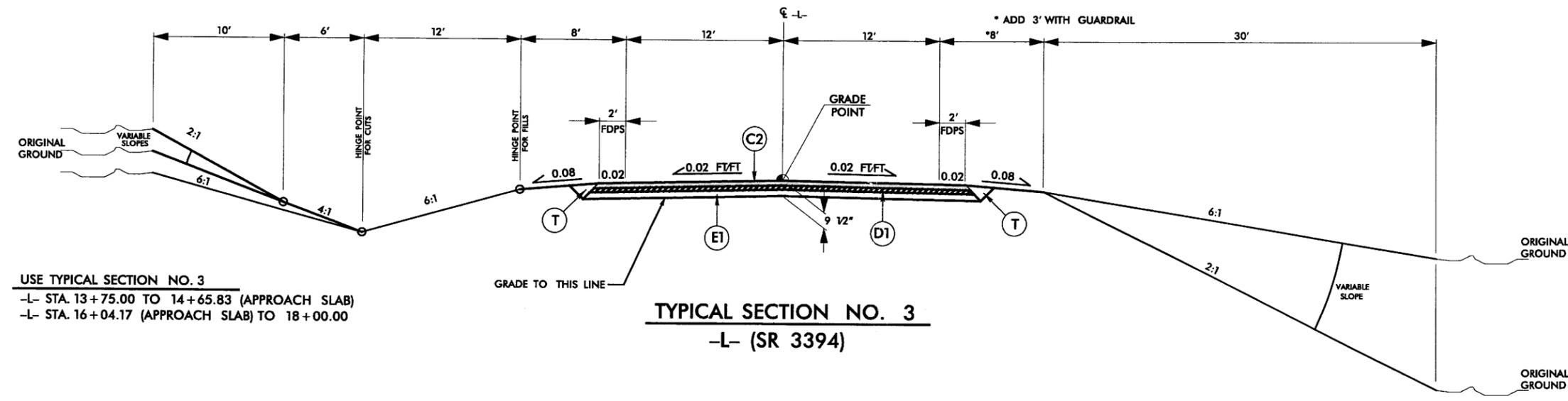
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



