STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 7, 2008

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1890
Wilmington, NC 28402-1890

ATTN: Mr. Richard Spencer
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Nationwide Permits 23 and 33 and Section 401 Water Quality Certification,** for the Replacement of Bridge No. 80 over Little Rockfish Creek on SR 1108, Cumberland County; State Project No. 8.2444001; WBS 33450.1.1; TIP No. B-4092.

Please find enclosed permit drawings, roadway plans, and a Pre-construction Notice (PCN) for the above referenced project proposed by the North Carolina Department of Transportation (NCDOT). A Categorical Exclusion (CE) was completed for this project on April 11, 2006, and distributed shortly thereafter. Additional copies are available upon request.

The NCDOT proposes to replace existing Bridge No. 80 over Little Rockfish Creek on SR 1108 in Cumberland County. The project involves replacing the old 70-foot bridge on the existing location, with a two-span bridge approximately 115 feet long and 39 feet wide. Traffic will be maintained with an on-site temporary detour bridge during construction. The detour bridge will be approximately 90 feet in length. Proposed permanent impacts to surface waters will be less than 0.01 acre. Proposed temporary impacts to wetlands will be 0.12 acre. Proposed temporary impacts to surface waters will be 0.01 acre.

Impacts to Waters of the United States

General Description: Little Rockfish Creek is the only water resource within the study area and is located in the Cape Fear River Drainage Basin, Subbasin 03-06-15. Little Rockfish Creek [Stream Index No. 18-31-24-(4)] has been assigned a Best Usage Classification of C by the North Carolina Department of Environmental and Natural Resources (NCDENR) and is in Hydrologic Unit 03030004. Little Rockfish Creek is not designated as a North Carolina Natural or Scenic River, or as a National Wild and Scenic River. No designated High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 1.0 mile of the project study area. Finally,

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

TELEPHONE: 919-733-3141
FAX: 919-715-1501
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Little Rockfish Creek is not listed on the Final 2006 303(d) list of impaired waters due to sedimentation for the Lumber River Basin, nor does it drain into any Section 303(d) waters within 1.0 mile of the project study area.

Permanent Impacts: NCDOT anticipates permanent impacts to surface waters for this project. Permanent impacts to surface waters due to one interior bent will be less than 0.01 acre.

Temporary Impacts: NCDOT anticipates temporary impacts to surface waters and wetlands. Proposed temporary impacts to wetlands will be 0.12 acre due to the construction of the on-site detour bridge and <0.01 acre of temporary fill in hand cleared areas for erosion control measures, including temporary silt fence, special sediment control fence, and temporary rock silt checks. Proposed temporary impacts to surface waters will be 0.01 acre due removal of existing piers and construction of new piers.

Hand Clearing: There will be 0.02 acre of hand clearing in jurisdictional areas for this project.

Utility Impacts: There will be no impacts due to utilities for this project.

Bridge Demolition: The existing structure is approximately 70 feet long and 25 feet wide. The superstructure consists of four 17.5-foot spans of reinforced concrete deck on timber joists. The existing substructure consists of timber caps on timber piles with two supporting steel crutch piles. It is likely that all components can be removed without any appreciable debris falling into the water.

Federally Protected Species

As of December 20, 2007, the U.S. Fish and Wildlife Service (FWS) lists seven protected species for Cumberland County (Table 1). The conclusion of No Effect for all species remains valid.

Table 1. Federally Protected Species for Cumberland County

Common Name	Scientific Name	Federal Status	Habitat	Biological Conclusion
American alligator	*Alligator mississippiensis*	T(S/A)	N	N/A
American chaffseed	*Schwalbea americana*	E	N	No Effect
Michaux's sumac	*Rhus michauxii*	E	Y	No Effect
Pondberry	*Lindera melissifolia*	E	N	No Effect
Red-cockaded woodpecker	*Picoides borealis*	E	N	No Effect
Rough-leaved loosestrife	*Lysmachia asperulaefoia*	E	N	No Effect
Saint Francis' satyr butterfly	*Neonympha mitchellii francisci*	E	N	No Effect

Bald Eagle

The bald eagle was removed from the Endangered Species Act as of August 8, 2007. It is still protected under the Bald and Golden Eagle Protection Act. A survey conducted on December 18, 2007 found no bald eagle nests or foraging habitat within 660 feet of the project area.

In-stream Work Moratorium

An in-stream moratorium from April 1 to June 30 to protect sunfish was originally requested by the NC Wildlife Resources Commission (NCWRC). NCWRC has since determined that the suggested moratorium is not necessary (see attached correspondence), and will therefore not be adhered to by NCDOT.

Cultural Resources

An archeological survey was performed and concluded that no significant cultural resources were discovered in the Area of Potential Effect and that no further cultural resources investigations are necessary or warranted. In a memo dated November 17, 2006, the State Office of Historic Preservation concurred with that recommendation.

Avoidance and Minimization

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

- Reducing the number of bents in the water from three for the existing bridge to one for the new bridge,
- Using hand-clearing methods in wetlands outside of the slope limits instead of clearing and grubbing,
- In compliance with 15A NCAC 02B.0104(m) the NCDOT has incorporated the use of BMP's for the Protection of Surface Water in the design of the project,
- During bridge demolition all measures will be taken to avoid any temporary fill from entering Waters of the United States. Best Management Practices (BMP's) for Bridge Demolition and Removal will be implemented.

Mitigation

No compensatory mitigation is proposed for this project due to the limited permanent impacts to Little Rockfish Creek.

Project Schedule

The project schedule calls for an August 19, 2008 let with a review date of July 1, 2008.

Regulatory Approvals

Section 404 Permit: All aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (72 CFR; 11092-11198, March 12, 2007). We are also requesting the issuance of a Nationwide Permit 33 for the temporary fill due to the installation a temporary detour bridge. (72 CFR; 11092-11198, March 12, 2007).

Section 401 Water Quality Certification: We anticipate 401 General Certification numbers 3701 and 3688 will apply to this project. All general conditions of the Water Quality Certifications will be met. In accordance with 15A NCAC 2H, Section .0500(a), we are providing two copies of this application to the NCDWQ for their review.

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

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

Sincerely,

Gregory J. Thorpe, Ph.D.,
Environmental Management Director
Project Development and Environmental Analysis Branch

Cc:
w/attachment
Mr. Brian Wrenn, NCDWQ (two copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Michael Street, NCDMF

w/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Terry Gibson, P.E, Division 6 Engineer
Mr. Jim Rerko, Division 6 Environmental Officer
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Vince Rhea, P.E., 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:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☐ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

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

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

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

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

II. Applicant Information

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

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

III. Project Information

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

1. Name of project: Replacement of Bridge No. 80 on SR 1108 over Little Rockfish Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4092

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

4. Location
   County: Cumberland Nearest Town: Fayetteville
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From I-95 take the exit for US 58 travelling northwest. Turn left onto Hilltop St., which changes names to Rockfish Rd. Stay on that road for ~3.8 miles then make a slight right onto Stoney Point Rd. then an almost immediate right onto Lakewood Drive. The bridge is on Lakewood Drive before you reach the subdivision.

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): 34.991750 °N 79.003350 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Rockfish Creek

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is mostly forested with a golf course on the western side. The surrounding area is dedicated mostly to residential neighborhoods.

10. Describe the overall project in detail, including the type of equipment to be used:
The existing structure is approximately 70 feet long and 25 feet wide. The superstructure consists of four 17.5-foot spans of reinforced concrete deck on timber joists. The existing substructure consists of timber caps on timber with two supporting steel crutch piles. The project consists of replacing the old bridge with a new a two-span bridge approximately 115 feet long and 39 feet wide in the existing location.

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

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. A request for a jurisdictional determination (JD) was sent by the LPA Group on June 22, 2006, but no JD has been issued.

V. Future Project Plans

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

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

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

1. Provide a written description of the proposed impacts: There are 0.12 acre of proposed temporary impacts to wetlands due to an onsite detour bridge and <0.01 acre of temporary fill in hand cleared areas for erosion control measures. There are >0.01 acre of proposed permanent impacts to surface waters due to bents in the water and 0.01 acre of temporary impacts to surface waters due to the removal and construction of in-water bents.

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)
3	Temporary	Forested	No	300	0.13
Total Wetland Impact (acres)					0.13

3. List the total acreage (estimated) of all existing wetlands on the property: 0.14 acres

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent ?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Little Rockfish Creek	Interior Bent	Perennial	35 ft	0	<0.01
2	Little Rockfish Creek	Temp. - Bent construction	Perennial	35 ft	0	0.01
Total Stream Impact (by length and acreage)					0	0.01

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

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

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

Stream Impact (acres):	0.01
Wetland Impact (acres):	0.13
Open Water Impact (acres):	0.0
Total Impact to Waters of the U.S. (acres)	0.14
Total Stream Impact (linear feet):	0

7. Isolated Waters

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

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

N/A

8. Pond Creation

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

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

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

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

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

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

VII. Impact Justification (Avoidance and Minimization)

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

VIII. Mitigation

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

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

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

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

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

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? 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	0	3 (2 for Catawba)	0.0
2	0	1.5	0.0
Total	0		0.0

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

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

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If

percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. N/A

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.
N/A

XIII. Violations (required by DWQ)

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

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

XIV. Cumulative Impacts (required by DWQ)

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

XV. Other Circumstances (Optional):

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

E. L. Lusk 2.6.08

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

Subject: RE: B-4092 Sunfish moratorium
Date: Tue, 11 Dec 2007 13:57:08 -0500
From: "Travis Wilson" <travis.wilson@ncwildlife.org>
To: "'Veronica A. Barnes'" <vabarnes@dot.state.nc.us>

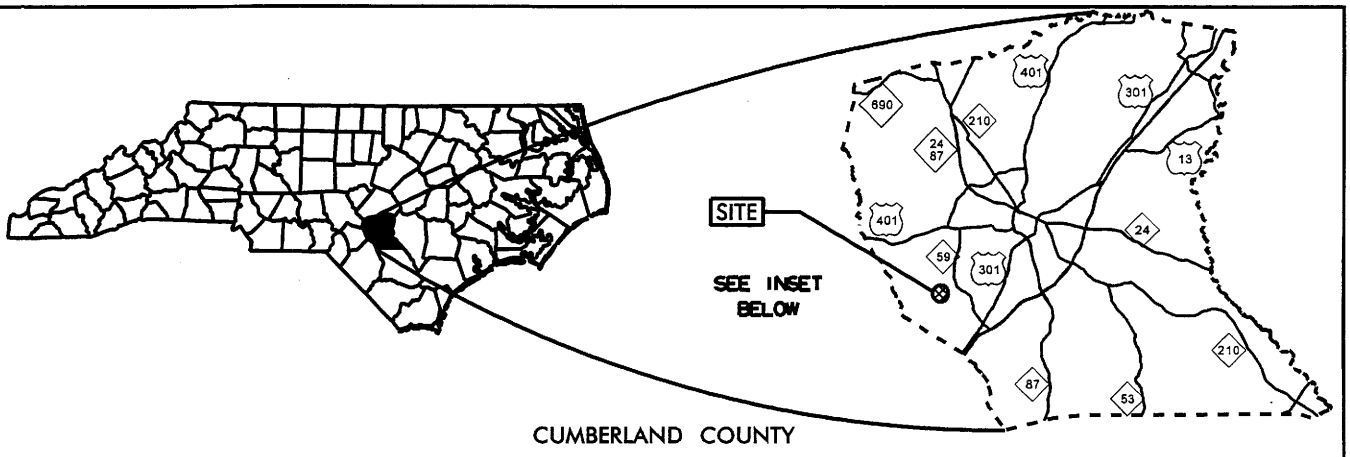
WRC retracts the request for a sunfish moratorium from April 1 to June 30 as stated in the February 5, 2004 memo

