



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

October 29, 2004

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

Attention: Mr. John Thomas  
NCDOT Coordinator

Subject: **NW 23 Permit Modification Request and Nationwide 33 Permit Application**  
for replacement of Bridge No. 70 on SR 1723 (John Oakley Rd) over Lynch Creek in  
Caswell County. NCDOT Division Federal Project No. BRZ-1723 (2), State Project  
No. 8.2481501, WBS Element No. 33178.1.1, T.I.P. No. B-3630.

Reference: USACE 404 Nationwide 23; Permit Action ID No. 200420043 issued October 27,  
2003.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to modify the construction plans and provide temporary access for stream relocation for the above-mentioned project. The purpose of this letter is to request a modification to the Department of the Army Nationwide 23 and to request an issuance of a Nationwide 33 Permit. The NCDOT is asking for an additional 18 linear feet of permanent impacts to the Unnamed Tributary (UT) to Lynch Creek at Site 1. A new set of permit drawings, roadway plans, and the PCN are attached.

The NCDOT proposes to replace Bridge No. 70 on SR 1723 over Lynch Creek. Bridge No. 70 will be replaced with a new bridge on existing location. The new structure will be built by top down construction, using a single span approximately 120 feet in length with no bents in the water. Traffic will be detoured along surrounding roads during construction.

The construction of the bridge will require upgrades to be made to the approach roadway. Upgrades to the shoulder section on the southeastern quadrant of the project will necessitate the relocation of an unnamed perennial tributary to Lynch Creek and the need for temporary access using the existing stream for construction of the new stream channel. The resulting stream impacts will be 138 feet of existing channel filled. The channel will be relocated and connected to a stream that has split off from the UT. Natural stream design is proposed for 83 feet of the new stream channel.

**Summary of Changes**

**Background:** This project is located in the Roanoke River Basin. In the existing permit a stream channel was to be filled and relocated. The new channel would have provided 124 linear feet of onsite mitigation using natural stream design below the road. A site visit was conducted on

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

TELEPHONE: 919-715-1500  
FAX: 919-715-1501

WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

LOCATION:  
2728 CAPITAL BLVD  
PLB SUITE 168  
RALEIGH NC 27604

September 20, 2004 with NCDOT personnel: Division 7 Environmental Officer, Jerry Parker, Hydraulics Engineer, Galen Cail, Leilani Paugh and Byron Moore from the Onsite Mitigation Unit, and Biologists Elizabeth Lusk and Deanna Riffey. It was determined that the plan for the relocated channel as proposed conflicted with the fill slope for the approach of the new bridge.

Mitigation Changes: A new onsite relocation plan has been developed for the UT. Revisions were made to the permit and roadway drawings in order to be consistent with new plans. Changes include: relocating channel to a stream that has split off from the UT onsite instead of creating a new channel, decreasing the length of natural stream design from 124 feet to 83 feet and usage of rock cross vanes and step pools to stabilize the site. Cross vanes will be used as necessary unless bedrock is encountered.

**AVOIDANCE AND MINIMIZATION:** 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:

- The bridge will be replaced with another bridge.
- The new bridge will be 18 feet longer than the existing bridge.
- The bridge will span Lynch Creek with no bents in the water.
- Side slopes are being held to 1.5 to 1 instead of 2 to 1.
- Limited instream activities.
- An offsite detour will be used.
- A turbidity curtain shall be included, where possible, to minimize sedimentation in the stream because of concerns regarding sedimentation from removal of bridge

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in jurisdictional waters of the US and that the proposed action includes all practicable methods to avoid and/or minimize jurisdictional stream impacts that may result from such use. Despite the minimization strategies employed for the proposed project, the resulting stream impacts will be 138 feet. There will be 83 feet of onsite mitigation created by relocating the stream channel and 55 linear feet of unavoidable impacts remaining. NCDOT does not propose compensatory mitigation for this project due authorization under a NW 23 permit that did not require it.

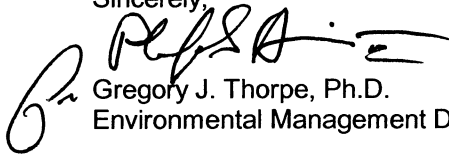
## **REGULATORY APPROVALS**

Section 404 Permit: The NCDOT requests that the referenced 404 Nationwide 23 be modified to reflect the revisions outlined in this letter. We are also requesting the issuance of a Nationwide Permit 33 authorizing temporary access in the existing stream for construction of new stream channel.

Section 401 Permit: We anticipate 401 General Water Quality Certification (WQC) 3403 and 3366 will apply to this project. The NCDOT will adhere to all general conditions of these 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/planning/pe/naturalunit/Permit.html>. If you have any questions or need additional information please call Ms. Deanna Riffey at (919) 715-1409.

Sincerely,



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

Cc:

w/attachment

Mr. John Hennessy, Division of Water Quality (2 copies)  
Mr. Travis Wilson, NCWRC  
Mr. Gary Jordan, USFWS  
Dr. David Chang, P.E., Hydraulics  
Mr. Greg Perfetti, P.E., Structure Design  
Mr. J. M. Mills, P.E.  
Mr. Jerry Parker, DEO

w/o attachment

Mr. Jay Bennett, P.E., Roadway Design  
Mr. Omar Sultan, Programming and TIP  
Mr. Art McMillan, P.E., Highway Design  
Mr. Mark Staley, Roadside Environmental  
Ms. Robin Y. Hancock, P.E., PDEA  
Mr. David Franklin, USACE, Wilmington

Office Use Only:

Form Version May 2002

USACE Action ID No. \_\_\_\_\_ DWQ No. \_\_\_\_\_

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

**I. Processing**

1. Check all of the approval(s) requested for this project:

- Section 404 Permit  Riparian or Watershed Buffer Rules
- Section 10 Permit  Isolated Wetland Permit from DWQ
- 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NW 23 Mod & NW 33

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 Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), 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: NCDOT

Mailing Address: Project Development & Environmental Analysis Branch  
1548 Mail Service Center  
Raleigh, NC 27699-1548

Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794

E-mail Address: gthorpe@dot.state.nc.us

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: \_\_\_\_\_

Company Affiliation: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

**III. Project Information**

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

1. Name of project: Replacement of Bridge No. 70 on SR 1723 (John Oakley Rd) over Lynch Creek in Caswell County
  
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3630
  
3. Property Identification Number (Tax PIN): \_\_\_\_\_
  
4. Location  
County: Caswell Nearest Town: Yanceyville  
Subdivision name (include phase/lot number): \_\_\_\_\_  
Directions to site (include road numbers, landmarks, etc.): Southeast of Yanceyville on Highway 86, left on SR 1723 (John Oakley Rd)  
\_\_\_\_\_  
\_\_\_\_\_
  
5. Site coordinates, if available (UTM or Lat/Long): 36° 18' 55"N, 79° 13' 11"W  
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
  
5. Property size (acres): Approximately 1.7 acres
  
6. Nearest body of water (stream/river/sound/ocean/lake): Lynch Creek
  
7. River Basin: Roanoke  
(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/>.)

8. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: SR 1723 is a rural minor collector. Land use in the project area is rural consisting of agricultural and light residential development.

9. Describe the overall project in detail, including the type of equipment to be used: (see cover letter)

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10. Explain the purpose of the proposed work: Bridge No. 70 is considered to be structurally deficient and functionally obsolete.