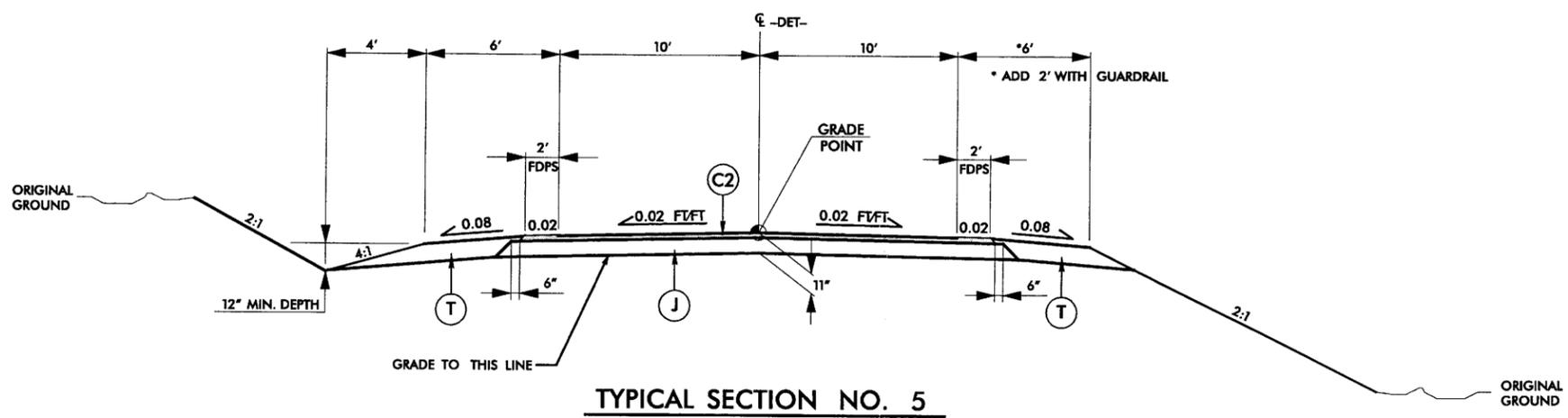
TYPICAL SECTION NO. 4

-DRIVE-

USE TYPICAL SECTION NO. 4
 -DRIVE- STA. 10+14.00 TO 11+45.00

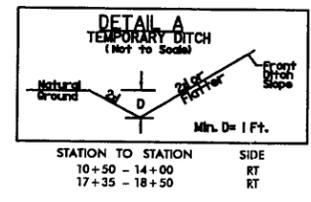
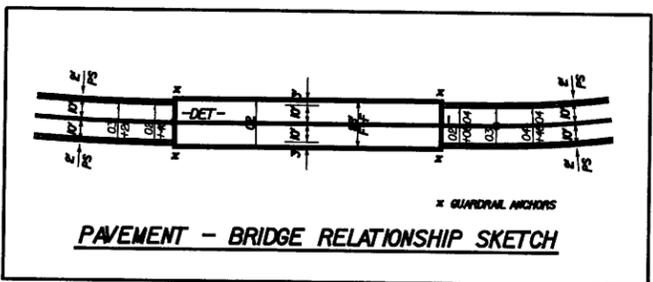


USE TYPICAL SECTION NO. 3
 -L- STA. 13+75.00 TO 14+65.83 (APPROACH SLAB)
 -L- STA. 16+04.17 (APPROACH SLAB) TO 18+00.00



USE TYPICAL SECTION NO. 5
 -DET- STA. 11+56.69 TO 14+85.00 (BRIDGE)
 -DET- STA. 15+75.00 (BRIDGE) TO 18+81.91

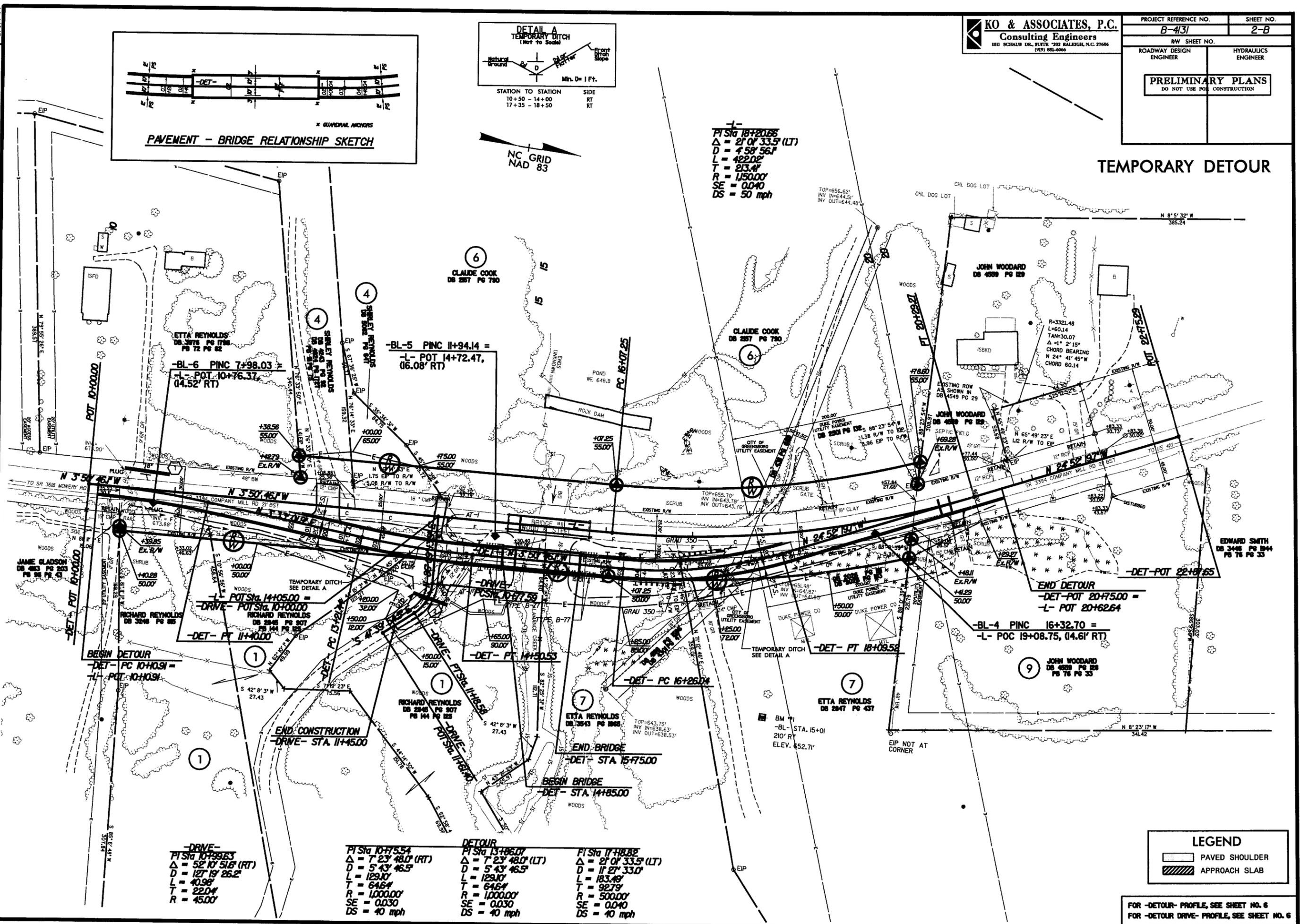
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PI Sta 18+20.66
 $\Delta = 2' 0'' 33.5' (LT)$
 $D = 4' 58'' 56.1'$
 $L = 122.02'$
 $T = 213.41'$
 $R = 1,150.00'$
 $SE = 0.040$
 $DS = 50 \text{ mph}$