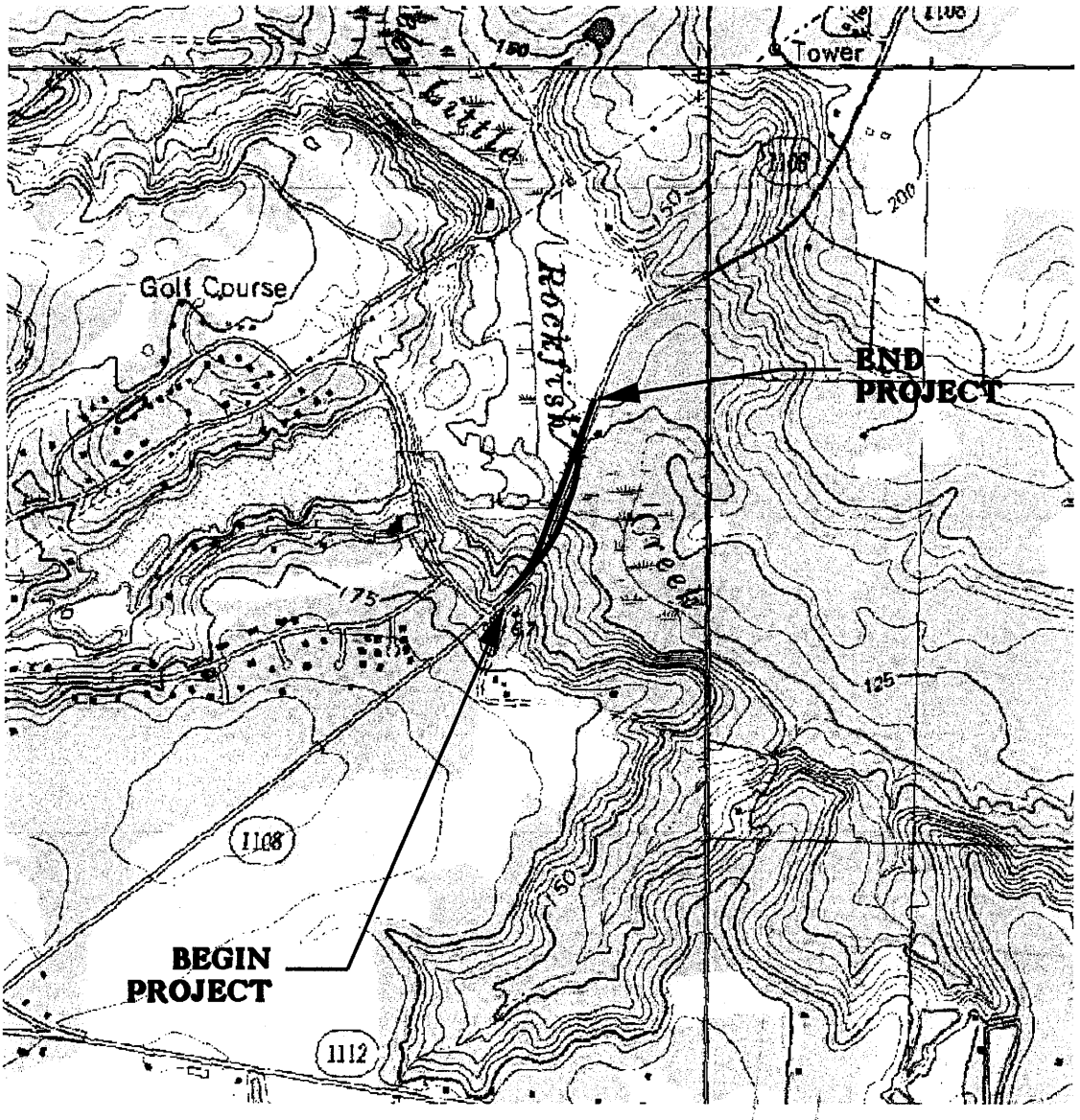
Travis W. Wilson
Eastern Region Highway Project Coordinator
Habitat Conservation Program
NC Wildlife Resource Commission
1142 I-85 Service Rd.
Creedmoor, NC 27522
Phone: 919-528-9886
Fax: 919-528-9839
Travis.Wilson@ncwildlife.org

-----Original Message-----
From: Veronica A. Barnes [mailto:vabarnes@dot.state.nc.us]
Sent: Wednesday, November 28, 2007 11:00 AM
To: Travis Wilson
Cc: Chris Rivenbark
Subject: B-4092 Sunfish moratorium

Travis,
In a letter dated February 5, 2004 you recommended an April 1-June
30 in-water work moratorium for a significant sunfish fishery, for B-4092 in Cumberland County (Bridge 80 over Little Rockfish Creek). I am preparing the permit applications for this project and wanted to check if this moratorium still stands.
Thanks.

--
Veronica A. Barnes
Environmental Specialist
Project Management Group
PDEA Natural Environment Unit
N.C. Department of Transportation
919-715-7232





WETLAND IMPACTS
VICINITY MAP

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
CUMBERLAND COUNTY

PROJECT:33450.1.1 (B-4092)
BRIDGE NO. 80 ON SR 1108
(LAKEWOOD DR.) ON LITTLE
ROCKFISH CREEK

SHEET 1 **OF** 10 **10/22/07**

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1	16+29.80 -L-	BRIDGE						<0.01	0.007			
2	17+00 -DET-			0.112			0.008					
3	19+00 -DET-			0.010			0.015					
TOTALS:			0.00	0.12	0.00	0.00	0.02	<0.01	0.01			

Notes:
<0.01 acres of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures

REVISED 1-18-08: MECHANIZED CLEARING CHANGED TO HAND CLEARING

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY
PROJECT: 33450.1.1 (B-4092)

SHEET 1/23/2008

ATN Revised 3/31/05

Permit Drawing
Sheet 2 of 2

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
3	CAROL E. RIVERBANK	5731 TREVINO ST HOPE MILLS, NC 28348

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

PROJECT:33450.1.1 (B-4092)
BRIDGE NO 80 ON SR 1108
(LAKEWOOD DR.) ON LITTLE
ROCKFISH CREEK

SHEET ___ OF ___ 10/22/07

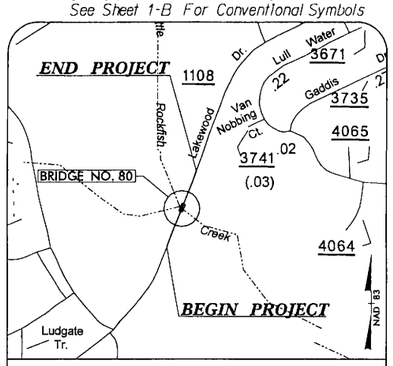
Permit Drawing
Sheet 3 of 10

05/08/08

TIP PROJECT: B-4092

CONTRACT:

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



VICINITY MAP

(THIS PROJECT IS NOT INCLUDED WITHIN ANY MUNICIPAL BOUNDARIES)

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

LOCATION: BRIDGE NO. 80 ON SR 1108 LAKEWOOD DR. OVER LITTLE ROCKFISH CREEK.

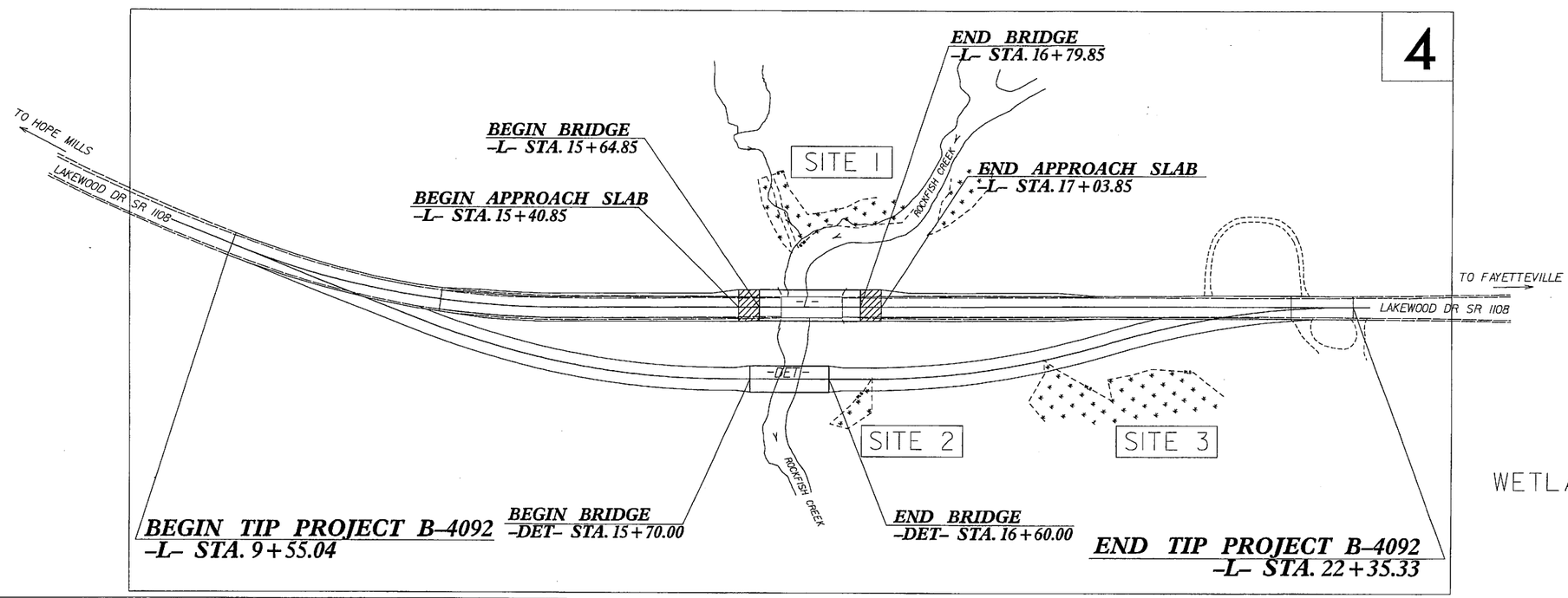
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4092	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33450.1.1	BZR-1108 (9)	PE
33450.2.2	BRZ-1108 (9)	RW & UTIL.

R/W PLANS

4



WETLAND/ STREAM IMPACTS

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

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 14,100
ADT 2028 = 24,800
DHV = 10 %
D = 60 %
T = 4 % *
**V = 60 MPH
FUNC. CLASS = URBAN LOCAL
* TTST 1% DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4092 = 0.220 Miles
LENGTH STRUCTURE TIP PROJECT B-4092 = 0.022 Miles
TOTAL LENGTH TIP PROJECT B-4092 = 0.242 Miles

Prepared In the Office of:
THE LPA GROUP TRANSPORTATION CONSULTANTS
THE LPA GROUP of North Carolina, p.a.
5000 Falls of Neuse Rd., Suite 304
Raleigh, North Carolina 27609

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUG. 17, 2007

LETTING DATE: AUG. 19, 2008

Jeanne K. Richter P.E.
PROJECT ENGINEER

Jody L. Cole
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

Permit Drawing
Sheet 4 of 10

STATE HIGHWAY DESIGN ENGINEER P.E.

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4092	2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

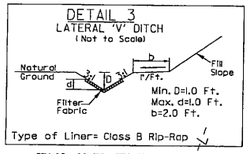
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

8/17/99

REVISIONS

DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)



STA.10+00 TO STA. 15+85 -DET- RT

-DET-
PI Sta 13+63.50
Δ = 21° 52' 24.5" (LT)
D = 6° 11' 14.8"
L = 353.51'
T = 178.94'
R = 926.00'

-DET-
PI Sta 18+42.53
Δ = 17° 14' 58.8" (LT)
D = 6° 11' 14.8"
L = 278.78'
T = 140.45'
R = 926.00'

-DET-
PI Sta 21+21.31
Δ = 17° 14' 58.8" (RT)
D = 6° 11' 14.8"
L = 278.78'
T = 140.45'
R = 926.00'

NAD 83

MARCH F RIDDLE

6' CHLK

CONC DITCH

N 41°58'31" E

-L- +30 EXIST. R/W

-L- +00 55' LT.

-L- +50 60' LT.

-L- +50 EXIST. R/W

-L- +50 85' RT

-L- +25 150' RT

-L- +00.00 55.00' LT. EXIST. R/W

-L- +46.00 55.00' LT. 37.00' LT. EXIST. R/W

-L- +92 EXIST. R/W

-L- +80 37' LT.

-L- +00 EXIST. R/W

-L- +75 85' RT

-L- +25 140' RT

BRIDGE #80

LAT 'V' DITCH W/CL 'B' RIP RAP SEE DETAIL #3

GRAU 350

TYPE III

APPROX. LOCATION OF ABAND. 8"

N 20°08'07" E

BEGIN BRIDGE
-DET- Sta 15+70.00

END BRIDGE
-DET- Sta 16+60.00

SITE 2

SITE 3

ABANDONED WOOD BARN

CAROLE RIVENBARK

DOLORES PRIEST
DB 3000 PG 243

LAUREN FAIRCLOTH
DB 5215 PG 261

IS BK D

IS F D

36" WD

CONC

LAKEWOOD DR SR 1108 2ZBST

D.A.T.U.R.