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**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.

USACE Action ID: 200420043, Application Date: 10/10/03, Permit Date: 10/27/03

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**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

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**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. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must 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 below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
N/A					

\* List each impact separately and identify temporary impacts. 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.  
 \*\* 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.  
 \*\*\* List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: N/A  
 Total area of wetland impact proposed: N/A

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
Site 1 Fill in of stream	Permanent Fill	138	UT to Lynch Creek	2 ft	Perennial
Site 1 Stream relocation	Relocation	83	UT to Lynch Creek	1 ft	Perennial

\* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated riprap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, riprap, crib wall, 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.

\*\* Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at [www.usgs.gov](http://www.usgs.gov). Several internet sites also allow direct download and printing of USGS maps (e.g., [www.topozone.com](http://www.topozone.com), [www.mapquest.com](http://www.mapquest.com), etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 138 ft

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

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

\* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.



5. 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.): \_\_\_\_\_

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.

(see 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 March 9, 2000, 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 NCWRP 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.

Onsite mitigation will be used.

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2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): N/A  
Amount of buffer mitigation requested (square feet): \_\_\_\_\_  
Amount of Riparian wetland mitigation requested (acres): \_\_\_\_\_  
Amount of Non-riparian wetland mitigation requested (acres): \_\_\_\_\_  
Amount of Coastal wetland mitigation requested (acres): \_\_\_\_\_

**IX. Environmental Documentation (required by DWQ)**

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes  No

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

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.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify \_\_\_\_\_)?

Yes  No  If you answered "yes", provide the following information:

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	N/A
2		1.5	N/A
Total			

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

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

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**XI. Stormwater (required by DWQ)**

Describe impervious acreage (both 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.

N/A

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**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

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**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. Other Circumstances (Optional):**

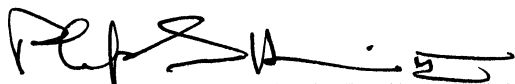
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g.,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

N/A

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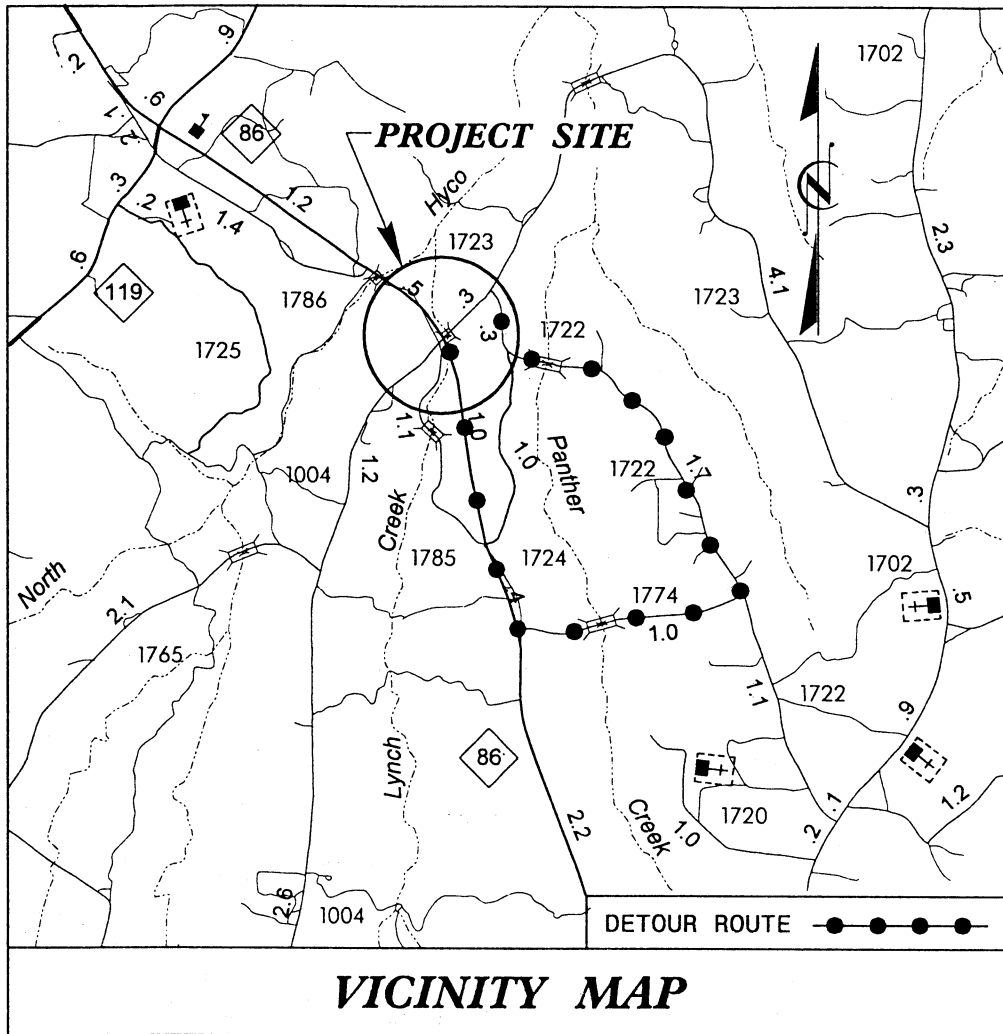


**Applicant/Agent's Signature**

10/29/07

**Date**

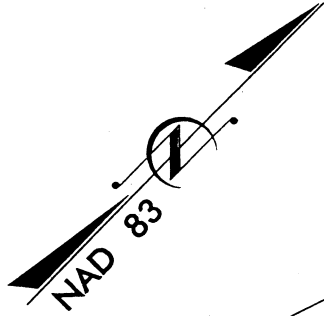
(Agent's signature is valid only if an authorization letter from the applicant is provided.)