TEMPORARY DETOUR

REVISIONS
 R/W Revision 12/1/2006 Parcel 5 changed and added to Parcel 4.
 R/W Revision 12/1/2006 Parcel 8 changed and added to Parcel 7.
 R/W Revision 1/3/2007 Parcels 2 and 3 changed and added to Parcel 1.

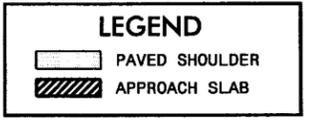


-DRIVE-
 PI Sta 10+99.63
 $\Delta = 52' 10'' 51.6' (RT)$
 $D = 127' 19'' 26.2'$
 $L = 40.98'$
 $T = 22.04'$
 $R = 45.00'$

DETOUR
 PI Sta 10+75.54
 $\Delta = 7' 23'' 48.0' (RT)$
 $D = 5' 43'' 46.5'$
 $L = 129.10'$
 $T = 64.64'$
 $R = 1,000.00'$
 $SE = 0.030$
 $DS = 40 \text{ mph}$

DETOUR
 PI Sta 13+86.07
 $\Delta = 7' 23'' 48.0' (LT)$
 $D = 5' 43'' 46.5'$
 $L = 129.10'$
 $T = 64.64'$
 $R = 1,000.00'$
 $SE = 0.030$
 $DS = 40 \text{ mph}$

DETOUR
 PI Sta 17+88.82
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 $D = 17' 27'' 33.0'$
 $L = 183.49'$
 $T = 92.79'$
 $R = 500.00'$
 $SE = 0.040$
 $DS = 40 \text{ mph}$