SDWL

HTR

36" CHLK

SKATEBOARD RAMP

T T DENOTES TEMPORARY FILL IN WETLAND

HC HC DENOTES HAND CLEARING

SEE SHEET 4 FOR -L- ALIGNMENT AND PROFILE

-DET-

BEGIN GRADE
-DET- Sta. 11+01.34
ELEV. 156.57

PI = 12+05.00
EL = 152.96'
VC = 200'
K = 61
DS = 45 MPH

PI = 11+00.00
EL = 119.61'
VC = 190'
K = 86
DS = 45 MPH

END GRADE
-DET- Sta. 21+15.34
ELEV. 129.76

(-) 5.590%

(-) 3.482%

(-) 4.398%

(-) 16.737%

(-) 8.270%

(-) 12.337%

(-) 0.300%

(-) 6.737%

(+) 2.444%

(+) 2.444%

BEGIN LAT. V DITCH RT
STA.10+00.03 EL=158.33

PI =10+50.29 RT
EL = 155.52

PI =12+55.30 RT
EL = 146.50

PI =14+05 RT
EL = 133.37

PI =14+90.00 RT
EL = 124.00

END LAT. V DITCH RT
STA.15+85.00
EL=123.72

PROPOSED GRADE

EXISTING GROUND

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2470	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 129.5	FT
BASE DISCHARGE	= N/A	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= N/A	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING ELEVATION	= N/A	FT

DITCH LEGEND
RIGHT DITCH ----------

170 160 150 140 130 120 110

9 10 11 12 13 14 15 16 17 18 19 20 21 22

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

Permit Drawing
Sheet

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4092	2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

REVISIONS

DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)
Min. D=1.0 Ft.
Max. d=1.0 Ft.
b=2.0 Ft.
Type of Liner= Class B Rip-Rap
STA.10+00 TO STA. 15+85 -DET- RT

-DET-
PI Sta 13+63.50
$\triangle$ = 21° 52′ 24.5″ (LT)
D = 6° 11′ 14.8″
L = 353.51′
T = 178.94′
R = 926.00′

-DET-
PI Sta 18+42.53
$\triangle$ = 17° 14′ 58.8″ (LT)
D = 6° 11′ 14.8″
L = 278.78′
T = 140.45′
R = 926.00′

PI Sta 21+21.31
$\triangle$ = 17° 14′ 58.8″ (RT)
D = 6° 11′ 14.8″
L = 278.78′
T = 140.45′
R = 926.00′

▨ T DENOTES TEMPORARY FILL IN WETLAND

▨ HC DENOTES HAND CLEARING

-DET-

BEGIN GRADE
-DET- Sta. 11+01.34
ELEV. 156.57

PI = 12+05.00
EL = 152.96′
VC = 200′
K = 61
DS = 45 MPH

PI = 17+00.00
EL = 119.61′
VC = 790′
K = 86
DS = 45 MPH

STRUCTURE HYDRAULIC DATA

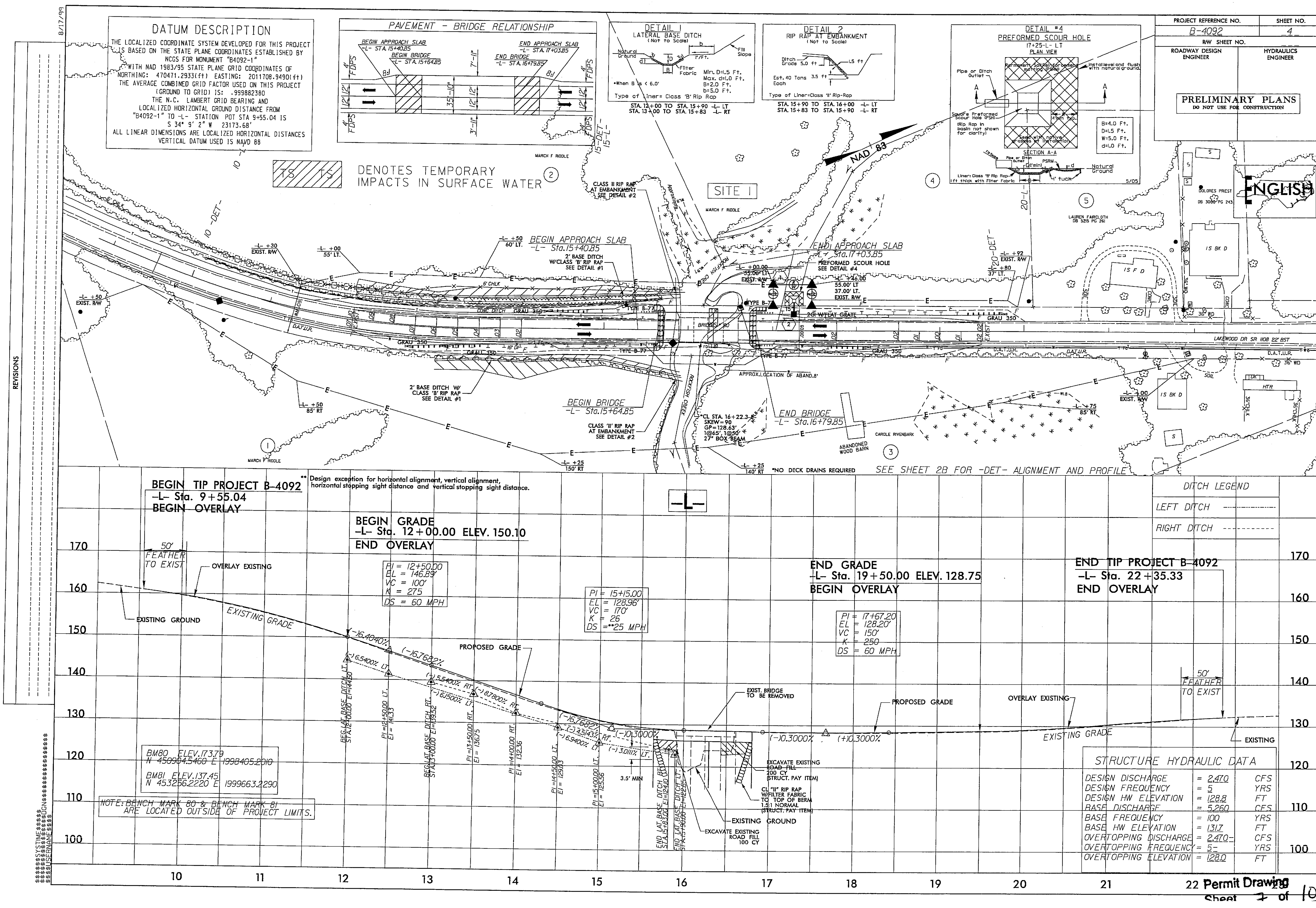
DESIGN DISCHARGE	=	2470	CFS
DESIGN FREQUENCY	=	5	YRS
DESIGN HW ELEVATION	=	129.5	FT
BASE DISCHARGE	=	N/A	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	N/A	FT
OVERTOPPING DISCHARGE	=	N/A	CFS
OVERTOPPING FREQUENCY	=	N/A	YRS
OVERTOPPING ELEVATION	=	N/A	FT

END GRADE
-DET- Sta. 21+15.34
ELEV. 129.76

DITCH LEGEND
RIGHT DITCH - - - - - - -

Permit Drawing
Sheet 10 of 10

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$


8/17/99
PROJECT REFERENCE NO. B-4092
SHEET NO. 4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4092-1"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 470471.2933(ft) EASTING: 2011708.9490(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .999882380
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4092-1" TO -L- STATION POT STA 9+55.04 IS S 34° 9' 2" W 23173.68'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88
PAVEMENT - BRIDGE RELATIONSHIP
BEGIN APPROACH SLAB -L- STA. 15+40.85
BEGIN BRIDGE -L- STA. 15+64.85
END APPROACH SLAB -L- STA. 17+03.85
END BRIDGE -L- STA. 16+79.85
DETAIL 1
LATERAL BASE DITCH (Not to Scale)
Type of Liner= Class 'B' Rip Rap
STA. 12+00 TO STA. 15+90 -L- LT
STA. 13+00 TO STA. 15+83 -L- RT
DETAIL 2
RIP RAP AT EMBANKMENT (Not to Scale)
Type of Liner=Class 'II' Rip-Rap
STA. 15+90 TO STA. 16+00 -L- LT
STA. 15+83 TO STA. 15+90 -L- RT
DETAIL #4
PREFORMED SCOUR HOLE
17+25-L- LT
PLAN VIEW
SECTION A-A
B=4.0 Ft.
D=1.5 Ft.
W=5.0 Ft.
d=1.0 Ft.
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
SITE 1
NAD 83
ENGLISH
BEGIN APPROACH SLAB -L- Sta.15+40.85
END APPROACH SLAB -L- Sta.17+03.85
PREFORMED SCOUR HOLE SEE DETAIL #4
BEGIN BRIDGE -L- Sta.15+64.85
END BRIDGE -L- Sta.16+79.85
2' BASE DITCH W/CLASS 'B' RIP RAP SEE DETAIL #1
CLASS 'II' RIP RAP AT EMBANKMENT SEE DETAIL #2
CL STA. 16+22.3 SKEW=90 GP=128.63' 1@65' 1@50' 27" BOX BEAM
LAKEWOOD DR SR 1108 22' BST
MARCH F RIDDLE
DOLORES PRIEST DB 3080 PG 243
LAUREN FAIRCLOTH DB 3215 PG 261
CAROLE RIVENBARK
ABANDONED WOOD BARN
*NO DECK DRAINS REQUIRED
SEE SHEET 2B FOR -DET- ALIGNMENT AND PROFILE
BEGIN TIP PROJECT B-4092 -L- Sta. 9+55.04 BEGIN OVERLAY
** Design exception for horizontal alignment, vertical alignment, horizontal stopping sight distance and vertical stopping sight distance.
-L-
BEGIN GRADE -L- Sta. 12+00.00 ELEV. 150.10 END OVERLAY
PI = 12+50.00 EL = 146.89' VC = 100' K = 275 DS = 60 MPH
PI = 15+15.00 EL = 128.96' VC = 170' K = 26 DS = **25 MPH
PI = 17+67.20 EL = 128.20' VC = 150' K = 250 DS = 60 MPH
END GRADE -L- Sta. 19+50.00 ELEV. 128.75 BEGIN OVERLAY
END TIP PROJECT B-4092 -L- Sta. 22+35.33 END OVERLAY
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
50' FEATHER TO EXIST
OVERLAY EXISTING
EXISTING GROUND
EXISTING GRADE
PROPOSED GRADE
(-)6.4040%
(-)6.7682%
(-)0.3000%
(+)0.3000%
EXIST. BRIDGE TO BE REMOVED
EXCAVATE EXISTING ROAD FILL 200 CY (STRUCT. PAY ITEM)
CL "II" RIP RAP W/FILTER FABRIC TO TOP OF BERM 1.5:1 NORMAL (STRUCT. PAY ITEM)
EXCAVATE EXISTING ROAD FILL 100 CY
BM80 ELEV.173.79 N 459964.5460 E 1998405.2010
BM81 ELEV.137.45 N 453256.2220 E 1999663.2290
NOTE: BENCH MARK 80 & BENCH MARK 81 ARE LOCATED OUTSIDE OF PROJECT LIMITS.
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 2,470 CFS
DESIGN FREQUENCY = 5 YRS
DESIGN HW ELEVATION = 128.8 FT
BASE DISCHARGE = 5,260 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 131.7 FT
OVERTOPPING DISCHARGE = 2,470- CFS
OVERTOPPING FREQUENCY = 5- YRS
OVERTOPPING ELEVATION = 128.0 FT
REVISIONS
Permit Drawing Sheet 7 of 10

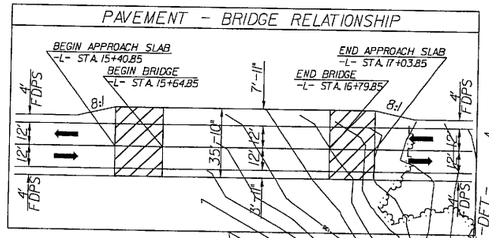
8/17/99

REVISIONS

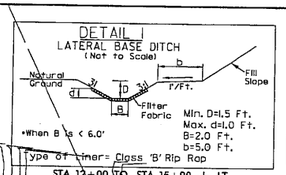
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4092-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 470471.2933(ft) EASTING: 2011708.9490(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .999882380 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4092-1" TO -L- STATION POT STA 9+55.04 IS S 34° 9' 2" W 23173.68' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAD 88