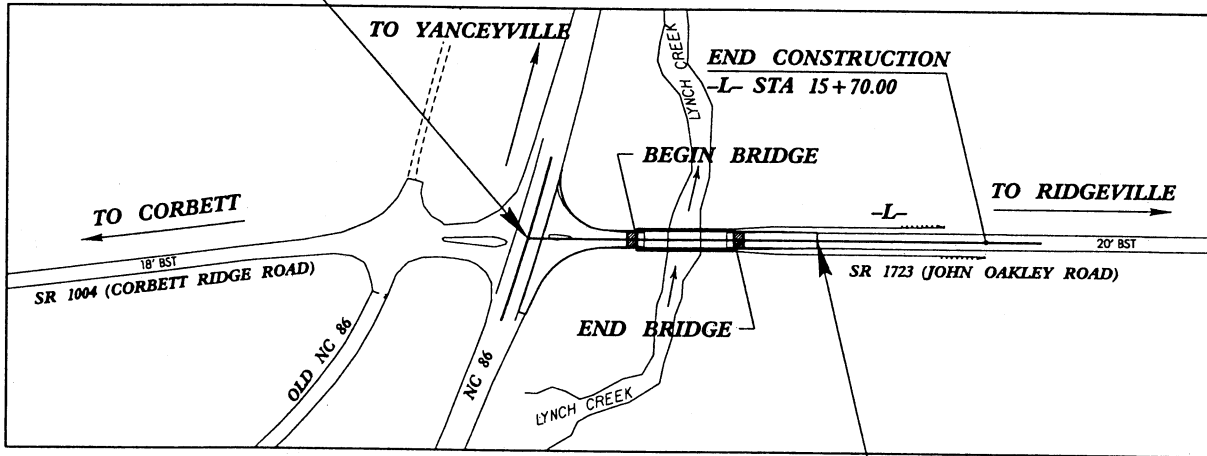
VICINITY  
MAP

**N.C.D.O.T.**  
**DIVISION OF HIGHWAYS**  
 CASWELL  
 COUNTY  
 BRIDGE NO. 70 ON SR 1723  
 OVER LYNCH CREEK

STATE PROJECT #8.2481501 B-3630  
 SHEET 1 OF 7



**STA 10+00.00 -L- BEGIN STATE PROJECT 8.2481501**  
**STA 10+00.00 -L- BEGIN F.A. PROJECT BRZ-1723(2)**



**STA 13+60.00 -L- END STATE PROJECT 8.2481501**  
**STA 13+60.00 -L- END F.A. PROJECT BRZ-1723(2)**

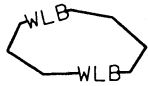
SITE  
MAP

**N.C.D.O.T.**  
**DIVISION OF HIGHWAYS**  
CASWELL  
COUNTY  
BRIDGE NO. 70 ON SR 1723  
OVER LYNCH CREEK

STATE PROJECT #8.2481501 B-3630  
SHEET 2 OF 7

# LEGEND

— WLB — WETLAND BOUNDARY

 WETLAND

 DENOTES FILL IN WETLAND

 DENOTES FILL IN SURFACE WATER

 DENOTES FILL IN SURFACE WATER (POND)

 DENOTES TEMPORARY FILL IN WETLAND

 DENOTES EXCAVATION IN WETLAND

 DENOTES TEMPORARY FILL IN SURFACE WATER

 DENOTES MECHANIZED CLEARING

— FLOW DIRECTION

— TB — TOP OF BANK

— WE — EDGE OF WATER

— C — PROP. LIMIT OF CUT

— F — PROP. LIMIT OF FILL

—▲— PROP. RIGHT OF WAY

— NG — NATURAL GROUND

— PL — PROPERTY LINE

— TDE — TEMP. DRAINAGE EASEMENT


— PDE — PERMANENT DRAINAGE EASEMENT

— EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

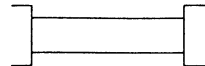
— EPB — EXIST. ENDANGERED PLANT BOUNDARY

— WATER SURFACE


 LIVE STAKES

 BOULDER


— CORE FIBER ROLLS

 PROPOSED BRIDGE

 PROPOSED BOX CULVERT

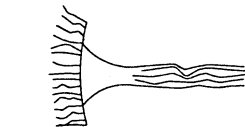
 PROPOSED PIPE CULVERT  
12"-48" PIPES  
54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTING STRUCTURES)