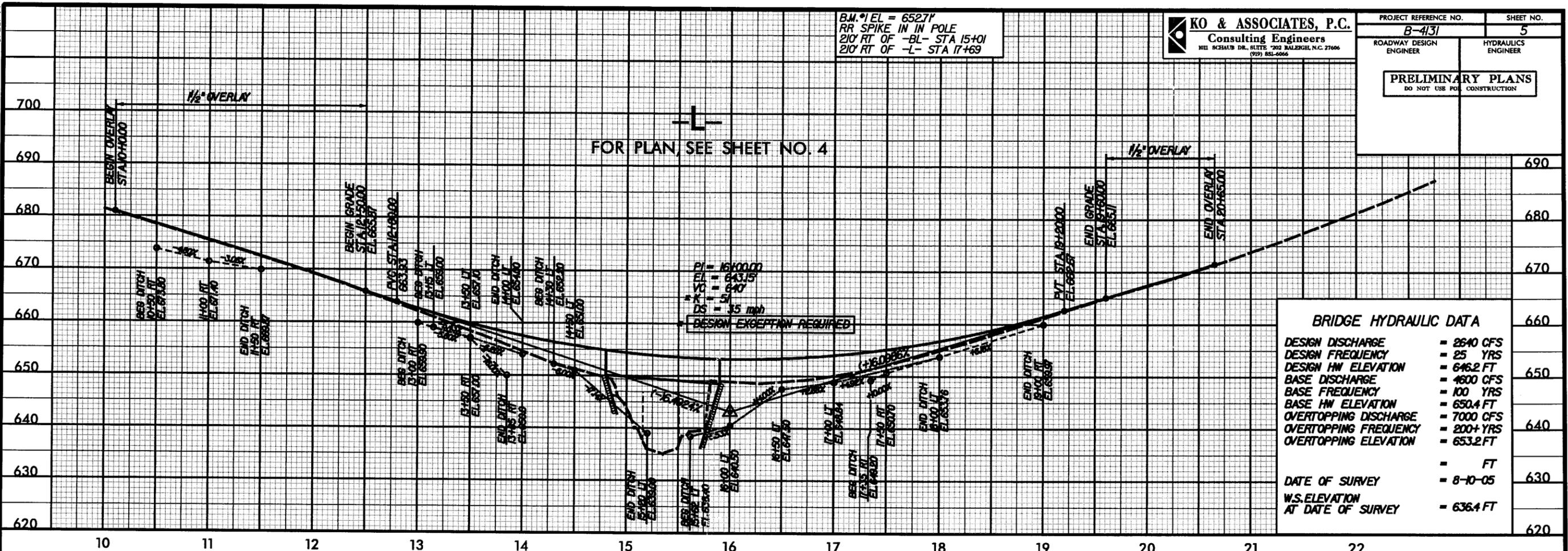
FOR -DETOUR- PROFILE, SEE SHEET NO. 6
 FOR -DETOUR DRIVE- PROFILE, SEE SHEET NO. 6

5/28/99

B.M. #1 EL = 652.71
RR SPIKE IN IN POLE
210' RT OF -BL- STA 15+01
210' RT OF -L- STA 17+69

KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUER DR., SUITE 200 BALDWIN, N.C. 27606
(919) 851-6666