PAVEMENT - BRIDGE RELATIONSHIP



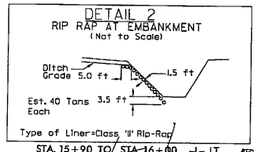
DETAIL 1
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip Rap

STA. 12+00 TO STA. 15+90 -L- LT
STA. 13+00 TO STA. 15+83 -L- RT

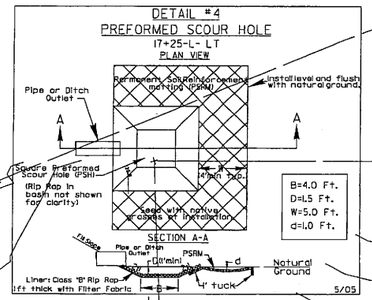
DETAIL 2
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=Class 'B' Rip-Rap

STA. 15+90 TO STA. 16+00 -L- LT
STA. 15+83 TO STA. 15+90 -L- RT

DETAIL #4
PREFORMED SCOUR HOLE
17+25-L- LT
PLAN VIEW



PROJECT REFERENCE NO.	SHEET NO.
B-4092	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 1

NAD 83

BEGIN APPROACH SLAB -L- Sta.15+40.85

END APPROACH SLAB -L- Sta.17+03.85

BEGIN BRIDGE -L- Sta.15+64.85

END BRIDGE -L- Sta.16+79.85

CLASS II RIP RAP AT EMBANKMENT SEE DETAIL #2

2' BASE DITCH W/CLASS 'B' RIP RAP SEE DETAIL #1

PREFORMED SCOUR HOLE SEE DETAIL #4

2'-6" W/FLAT GRATE

APPROX. LOCATION OF ABAND. 8"

*CL STA. 16+22.3 SKEW=90 GP=128.63' 1@65' 1@90' 29" BOX BEAM

*NO DECK DRAINS REQUIRED

ABANDONED WOOD BARN

MARCH F. RIDDLE

CAROLE RIVENBARK

DOLORES PRIEST DB 3080 PG 245

LAUREN FARGOLTH DB 5315 PG 261

ENGLISH

LAKEWOOD DR SR 1108 22' BST

SEE SHEET 2B FOR -DET- ALIGNMENT AND PROFILE

BEGIN TIP PROJECT B-4092
-L- Sta. 9+55.04
BEGIN OVERLAY

** Design exception for horizontal alignment, vertical alignment, horizontal stopping sight distance and vertical stopping sight distance.

BEGIN GRADE
-L- Sta. 12+00.00 ELEV. 150.10
END OVERLAY

PI = 12+50.00
EL = 146.89'
VC = 100'
K = 275
DS = 60 MPH

PI = 15+15.00
EL = 128.96'
VC = 170'
K = 26
DS = **25 MPH

END GRADE
-L- Sta. 19+50.00 ELEV. 128.75
BEGIN OVERLAY

PI = 17+67.20
EL = 128.20'
VC = 150'
K = 250
DS = 60 MPH

END TIP PROJECT B-4092
-L- Sta. 22+35.33
END OVERLAY

50' FEATHER TO EXIST

OVERLAY EXISTING

EXISTING GROUND

EXISTING GRADE

PROPOSED GRADE

(-)6.4040% (-)6.7682% (-)6.5400% LT. (-)6.5400% RT. (-)6.7800% RT. (-)6.1500% LT. (-)6.7682% (-)3.4343% RT. (-)6.9400% LT. (-)3.0111% LT. (-)0.3000% (-)0.3000% (+)0.3000%

BEG LAT BASE DITCH LT. STA.12+00.00 EL=144.60

PI =12+50.00 EL = 141.33

BEG LAT BASE DITCH RT. STA.13+00.00 EL=139.52

PI =13+50.00 RT. EL = 136.75

PI =13+50.00 EL = 132.36

PI =14+00.00 RT. EL = 132.36

PI =14+50.00 LT. EL = 129.03

PI =15+00.00 LT. EL = 125.56

END LAT BASE DITCH RT. STA.15+80.00 EL=124.00

END LAT BASE DITCH LT. STA.15+96.06 EL=125.65

EXIST. BRIDGE TO BE REMOVED

EXCAVATE EXISTING ROAD FILL 200 CY (STRUCT. PAY ITEM)

CL "II" RIP RAP W/FILTER FABRIC TO TOP OF BERM 1.5:1 NORMAL (STRUCT. PAY ITEM)

EXCAVATE EXISTING ROAD FILL 100 CY

3.5' MIN

EXISTING

BM80 ELEV.173.79
N 450964.5400 E 1998405.2910

BM81 ELEV.137.45
N 453256.2220 E 1999663.2290

NOTE: BENCH MARK 80 & BENCH MARK 81 ARE LOCATED OUTSIDE OF PROJECT LIMITS.

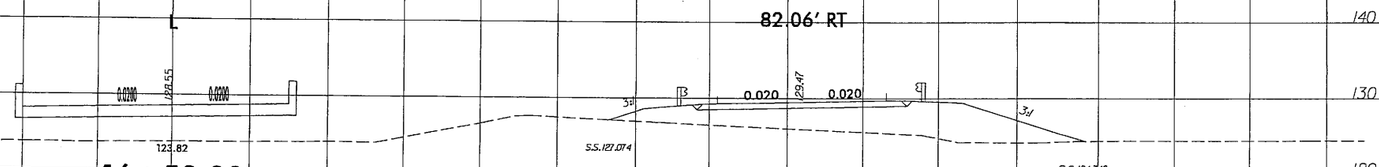
DITCH LEGEND	
LEFT DITCH	----------
RIGHT DITCH	----------

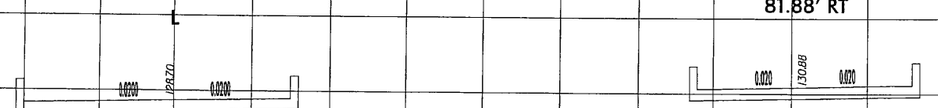
STRUCTURE HYDRAULIC DATA

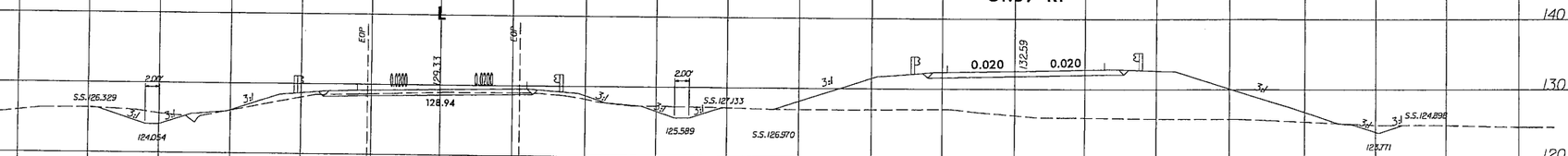
DESIGN DISCHARGE	= 2,470	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 128.8	FT
BASE DISCHARGE	= 5,260	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 131.7	FT
OVERTOPPING DISCHARGE	= 2,470	CFS
OVERTOPPING FREQUENCY	= 5	YRS
OVERTOPPING ELEVATION	= 128.0	FT

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

Permit Drawing Sheet 8 of 10







PROJ. REFERENCE NO.	SHEET NO.
B-4092	X-6

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/23/99

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$$

Permit Drawing
Sheet 9 of 10

8/23/9

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4092	X-8

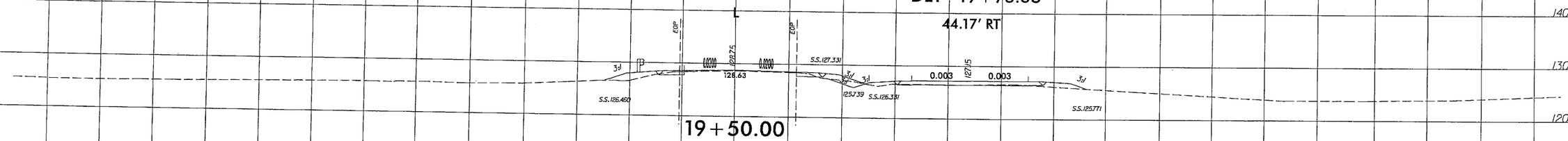
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 3

HAND CLEARING

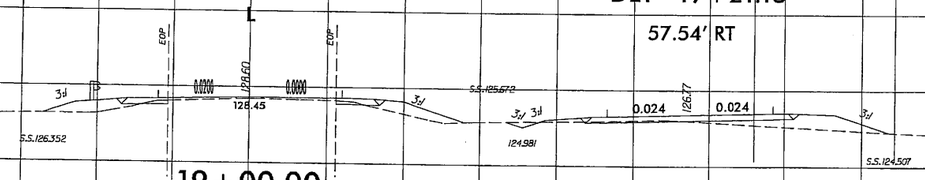
TEMP FILL IN WETLAND

-DET- 19+73.68
44.17' RT



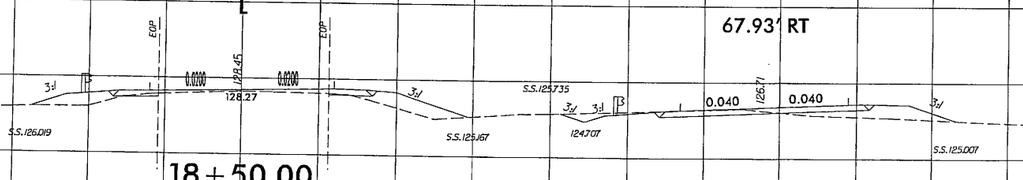
19+50.00

-DET- 19+21.18
57.54' RT



19+00.00

-DET- 18+69.38
67.93' RT



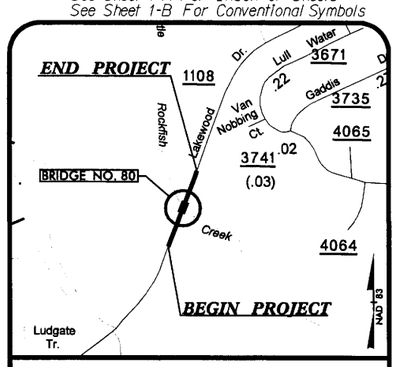
18+50.00

Permit Drawing
Sheet 10 of 10

TIP PROJECT: B-4092

CONTRACT:

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



VICINITY MAP

(THIS PROJECT IS NOT INCLUDED WITHIN ANY MUNICIPAL BOUNDARIES)

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

LOCATION: BRIDGE NO. 80 ON SR 1108 LAKEWOOD DR. OVER LITTLE ROCKFISH CREEK.

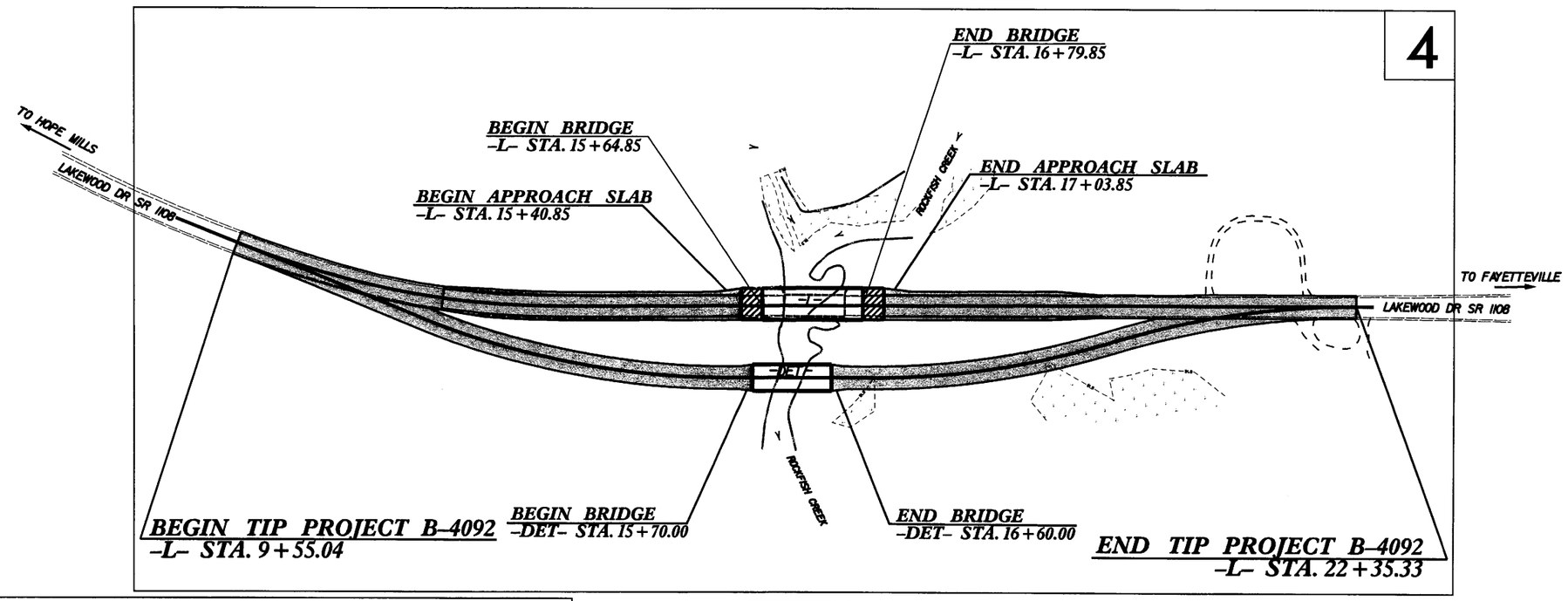
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4092	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33450.1.1	BZR-1108 (9)	PE
33450.2.2	BRZ-1108 (9)	R/W & UTIL.