 SINGLE TREE

— WOODS LINE

 DRAINAGE INLET

 ROOTWAD

 RIP RAP

 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

— BZ1 — BUFFER ZONE 1

— BZ2 — BUFFER ZONE 2

## WETLANDS/STREAMS

**N.C.D.O.T.**  
**DIVISION OF HIGHWAYS**

CASWELL  
COUNTY

BRIDGE NO. 70 ON SR 1723  
OVER LYNCH CREEK

STATE PROJECT #8.2481501 B-3630  
SHEET 3 OF 7

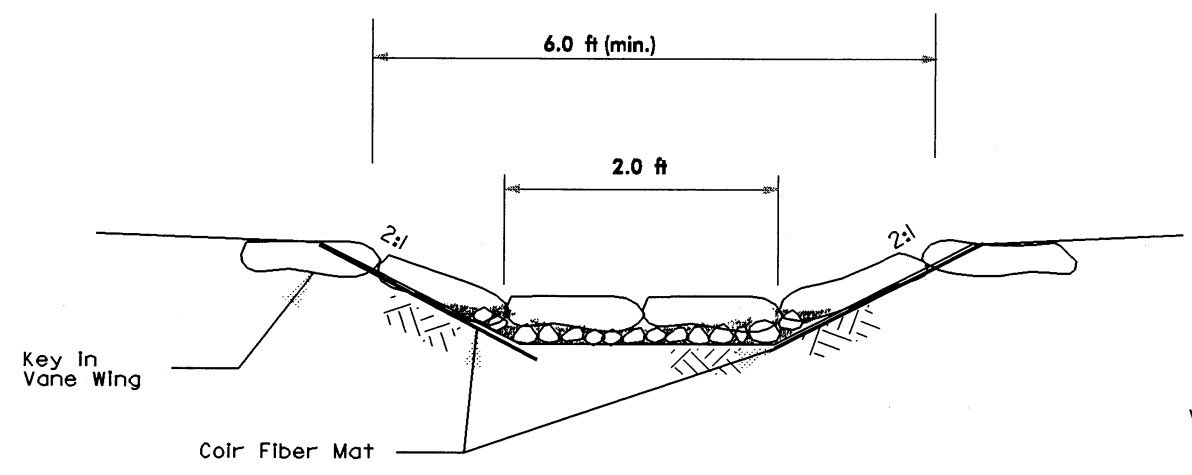
6/2/99

19-061-2004\_09134  
step-pool.dgn  
12/27/04

PROJECT REFERENCE NO. <b>B-3630</b>	SHEET NO. <b>2 - E</b>

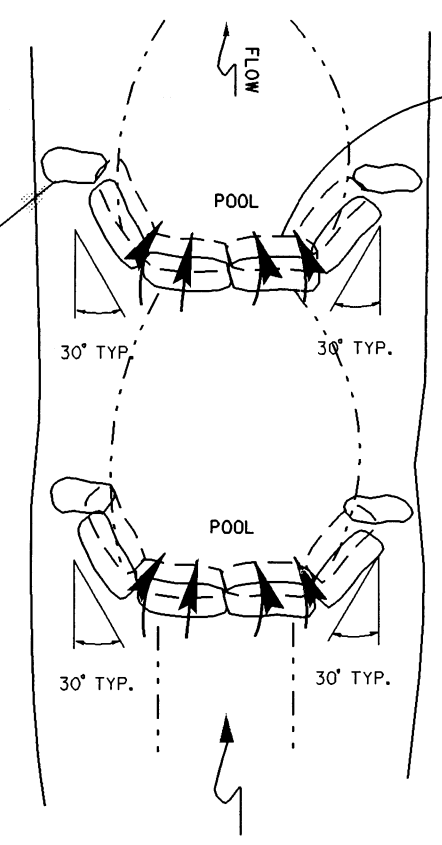
# STEP POOL DETAIL

## STA 12+65 TO 12+81 & STA 13+00 TO STA 13+34 -L- RT



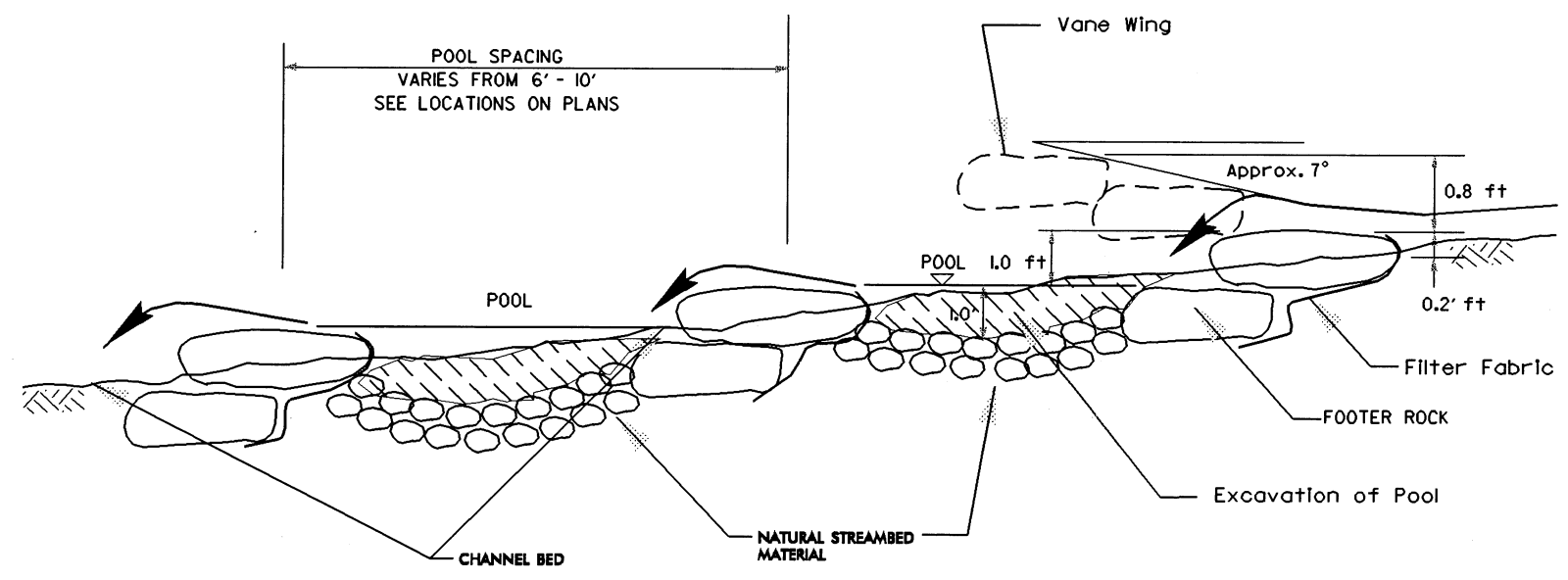
**TYPICAL CROSS SECTION**

NOT TO SCALE



**PLAN VIEW**

NOT TO SCALE



**PROFILE**

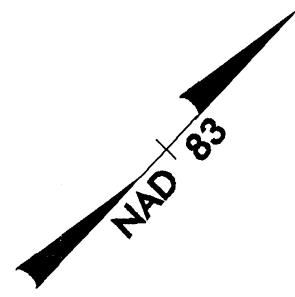
NOT TO SCALE

**NOTE:**  
FOOTER ROCK SHOULD BE ANGULAR AND OBLONG WITH WIDE AXIS APPROXIMATELY 0.60m IN LENGTH. ROCK SHOULD FIT TIGHTLY TOGETHER WITH MINIMAL VOIDS.

THE NUMBER OF ROCK VANES REQUIRED, MAY VARY, DEPENDING ON SITE CONDITIONS.

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

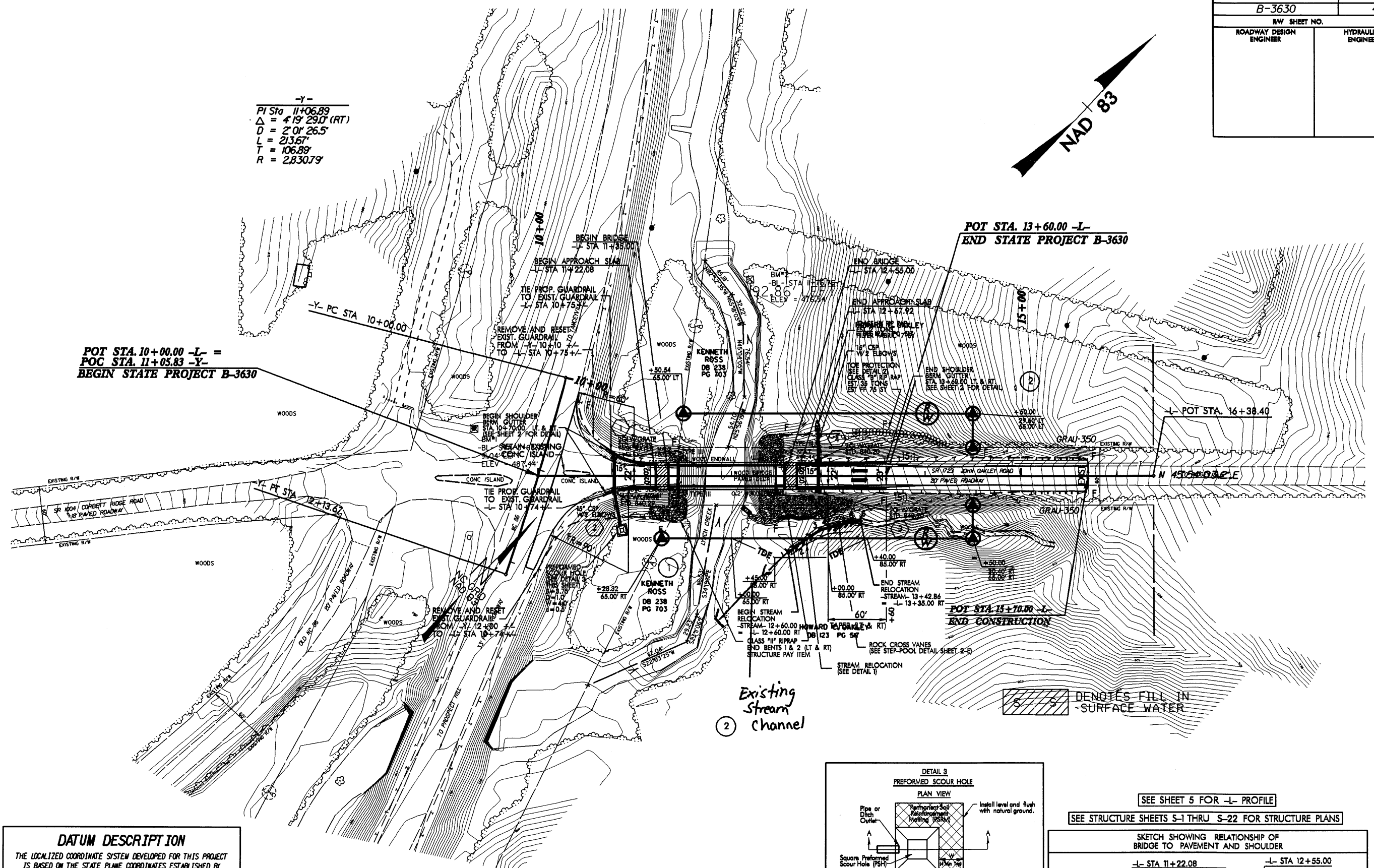




-Y-  
 PI Sta 11+06.89  
 $\Delta = 4' 19" 29.0'$  (RT)  
 $D = 2' 0" 26.5'$   
 $L = 213.67'$   
 $T = 106.89'$   
 $R = 2,830.79'$