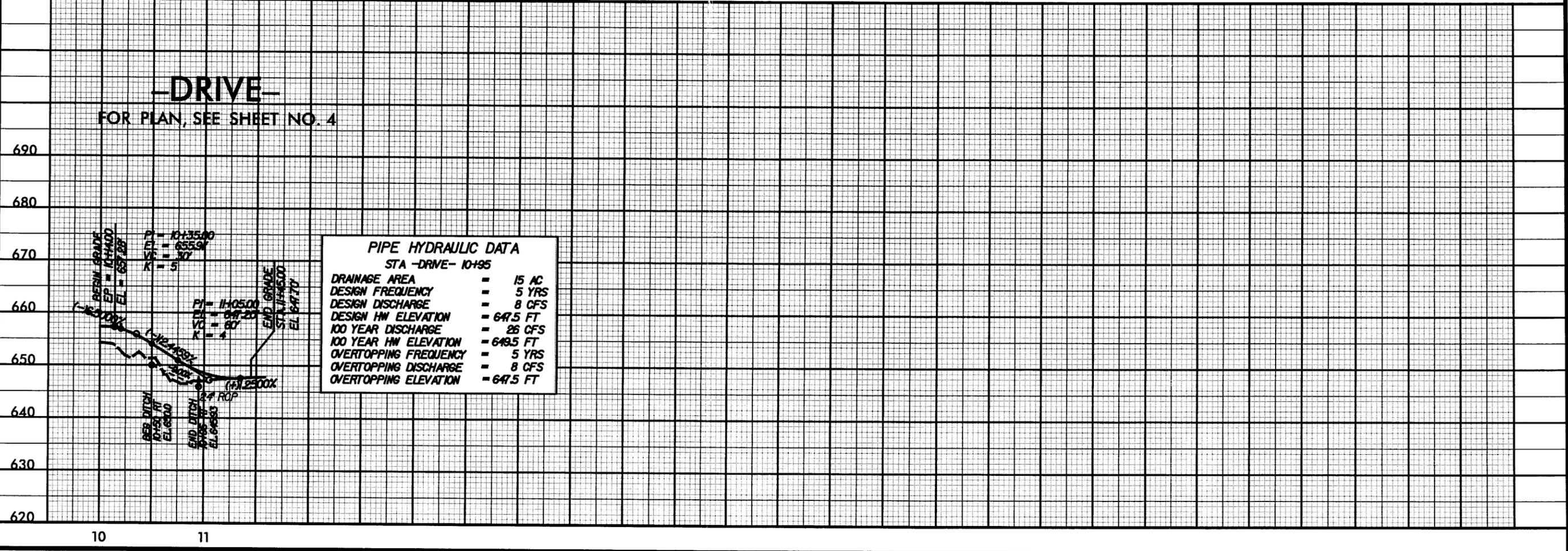
PROJECT REFERENCE NO. B-4131	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2640 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 646.2 FT
BASE DISCHARGE	= 4600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 650.4 FT
OVERTOPPING DISCHARGE	= 7000 CFS
OVERTOPPING FREQUENCY	= 200+ YRS
OVERTOPPING ELEVATION	= 653.2 FT
	= FT
DATE OF SURVEY	= 8-10-05
W.S. ELEVATION AT DATE OF SURVEY	= 636.4 FT