R/W PLANS

4



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

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 14,100
ADT 2028 = 24,800
DHV = 10 %
D = 60 %
T = 4 % *
**V = 60 MPH
FUNC. CLASS = URBAN LOCAL
* TTST 1% DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4092 = 0.220 Miles
LENGTH STRUCTURE TIP PROJECT B-4092 = 0.022 Miles
TOTAL LENGTH TIP PROJECT B-4092 = 0.242 Miles

Prepared in the Office of:
THE LPA GROUP TRANSPORTATION CONSULTANTS
THE LPA GROUP of North Carolina, p.a.
5000 Falls of Neuse Rd., Suite 304
Raleigh, North Carolina 27609

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUG. 17, 2007

LETTING DATE:
AUG. 19, 2008

Jeanne K. Richter P.E.
PROJECT ENGINEER

Jody L. Cole
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.*

PROJECT REFERENCE NO.	SHEET NO.
B-4092	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
B-4092	I-C
Location and Surveys	

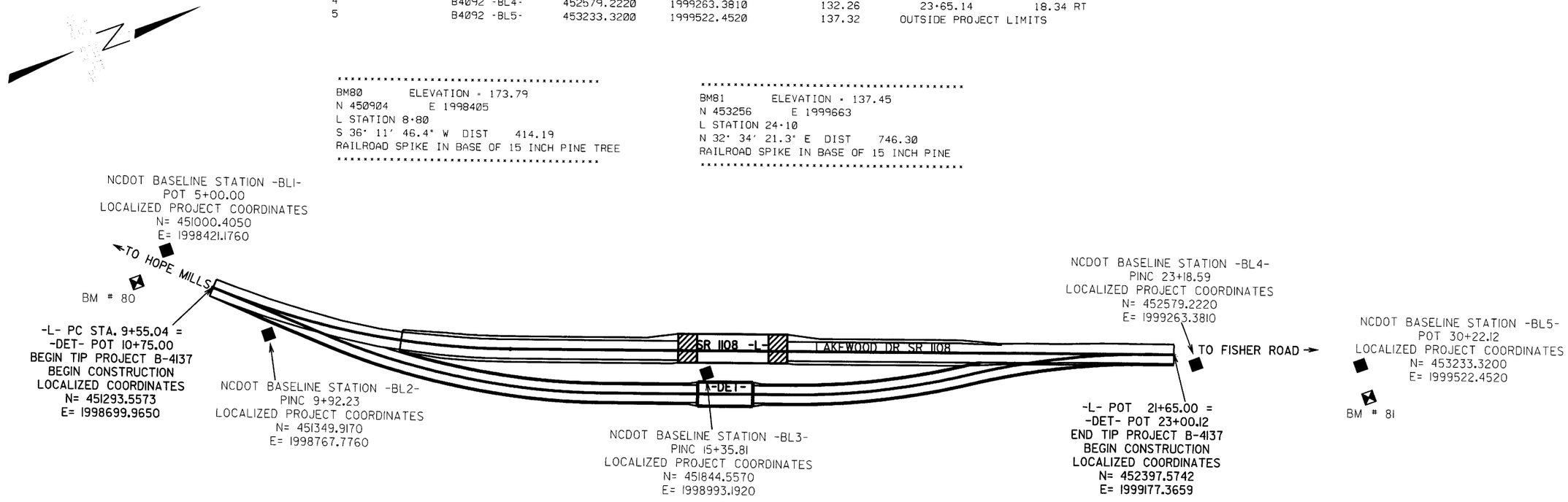
SURVEY CONTROL SHEET B-4092

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4092 -BL1-	451000.4050	1998421.1760	170.94	OUTSIDE PROJECT LIMITS	
2	B4092 -BL2-	451349.9170	1998767.7760	159.06	10+40.97	16.51 RT
3	B4092 -BL3-	451844.5570	1998993.1920	128.25	15+82.31	15.63 RT
4	B4092 -BL4-	452579.2220	1999263.3810	132.26	23+65.14	18.34 RT
5	B4092 -BL5-	453233.3200	1999522.4520	137.32	OUTSIDE PROJECT LIMITS	

****
BM80 ELEVATION = 173.79
N 450904 E 1998405
L STATION 8+80
S 36° 11' 46.4" W DIST 414.19
RAILROAD SPIKE IN BASE OF 15 INCH PINE TREE
****

****
BM81 ELEVATION = 137.45
N 453256 E 1999663
L STATION 24+10
N 32° 34' 21.3" E DIST 746.30
RAILROAD SPIKE IN BASE OF 15 INCH PINE
****



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4092-I" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 470471.2933(ft) EASTING: 2011708.9490(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .999882380
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4092-I" TO -L- STATION 9+55.04 IS S 34° 09' 02" W 23173.68'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

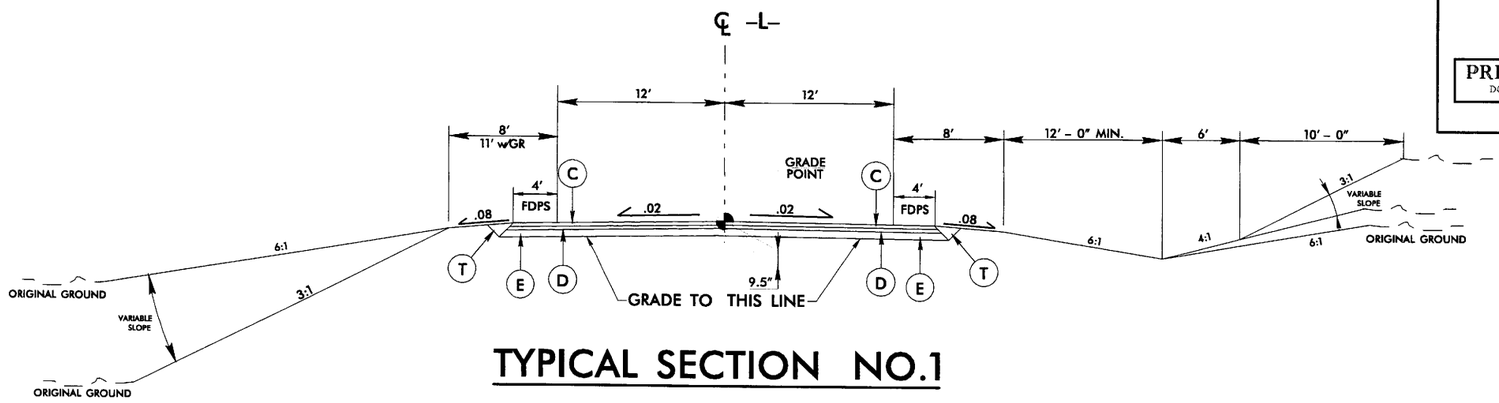
1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/
THE FILES TO BE FOUND ARE AS FOLLOWS:
TIP B4092_LS_CONTROL_060717.txt
SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
∴ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

PROJECT REFERENCE NO.	SHEET NO.
B-4092	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

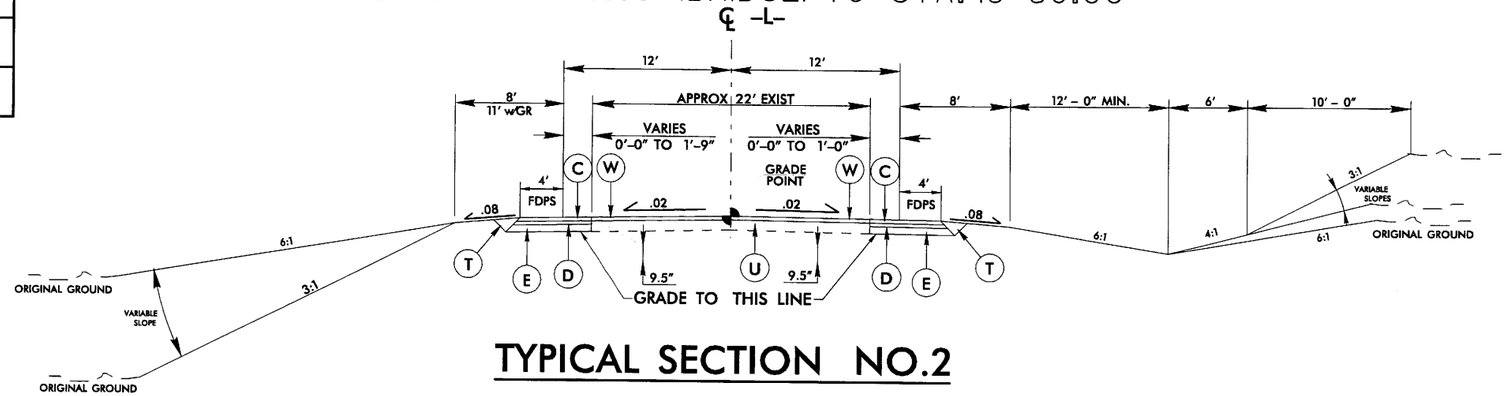
PAVEMENT SCHEDULE	
A	5" PORTLAND CEMENT CONCRETE PAVEMENT.
C	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	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 2" IN DEPTH.
D	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D1	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.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	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.
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2A)

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



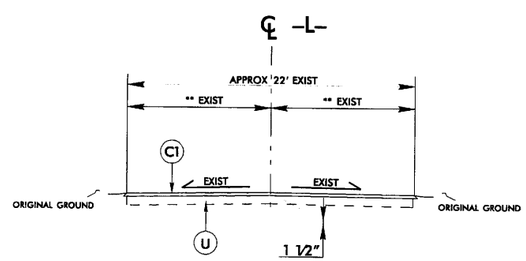
TYPICAL SECTION NO.1

-L- STA. 14+00.00 TO STA. 15+64.85 (BRIDGE)
-L- STA. 16+79.85 (BRIDGE) TO STA. 18+50.00



TYPICAL SECTION NO.2

-L- STA. 12+00.00 TO STA. 14+00.00
-L- STA. 18+50.00 TO STA. 19+50.00

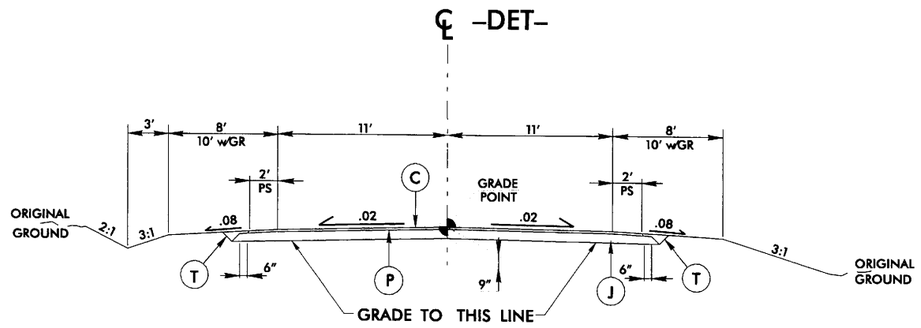


TYPICAL SECTION NO.3

-L- STA. 9+55.04 TO STA. 12+00.00
-L- STA. 19+50.00 TO STA. 22+35.33

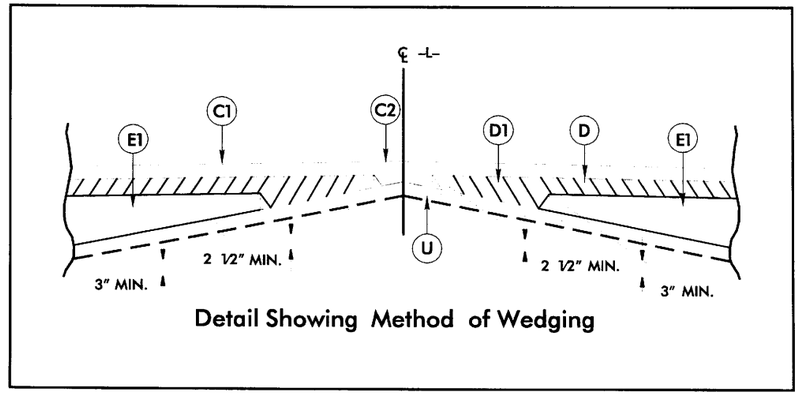
** OVERLAY EXISTING PAVEMENT ONLY

PAVEMENT SCHEDULE	
A	5" PCCP
C	3" S9.5B
C1	1½" S9.5B
C2	VAR. S9.5B
D	2½" I19.0B
D1	VAR. I19.0B
E	4" B25.0B
E1	VAR. B25.0B
J	6" ABC
P	.35 PRIME COAT
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