POT STA. 10+00.00 -L- =  
 POC STA. 11+05.83 -Y-  
 BEGIN STATE PROJECT B-3630

POT STA. 13+60.00 -L-  
 END STATE PROJECT B-3630



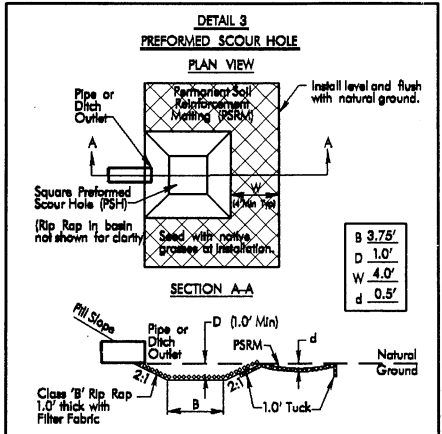
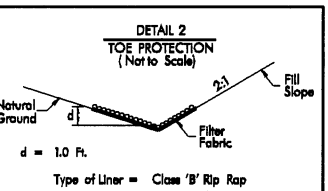
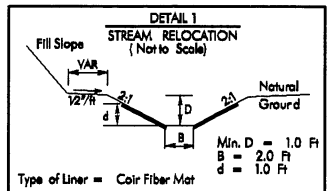
Existing  
 Stream  
 Channel

DENOTES FILL IN  
 SURFACE WATER

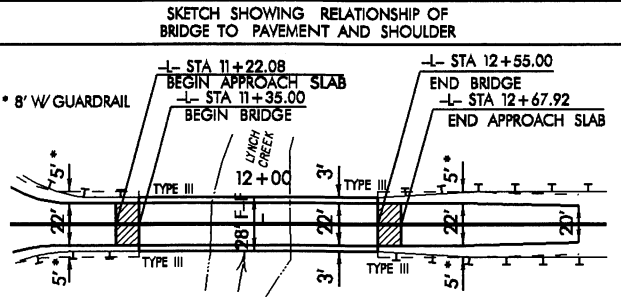
**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "B3630-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 933622.859 (N) EASTING: 1935122.489 (E) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00031020 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3630-2" TO STATION 10+00.00 IS N 02° 18' 30.25" W 76.8714 (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS MVD 88

**STREAM CENTERLINE INFORMATION**

1 - POT Sta. 12+60.00	
2 - POT Sta. 12+71.29	N 3° 19' 11.7" E
3 - POT Sta. 12+99.07	N 12° 0' 17.8" E
4 - POT Sta. 13+08.58	N 27° 22' 41.7" E
5 - POT Sta. 13+34.29	N 32° 24' 19.6" E
6 - POT Sta. 13+42.86	N 4° 12' 00.8" E



SEE SHEET 5 FOR -L- PROFILE  
 SEE STRUCTURE SHEETS S-1 THRU S-22 FOR STRUCTURE PLANS



REVISIONS

8/17/99

05-001-2004-1129  
 05-PROJ-0015-001em\B-3630\design\3630s04\_04.dwg (006.psh)

**TIP Project:** B-3630

**Description:** Bankfull data associated with the relocation of UT to Lynch Creek. Stream parallels SR 1723 to the East. The TIP Project involves the replacement of Bridge #70 over Lynch Creek on SR 1723.

DA = 14 acres (0.022 mi<sup>2</sup>)  
NC Rural Piedmont

From Piedmont Regional Curves:

$$w_{bkf} = 2.7'$$

$$d_{bkf} = 0.6'$$

$$Q_{bkf} = 5.0 \text{ cfs}$$

$$A_{bkf} = 1.6 \text{ ft}^2$$

PROPERTY OWNERS  
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	KENNETH ROSS	4129 GUESS ROAD DURHAM, NC 27702
2	HOWARD C. OAKLEY	531 HENRY WARREN ROAD PROSPECT HILL, NC 27314

**N.C.D.O.T.**  
**DIVISION OF HIGHWAYS**  
CASWELL  
COUNTY  
BRIDGE NO. 70 ON SR 1723  
OVER LYNCH CREEK  
STATE PROJECT #8.2481501 B-3630  
SHEET 7 OF 7

**WETLAND PERMIT IMPACT SUMMARY**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS						
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)		
1	12+10 - 13+35 RT	Stream Relocation					0.01					138	83
2	11+35 - 12+55	1 @ 120' Single Span											
<b>TOTALS:</b>			0	0	0	0	0.01	0	0	0	0	138	83

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 CASWELL COUNTY  
 PROJECT: 33178.1.1 (B-3630)  
 SHEET      OF

09/08/99

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

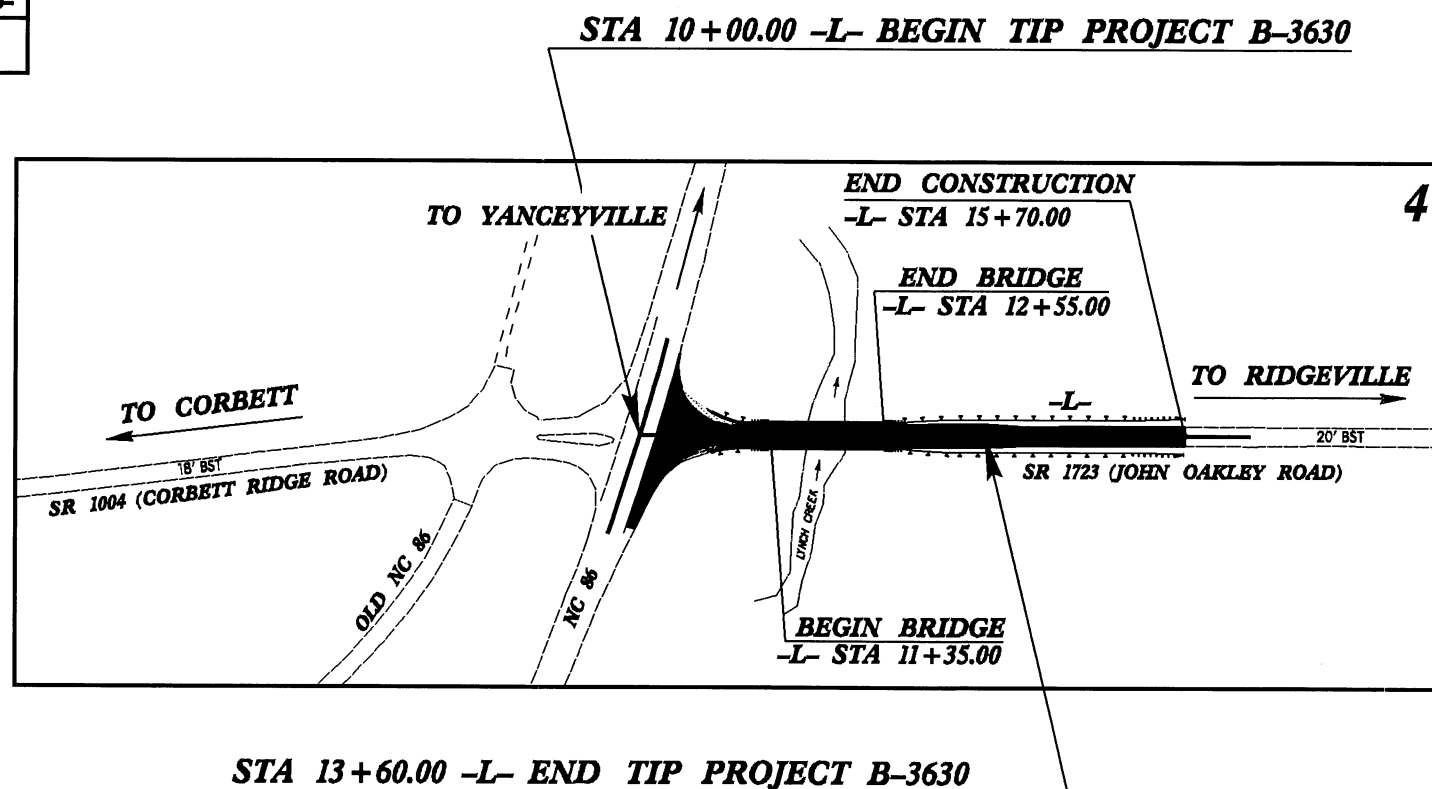
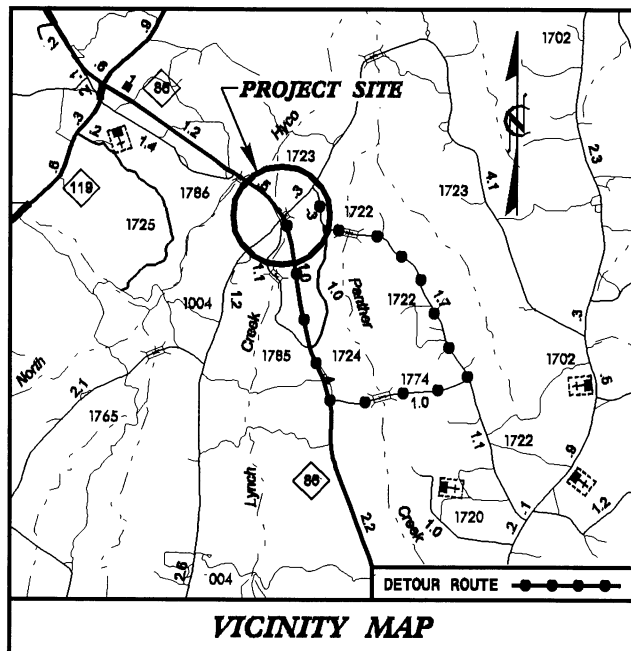
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CASWELL**