-DRIVE-
FOR PLAN, SEE SHEET NO. 4



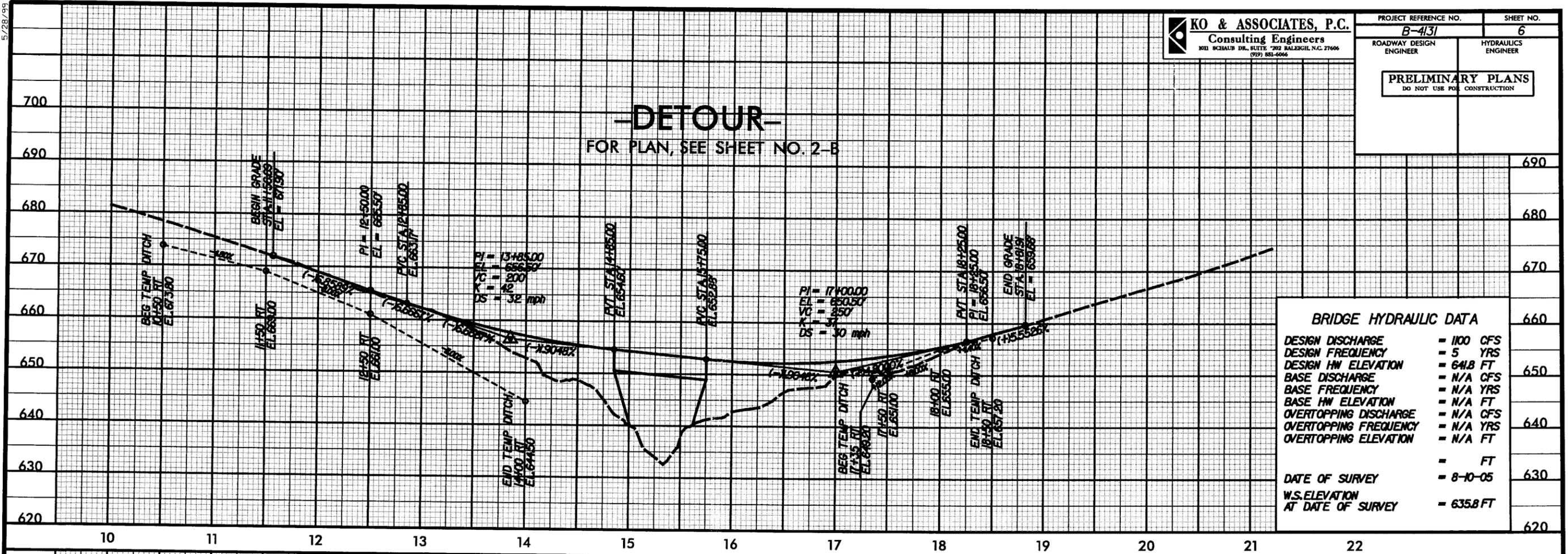
PIPE HYDRAULIC DATA
STA -DRIVE- 10+95

DRAINAGE AREA	= 15 AC
DESIGN FREQUENCY	= 5 YRS
DESIGN DISCHARGE	= 8 CFS
DESIGN HW ELEVATION	= 647.5 FT
100 YEAR DISCHARGE	= 26 CFS
100 YEAR HW ELEVATION	= 649.5 FT
OVERTOPPING FREQUENCY	= 5 YRS
OVERTOPPING DISCHARGE	= 8 CFS
OVERTOPPING ELEVATION	= 647.5 FT

3/28/2007
P:\Roadway\pco\B4131_Rdy.plt_05.dgn

5/28/99

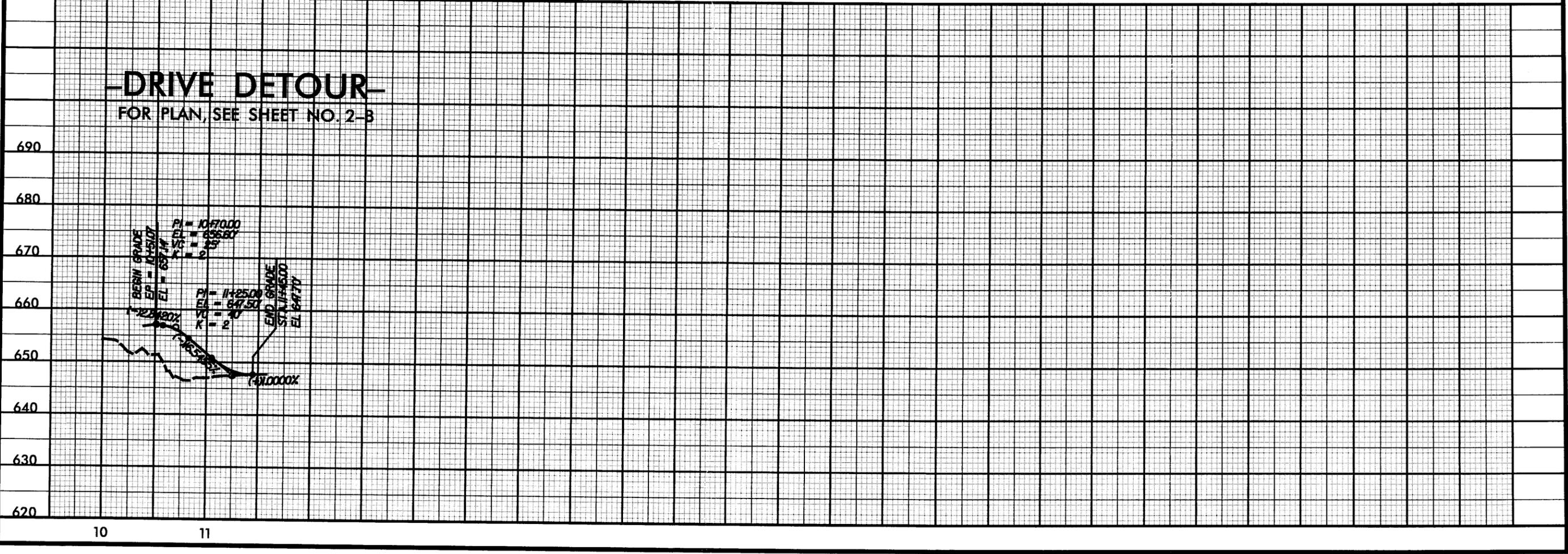
-DETOUR-
 FOR PLAN, SEE SHEET NO. 2-B



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 100 CFS	
DESIGN FREQUENCY	= 5 YRS	
DESIGN HW ELEVATION	= 641.8 FT	
BASE DISCHARGE	= N/A CFS	
BASE FREQUENCY	= N/A YRS	
BASE HW ELEVATION	= N/A FT	
OVERTOPPING DISCHARGE	= N/A CFS	
OVERTOPPING FREQUENCY	= N/A YRS	
OVERTOPPING ELEVATION	= N/A FT	
	= FT	
DATE OF SURVEY	= 8-10-05	
W.S. ELEVATION AT DATE OF SURVEY	= 635.8 FT	