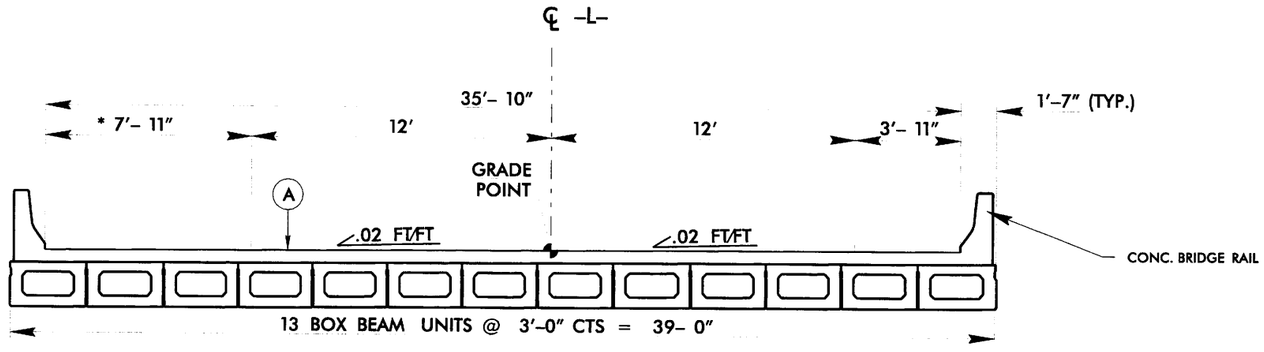


TYPICAL SECTION NO.4

-DET- STA. 9+55.04 TO STA. 15+70.00 (BEGIN BRIDGE)
-DET- STA. 16+60.00 (END BRIDGE) TO STA. 22+59.64



Detail Showing Method of Wedging



TYPICAL SECTION NO.5

-L- STA. 15+64.85 (BEGIN BRIDGE) TO STA. 16+79.85 (END BRIDGE)
* WIDENED SHOULDER DUE TO HYDRAULIC SPREAD

PROJECT REFERENCE NO.	SHEET NO.
B-4092	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

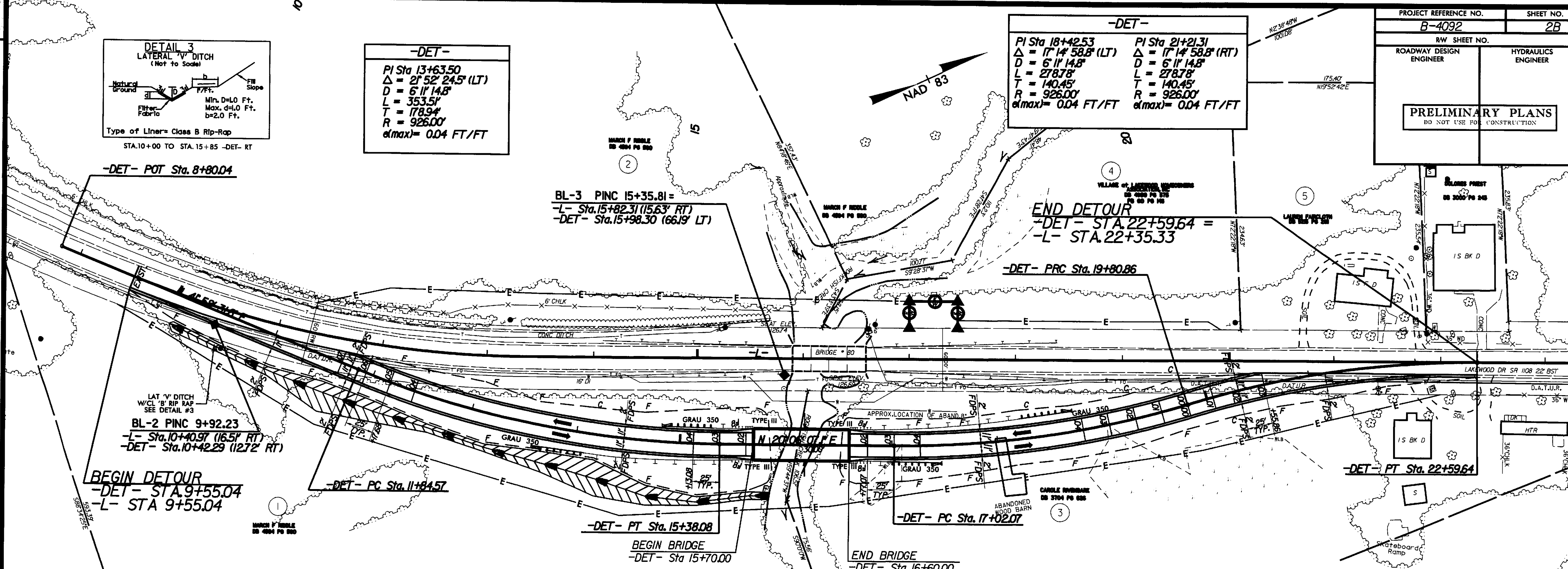
PROJECT REFERENCE NO.	SHEET NO.
B-4092	2B

RW SHEET NO.

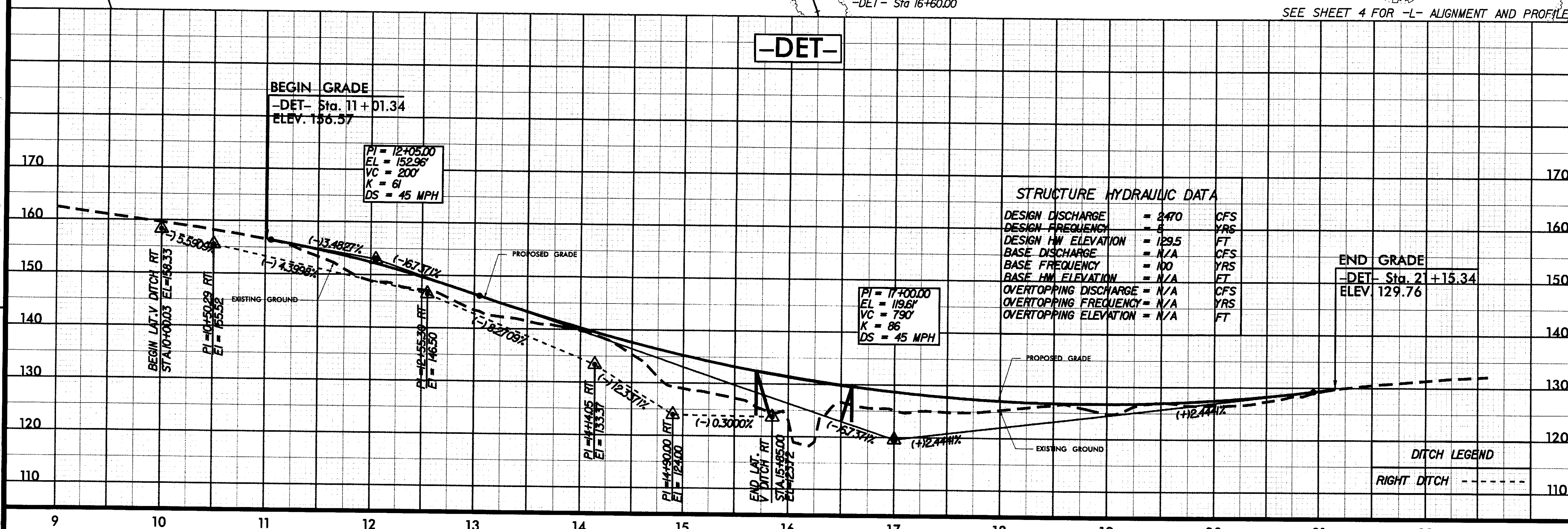
ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Filter Fabric
Min. D=1.0 Ft.
Max. d=1.0 Ft.
b=2.0 Ft.
Type of Liner= Class B Rip-Rap
STA.10+00 TO STA. 15+85 -DET- RT
-DET-
PI Sta 13+63.50
Δ = 21° 52' 24.5" (LT)
D = 6° 11' 14.8"
L = 353.51'
T = 178.94'
R = 926.00'
e(max)= 0.04 FT/FT
-DET-
PI Sta 18+42.53
Δ = 17° 14' 58.8" (LT)
D = 6° 11' 14.8"
L = 278.78'
T = 140.45'
R = 926.00'
e(max)= 0.04 FT/FT
PI Sta 21+21.31
Δ = 17° 14' 58.8" (RT)
D = 6° 11' 14.8"
L = 278.78'
T = 140.45'
R = 926.00'
e(max)= 0.04 FT/FT
NAD 83
-DET- POT Sta. 8+80.04
BL-3 PINC 15+35.81 =
-L- Sta.15+82.31 (15.63' RT)
-DET- Sta.15+98.30 (66.19' LT)
END DETOUR
-DET- STA.22+59.64 =
-L- STA.22+35.33
-DET- PRC Sta. 19+80.86
LAT 'V' DITCH W/CL 'B' RIP RAP SEE DETAIL #3
BL-2 PINC 9+92.23
-L- Sta.10+40.97 (16.51' RT)
-DET- Sta.10+42.29 (12.72' RT)
BEGIN DETOUR
-DET- STA.9+55.04
-L- STA 9+55.04
-DET- PC Sta. 11+84.57
-DET- PT Sta. 15+38.08
BEGIN BRIDGE
-DET- Sta 15+70.00
END BRIDGE
-DET- Sta 16+60.00
-DET- PC Sta. 17+02.07
-DET- PT Sta. 22+59.64
LAKEWOOD DR SR 1108 22' BST
GRAU 350
TYPE III
APPROX.LOCATION OF ABAND.R
ABANDONED WOOD BARN
1S BK D
Skateboard Ramp
SEE SHEET 4 FOR -L- ALIGNMENT AND PROFILE



-DET-
BEGIN GRADE
-DET- Sta. 11+01.34
ELEV. 156.57
PI = 12+05.00
EL = 152.96'
VC = 200'
K = 61
DS = 45 MPH
PI = 17+00.00
EL = 119.61'
VC = 790'
K = 86
DS = 45 MPH
END GRADE
-DET- Sta. 21+15.34
ELEV. 129.76
(-)5.5909%
(-)3.4827%
(-)4.3998%
(-)6.7371%
(-)8.2709%
(-)12.3371%
(-) 0.3000%
(-)6.7371%
(+)2.4441%
(+)2.4441%
PROPOSED GRADE
EXISTING GROUND
BEGIN LAT.V DITCH RT STA.10+00.03 EL=158.33
PI =10+50.29 RT El = 155.52
PI =12+55.30 RT El = 146.50
PI =14+14.05 RT El = 133.37
PI =14+90.00 RT El = 124.00
END LAT. V DITCH RT STA.15+85.00 EL=123.72
DITCH LEGEND
RIGHT DITCH

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2470	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 129.5	FT
BASE DISCHARGE	= N/A	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= N/A	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING ELEVATION	= N/A	FT

PROJECT REFERENCE NO.	SHEET NO.
B-4092	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

COMPUTED BY: J.Cole DATE: 08/02/07
CHECKED BY: P.Audlair DATE: 08/02/07

PROJECT REFERENCE NO.	SHEET NO.
B-4092	3-A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

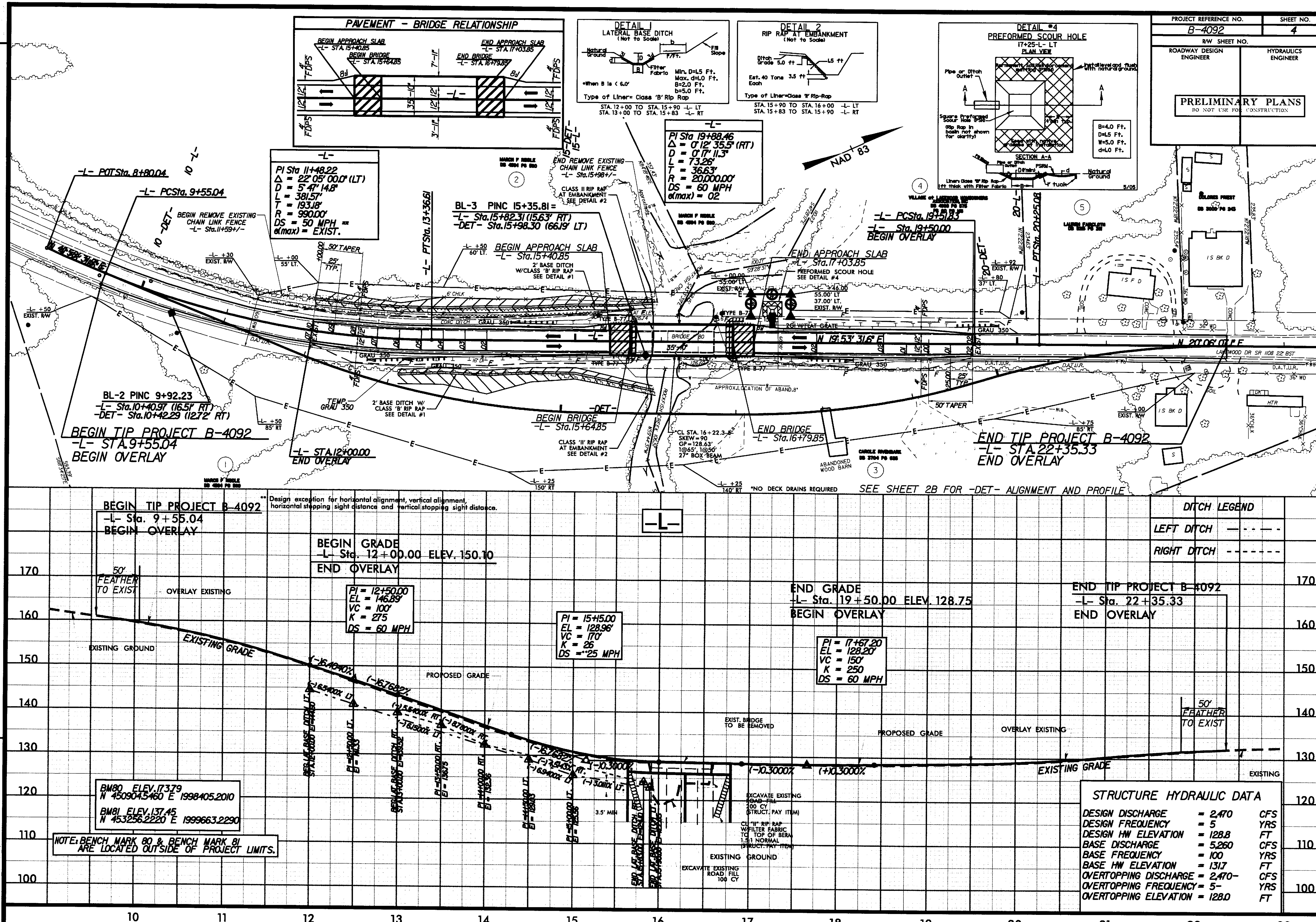
LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+25%	BORROW	WASTE
PHASE I					
–DET– 9+55.04 TO					
15+70.00 (BEGIN BRIDGE)	65		2,739	2,674	
–DET– 16+60.00 (END BRIDGE) TO					
22+59.64	94		1,130	1,036	
SUBTOTAL	159		3,869	3,710	
PHASE II					
–L– 12+00.00 TO					
15+64.85 (BEGIN BRIDGE)	134		262	128	
–L– 16+79.85 (END BRIDGE) TO					
19+50.00	151		303	152	
SUBTOTAL	285		565	280	
PHASE III (–L– /W–DET– REMOVAL)					
–L– 10+00.00 TO					
15+53.77 (BEGIN BRIDGE)	2,166		76		2,166
–L– 16+43.77 (END BRIDGE) TO					
21+50.00	903		87		903
SUBTOTAL	3,069		163		3,069
TOTALS	3,513		4,624	3,990	3,069
PROJECT TOTALS	3,513		4,624	3,990	3,069
EST. 5% FOR REPLACING					
TOPSOIL ON ON BORROW PIT				200	
GRAND TOTALS	3,515			4,190	
SAY	3,550			4,200	

EST. DDE = 1,660 C.Y.
EST. SELECT GRANULAR MATERIAL = 250 C.Y.
EST. UNDERCUT EXCAVATION = 250 C.Y.

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PROJECT REFERENCE NO.	SHEET NO.
B-4092	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PAVEMENT - BRIDGE RELATIONSHIP
BEGIN APPROACH SLAB -L- STA. 15+40.85
BEGIN BRIDGE -L- STA. 15+64.85
END APPROACH SLAB -L- STA. 17+03.85
END BRIDGE -L- STA. 16+79.85
DETAIL 1 LATERAL BASE DITCH (Not to Scale)
Type of Liner= Class 'B' Rip Rap
STA. 12+00 TO STA. 15+90 -L- LT
STA. 13+00 TO STA. 15+83 -L- RT
DETAIL 2 RIP RAP AT EMBANKMENT (Not to Scale)
Type of Liner=Class 'II' Rip-Rap
STA. 15+90 TO STA. 16+00 -L- LT
STA. 15+83 TO STA. 15+90 -L- RT
DETAIL #4 PREFORMED SCOUR HOLE 17+25-L- LT
PLAN VIEW
SECTION A-A
B=4.0 Ft. D=1.5 Ft. W=5.0 Ft. d=1.0 Ft.
-L-
PI Sta 11+48.22
Δ = 22°05' 00.0" (LT)
D = 5°47' 14.8"
L = 381.57'
T = 193.18'
R = 990.00'
DS = 50 MPH **
e(max) = EXIST.
-L-
PI Sta 19+88.46
Δ = 0°12' 35.5" (RT)
D = 0°17' 11.3"
L = 73.26'
T = 36.63'
R = 20,000.00'
DS = 60 MPH
e(max) = .02
NAD 83
-L- POT Sta. 8+80.04
-L- PC Sta. 9+55.04
BEGIN REMOVE EXISTING CHAIN LINK FENCE -L- Sta. 11+59+/-
BL-3 PINC 15+35.81 =
-L- Sta. 15+82.31 (15.63' RT)
-DET- Sta. 15+98.30 (66.19' LT)
END REMOVE EXISTING CHAIN LINK FENCE -L- Sta. 15+98+/-
BEGIN APPROACH SLAB -L- Sta. 15+40.85
END APPROACH SLAB -L- Sta. 17+03.85
PREFORMED SCOUR HOLE SEE DETAIL #4
-L- PC Sta. 19+13.83
-L- Sta. 19+50.00 BEGIN OVERLAY
-L- PT Sta. 20+25.08
BL-2 PINC 9+92.23
-L- Sta. 10+40.97 (16.51' RT)
-DET- Sta. 10+42.29 (12.72' RT)
BEGIN TIP PROJECT B-4092
-L- STA. 9+55.04
BEGIN OVERLAY
-L- STA. 12+00.00 END OVERLAY
BEGIN BRIDGE -L- Sta. 15+64.85
END BRIDGE -L- Sta. 16+79.85
CL STA. 16+22.3 SKEW=90 GP=128.63' 1@65', 1@50' 27" BOX BEAM
END TIP PROJECT B-4092
-L- STA. 22+35.33
END OVERLAY
*NO DECK DRAINS REQUIRED
SEE SHEET 2B FOR -DET- ALIGNMENT AND PROFILE
** Design exception for horizontal alignment, vertical alignment, horizontal stopping sight distance and vertical stopping sight distance.
BEGIN TIP PROJECT B-4092 -L- Sta. 9+55.04 BEGIN OVERLAY
-L-
BEGIN GRADE -L- Sta. 12+00.00 ELEV. 150.10 END OVERLAY
PI = 12+50.00 EL = 146.89' VC = 100' K = 275 DS = 60 MPH
PI = 15+15.00 EL = 128.96' VC = 170' K = 26 DS = **25 MPH
END GRADE -L- Sta. 19+50.00 ELEV. 128.75 BEGIN OVERLAY
PI = 17+67.20 EL = 128.20' VC = 150' K = 250 DS = 60 MPH
END TIP PROJECT B-4092 -L- Sta. 22+35.33 END OVERLAY
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
50' FEATHER TO EXIST
OVERLAY EXISTING
EXISTING GROUND
EXISTING GRADE
PROPOSED GRADE
(-)16.4640%
(-)16.7682%
(-)0.3000%
(+)0.3000%
EXIST. BRIDGE TO BE REMOVED
EXCAVATE EXISTING ROAD FILL 200 CY (STRUCT. PAY ITEM)
EXCAVATE EXISTING ROAD FILL 100 CY
BM80 ELEV. 173.79 N 450904.5460 E 1998405.2010
BM81 ELEV. 137.45 N 453256.2220 E 1999663.2290
NOTE: BENCH MARK 80 & BENCH MARK 81 ARE LOCATED OUTSIDE OF PROJECT LIMITS.

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2,470	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 128.8	FT
BASE DISCHARGE	= 5,260	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 131.7	FT
OVERTOPPING DISCHARGE	= 2,470-	CFS
OVERTOPPING FREQUENCY	= 5-	YRS
OVERTOPPING ELEVATION	= 128.0	FT

REVISIONS

Approximate quantities only. Unclassified excavation, fine grading clearing and grubbing and removal of existing pavement will be paid for at the lump sum price of "Grading"

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

PROJ. REFERENCE NO.	SHEET NO.
B-4092	X-1

Stations DET	Uncl. Exc. (cu.yd.)	Embt (cu.yd)
9+55..04	0	0
10+00.00	0	0
10+50.00	13	36
11+00.00	4	79
11+50.00	7	86
12+00.00	5	110
12+50.00	0	181
13+00.00	0	244
13+50.00	0	182
14+00.00	18	50
14+50.00	18	237
15+00.00	0	639
15+50.00	0	807
15+70.00	0	88

Stations L	Uncl. Exc. (cu.yd.)	Embt (cu.yd)
12+00.00	0	0
12+50.00	0	0
13+00.00	23	42
13+50.00	18	49
14+00.00	16	54
14+50.00	18	44
15+00.00	27	31
15+50.00	25	32
15+64.85	7	10

Stations DET REM	Uncl. Exc. (cu.yd.)	Embt (cu.yd)
10+00.00	0	0
10+50.00	97	20
11+00.00	69	6
12+00.00	80	6
12+50.00	133	0
13+00.00	188	0
13+50.00	142	0
14+00.00	40	0
14+50.00	190	22
15+00.00	511	0
15+50.00	646	0
15+53.77	70	0

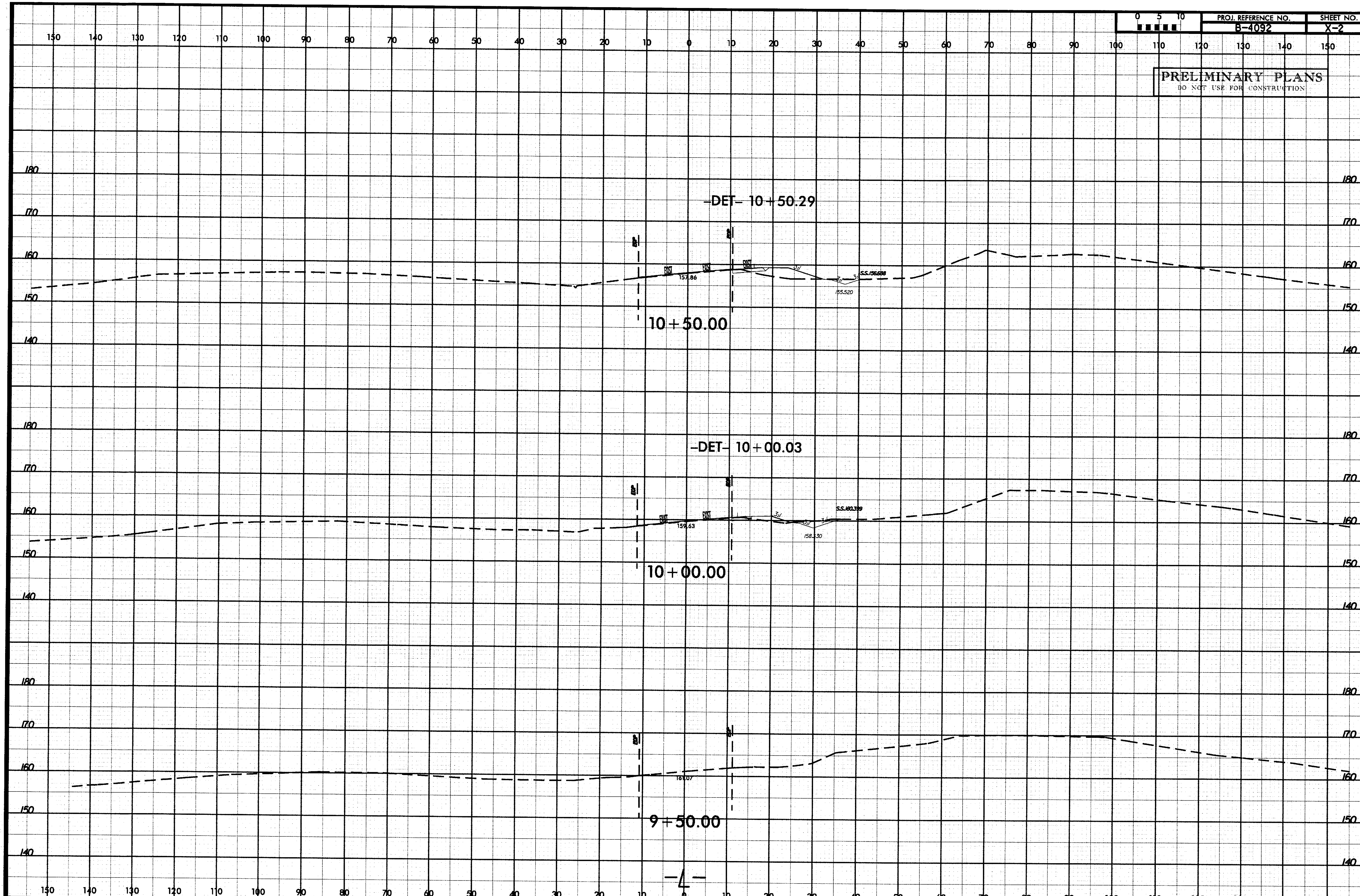
Stations DET	Uncl. Exc. (cu.yd.)	Embt (cu.yd)
16+60.00	0	0
17+00.00	0	69
17+50.00	0	377
18+00.00	0	292
18+50.00	4	142
19+00.00	17	54
19+50.00	16	58
20+00.00	8	43
20+50.00	18	25
21+00.00	17	29
21+50.00	7	27
22+00.00	7	14
22+50.00	0	0
22+59.64	0	0

Stations L	Uncl. Exc. (cu.yd.)	Embt (cu.yd)
16+79.85	0	0
17+00.00	15	15
17+50.00	34	47
18+00.00	26	60
18+50.00	22	68
19+00.00	24	66
19+50.00	30	47

Stations DET REM	Uncl. Exc. (cu.yd.)	Embt (cu.yd)
16+43.77	0	0
16+50.00	56	0
17+00.00	302	0
17+50.00	233	0
18+00.00	114	5
18+50.00	43	22
19+00.00	46	20
19+50.00	34	6
20+00.00	20	18
20+50.00	23	16
21+00.00	21	0
21+50.00	11	0

PROJ. REFERENCE NO.	SHEET NO.
B-4092	X-2

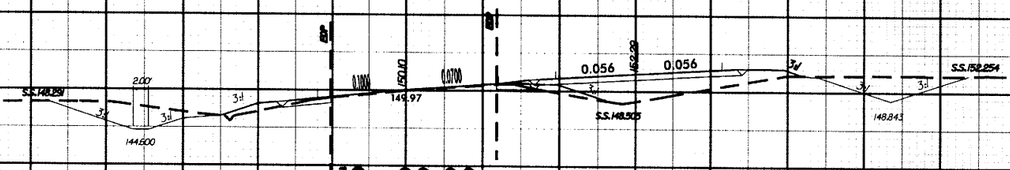
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4092	X-3

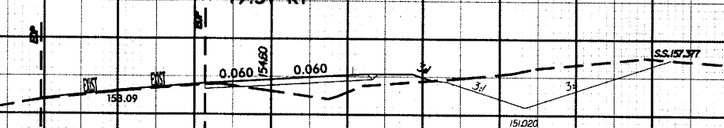
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET- 12+02.05
30.52' RT



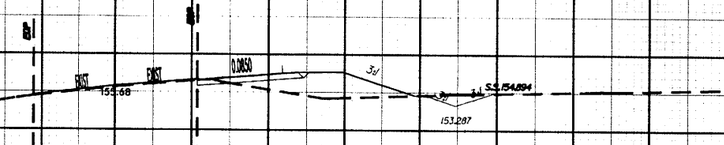
12+00.00

-DET- 11+52.56
19.51' RT



11+50.00

-DET- 11+01.04



11+00.00

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4092	X-4

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET- 13+62.63
64.62' RT

13+50.00

-DET- 13+09.08
58.70' RT

13+00.00

-DET- 12+55.30
42.24' RT

12+50.00

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4092	X-5

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET- 15+15.87
81.25' RT

15+00.00

-DET- 14+65.07
78.49' RT

14+50.00

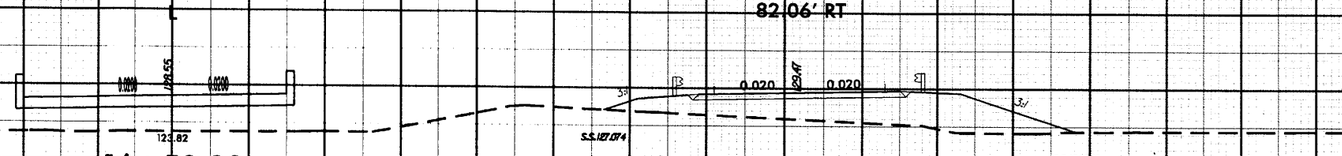
-DET- 14+14.05
72.97' RT

14+00.00

PROJ. REFERENCE NO.	SHEET NO.
B-4092	X-6

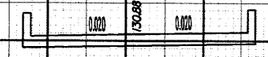
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET- 16+66.23
82.06' RT



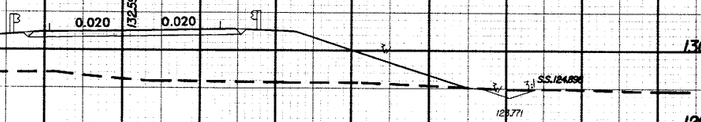
16+50.00

-DET- 16+16.23
81.88' RT



16+00.00

-DET- 15+66.23
81.69' RT

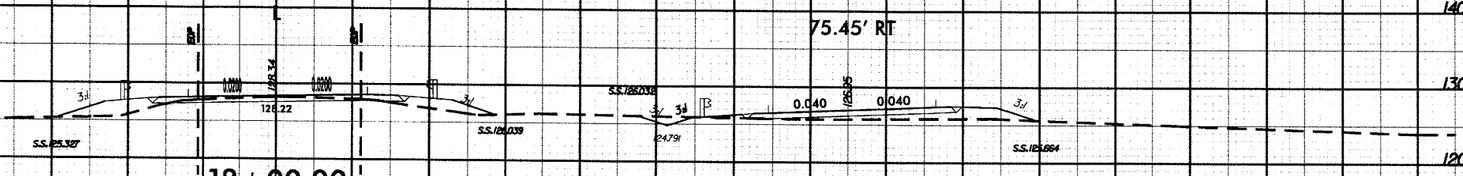


15+50.00

PROJ. REFERENCE NO.	SHEET NO.
B-4092	X-7

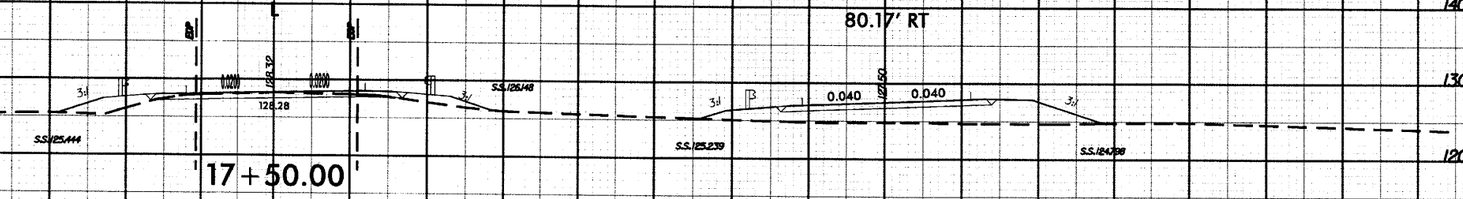
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET- 18+18.09
75.45' RT



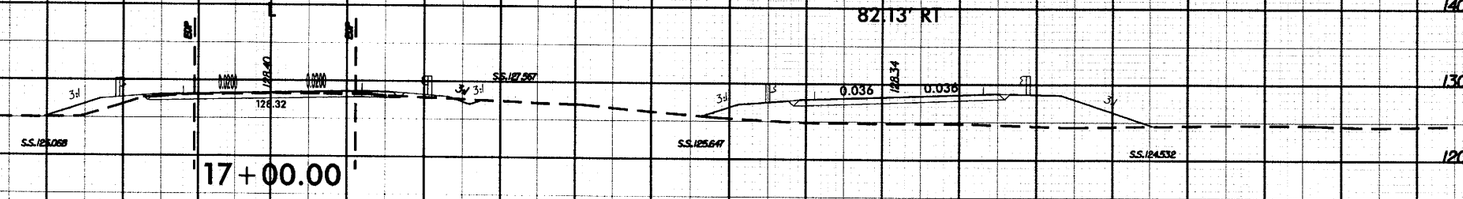
18+00.00

-DET- 17+67.14
80.17' RT



17+50.00

-DET- 17+16.39
82.13' RT



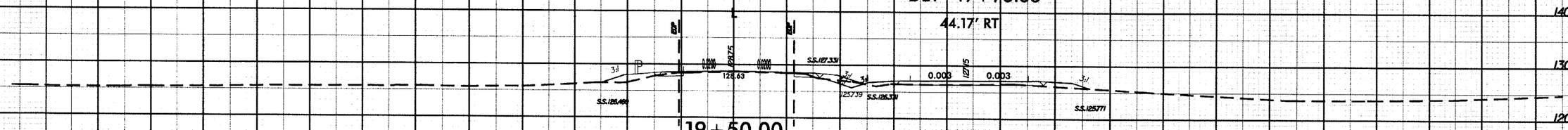
17+00.00

-L-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4092	X-8

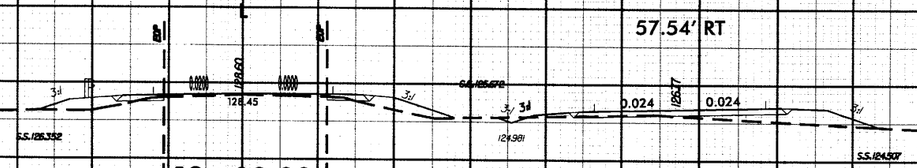
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET- 19+73.68
44.17' RT



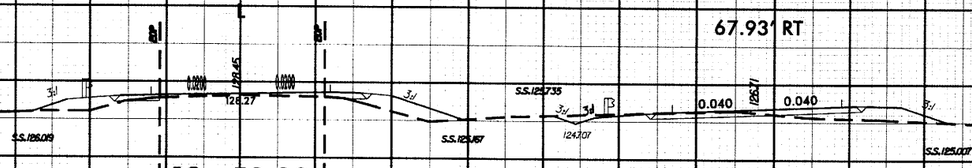
19+50.00

-DET- 19+21.18
57.54' RT



19+00.00

-DET- 18+69.38
67.93' RT



18+50.00

-L-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4092	X-9

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET- 21+23.83

21+00.00

-DET- 20+73.06
18.74' RT

20+50.00

-DET- 20+25.08
29.97' RT

20+00.00

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4092	X-10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

22+50.00

132.35

22+00.00

131.81

-DET- 21+74.19

21+50.00

131.04