LOCATION: BRIDGE No. 70 OVER LYNCH CREEK ON SR 1723  
(JOHN OAKLEY ROAD) AND APPROACHES

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3630	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33178.1.1	BRZ-1723(2)	PE	
33178.2.2	BRZ-1723(2)	R/W, UTIL	
33178.3.2	BRZ-1723(4)	CONST	

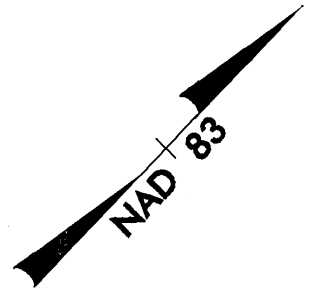


DESIGN EXCEPTION REQUIRED FOR VERTICAL ALIGNMENT.

CONTRACT: C200845 TIP PROJECT: B-3630

<p><b>GRAPHIC SCALES</b></p> <p>50 25 0 50 100 PLANS</p> <p>50 25 0 50 100 PROFILE (HORIZONTAL)</p> <p>10 5 0 20 PROFILE (VERTICAL)</p>	<p><b>DESIGN DATA</b></p> <p>ADT 2004 = 340 ADT 2025 = 500 DHV = 14 % D = 65 % T = 3 % * V = 55 MPH * TTST 1 % DUAL 2 %</p>	<p><b>PROJECT LENGTH</b></p> <p>LENGTH ROADWAY TIP PROJECT B-3630 = 0.045 MILE LENGTH STRUCTURE TIP PROJECT B-3630 = 0.023 MILE TOTAL LENGTH TIP PROJECT B-3630 = 0.068 MILE</p>	<p>Prepared in the Office of: <b>DIVISION OF HIGHWAYS</b> 1000 Birch Ridge Dr., NC, 27610</p>	<p><b>HYDRAULICS ENGINEER</b></p> <p>_____ SIGNATURE</p> <p>_____ ROADWAY DESIGN ENGINEER</p> <p>_____ SIGNATURE</p>	<p><b>DIVISION OF HIGHWAYS</b> STATE OF NORTH CAROLINA</p> <p>_____ STATE DESIGN ENGINEER</p> <p><b>DEPARTMENT OF TRANSPORTATION</b> FEDERAL HIGHWAY ADMINISTRATION</p> <p>_____ APPROVED DIVISION ADMINISTRATOR</p> <p>_____ DATE</p>
			<p>2002 STANDARD SPECIFICATIONS</p> <p><b>RIGHT OF WAY DATE:</b> MAY 30, 2003</p> <p><b>LETTING DATE:</b> MAY 18, 2004</p>	<p><b>SCOTT D. BLEVINS, PE</b> STATE ENGINEERING COORDINATOR</p> <p><b>DAVIDIAN BYRD</b> PROJECT DESIGN ENGINEER</p>	

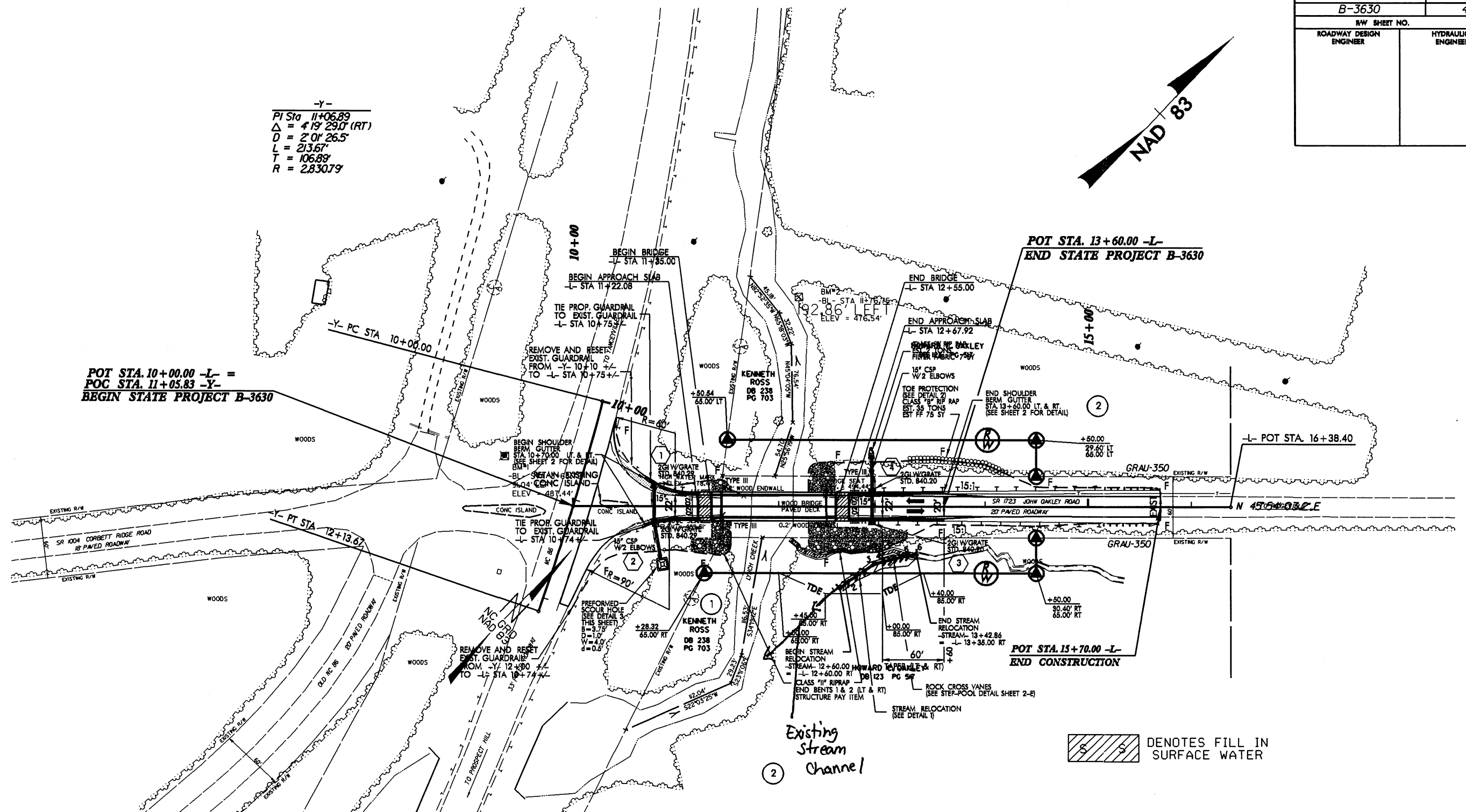
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Kvnlalnd At



-Y-  
 PI Sta 11+06.89  
 $\Delta = 419' 29.0''$  (RT)  
 $D = 2' 01'' 26.5''$   
 $L = 213.67'$   
 $T = 106.89'$   
 $R = 2830.79'$

POT STA. 10+00.00 -L- =  
 POC STA. 11+05.83 -Y-  
 BEGIN STATE PROJECT B-3630

POT STA. 13+60.00 -L-  
 END STATE PROJECT B-3630



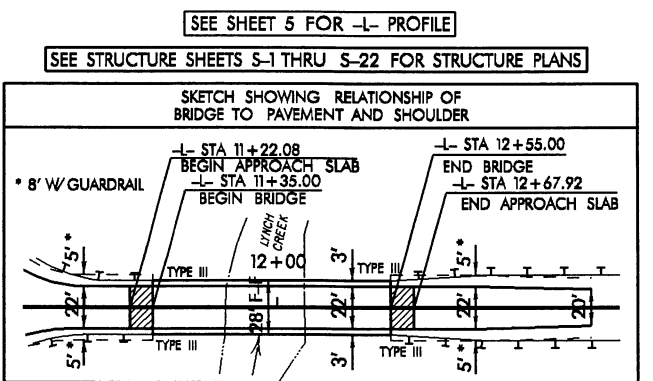
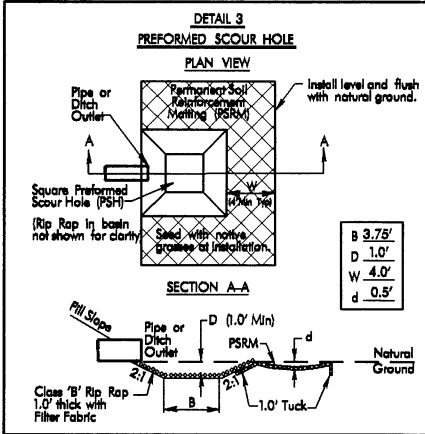
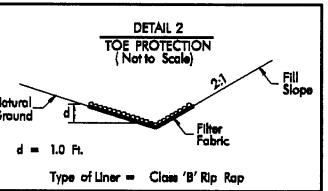
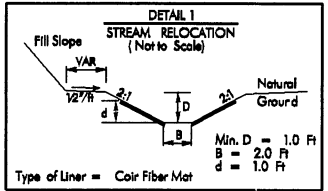
DENOTES FILL IN SURFACE WATER

Existing Stream Channel

**DATUM DESCRIPTION**  
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6 - POT Sta. 13+42.86	N 4°12'00.8" E

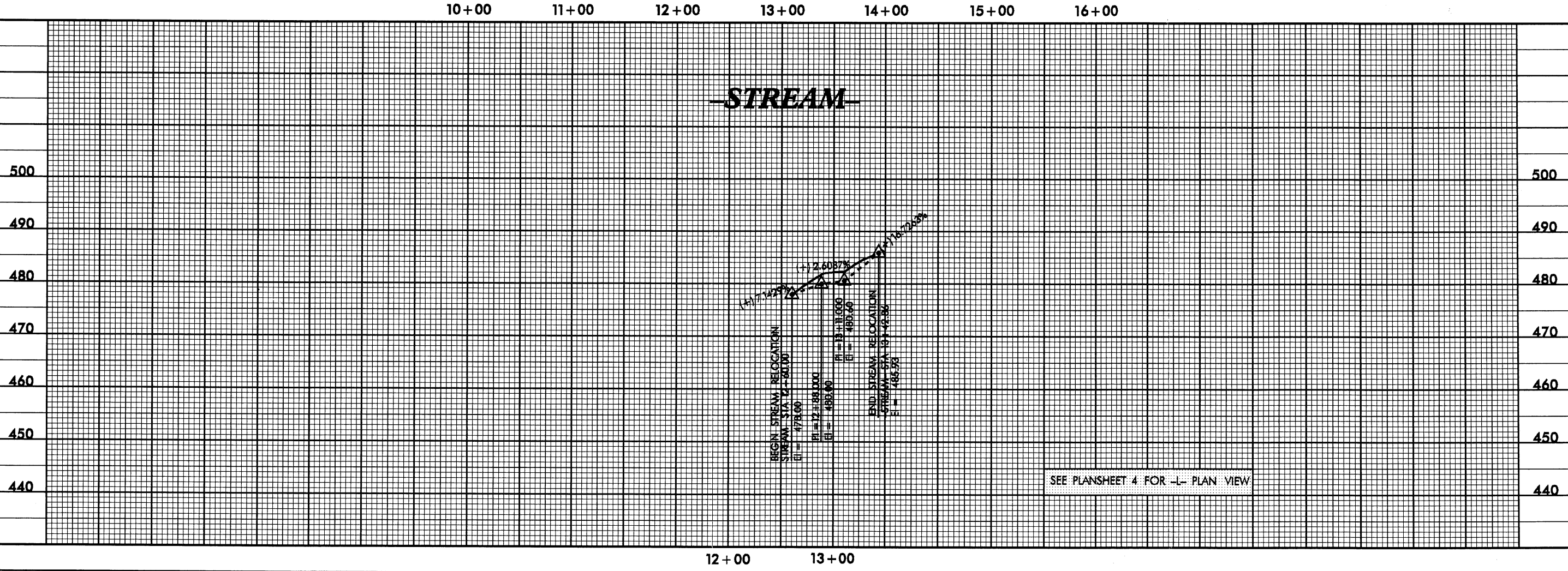
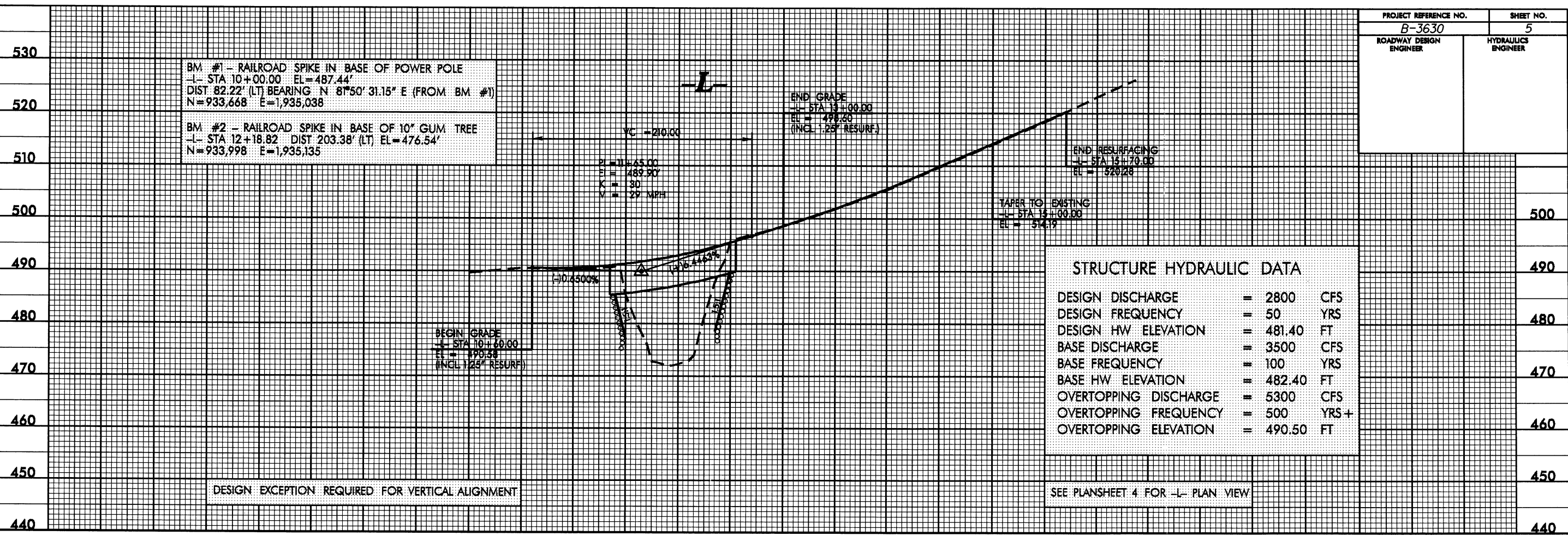


REVISIONS

8/17/99

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5/28/99



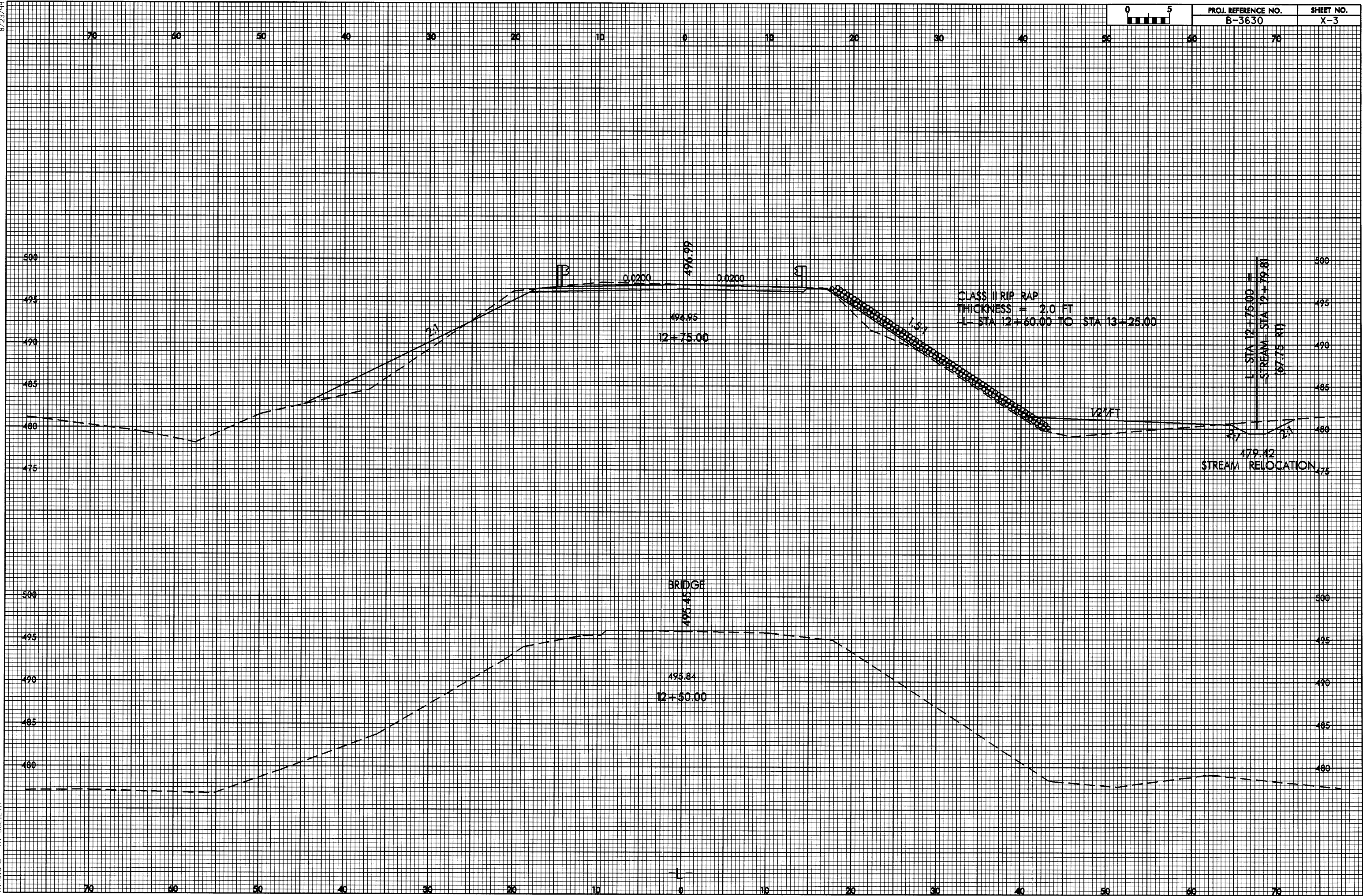
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8/23/99



PROJ. REFERENCE NO.  
B-3630

SHEET NO.  
X-3



70

60

50

40

30

20

10

0

10

20

30

40

50

60

70

500

495

490

485

480

475

500

495

490

485

480

475

500

495

490

485

480

500

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490

485

480

70

60

50

40

30

20

10

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10

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30

40

50

60

70

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Kynoland

B

B

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0.0200

496.95  
12+75.00

CLASS II RIP RAP  
THICKNESS = 2.0 FT  
L- STA 12+60.00 TO STA 13+25.00

1-5:1

1/2 FT

L- STA 12+75.00 =  
-STREAM- STA 12+79.81  
(67.75 FT)

479.42  
STREAM RELOCATION

BRIDGE

495.46

493.84  
12+50.00