-DRIVE DETOUR-
 FOR PLAN, SEE SHEET NO. 2-B



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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, B-4131 (stream)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: NC County/parish/borough: Guilford City: Climax
Center coordinates of site (lat/long in degree decimal format): Lat. 35.9548° N, Long. 79.7009° W
Universal Transverse Mercator:

Name of nearest waterbody: Big Alamance Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Big Alamance Creek

Name of watershed or Hydrologic Unit Code (HUC): 03030002

- 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 **Appear to be 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 waters² (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: 200 linear feet: 40 width (ft) and/or acres.
Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

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.

(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):

- | | | |
|------------------------------------------|----------------------------------------------------|-----------------------------------|
| <input type="checkbox"/> Silts | <input type="checkbox"/> Sands | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Cobbles | <input type="checkbox"/> Gravel | <input type="checkbox"/> Muck |
| <input type="checkbox"/> Bedrock | <input type="checkbox"/> Vegetation. Type/% cover: | |
| <input type="checkbox"/> 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):

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

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

- | | |
|--------------------------------------------------------------------|------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> High Tide Line indicated by: | <input checked="" type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> 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:

⁶A 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.

⁷Ibid.

(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: USACE field verified Non TNW as a hydrologic connection between this wetland and another wetland abutting a TNW.

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:shrub/ scrub wetland (90%).
- 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: 200 linear feet 40 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:

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: linear feet width (ft).
 Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs⁸ 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 jurisdictional. 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: **0.19** 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: .

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior 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:
- 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: .
- 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 Geodetic 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:

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, B-4131- (Wetland 2)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: NC County/parish/borough: Guilford City: Climax
Center coordinates of site (lat/long in degree decimal format): Lat. 35.9548° **N**, Long. 79.7009° **W**.
Universal Transverse Mercator:

Name of nearest waterbody: Big Alamance Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Big Alamance Creek

Name of watershed or Hydrologic Unit Code (HUC): 03030002

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 **Appear to be 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 waters² (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: linear feet: width (ft) and/or acres.

Wetlands: 0.19 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

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.

(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
 OHWM⁶ (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:

⁶A 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.

⁷Ibid.

(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: 0.19 acres

Wetland type. Explain: Palustrine, seasonally flooded wetland supporting scrub-shrub vegetation..

Wetland quality. Explain: Medium.

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow**. Explain:

Surface flow is: **Discrete and confined**

Characteristics:

Subsurface flow: **Unknown**. Explain findings:

- Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting

Not directly abutting

Discrete wetland hydrologic connection. Explain: USACE field verified Non TNW as a hydrologic connection between this wetland and another wetland abutting a TNW.

Ecological connection. Explain:

Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **1 (or less)** river miles from TNW.

Project waters are **1 (or less)** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters**.

Estimate approximate location of wetland as within the **100 - 500-year** 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: shrub/ scrub wetland (90%).

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: The wetland in question (W2) is connected to a second wetland (W3) via a hydrologic connection/channe). W3 lies in the floodplain of the TNW (Big Alamance Creek) and is abutting and therefore connected to the TNW. A field visit with USACE was conducted on May 1, 2007 and found W2 & W3 to be jurisdictional.
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: 200 linear feet 40 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:

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: linear feet width (ft).
 Other non-wetland waters: acres.
Identify type(s) of waters:

3. **Non-RPWs⁸ 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: 200 linear feet 40 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 jurisdictional. 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: 0.19 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:

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior 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.

Identify water body and summarize rationale supporting determination:

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:
- 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: .
- 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: