STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 20, 2006

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

ATTN: Mr. Todd Tugwell
NCDOT Coordinator

Subject: **Nationwide Permit 33 Application** for replacement of Bridge No.109 over Birch Fork Creek on SR 1767 in Rockingham County, Federal Aid Project No. BRZ-1767(2), State Project No. 33595.1.1, Division 7, TIP No. B-4253.

Please see the enclosed Pre-Construction notice (PCN), permit drawings, design plans and Categorical Exclusion (CE) for the subject project. The NCDOT plans to replace the 90-foot Bridge No. 109 with a 95 feet single span box beam on reinforced concrete end bents on piles with a clear roadway width of 28 feet-2 inches. The new bridge will be constructed approximately 30 feet east of the existing alignment with slight road widening of the approaches. Traffic will be detoured off-site during construction. There will be 0.01 acres of temporary surface water impacts associated with the project.

IMPACT TO WATERS OF THE UNITED STATES

General Description: The project is located in the Roanoke River basin (Sub-basin 03-02-03), Hydrologic Unit Code no. 03010103). The jurisdictional resource in the project area is Birch Fork Creek . The Division of Water Quality stream index number for Birch Fork Creek is 22-48-4. The channel of Birch Fork Creek is approximately 25 feet wide and has an average depth of 10 feet. On the day of a site visit in August, 2001, the average stream flow was moderate and measured approximately 15 feet wide and 1 foot deep. The normal water depth of Birch Fork Creek is 2 feet deep. The substrate is composed of gravel, sand and silt.

At this location Birch Fork Creek has a best usage classification of C. Best usage of Class C waters are defined as aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. No Outstanding Resource Waters (ORW), High Quality Waters (HQW), WS-I, or WS-II Waters occur within 1.0 mile of the project study area.

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

LOCATION:
2728 CAPITAL BLVD.
PARKER LINCOLN BUILDING, SUITE 168
RALEIGH NC 27604

Permanent Impacts: There will be no permanent impacts to surface waters or wetlands associated with this project. The new bridge will span the creek avoiding permanent impacts to surface waters. No end bents will be placed in the water. The project will not impact wetlands.

Temporary Impacts: There will be 0.01 acres of surface water impacts (25 feet of existing channel impacts) due to dewatering during construction of a lateral V ditch. This ditch will be constructed northeast of the new bridge. No temporary wetland impacts are associated with this project.

Bridge Demolition: Bridge No. 109 was constructed in 1951 and includes a three-span superstructure composed of a six-inch reinforced concrete deck on I-beams supported by timber piles and concrete caps. The structure has been temporarily strengthened with a steel crutch. The bridge superstructure has a total depth of 2.2 feet and is approximately 12 feet above the creek bed. The existing bridge is 90 feet long and 22 feet wide.

Since the existing bridge spans Birch Fork Creek, no fill from demolition is expected to be placed into Waters of the United States. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices for the Protection of Surface Waters. This project is classified as Case 3 in that there are no special restrictions other than those outlined in Best Management Practices for the Protection of Surface Waters and Bridge Demolition and Removal.

Utility Impacts: Utility impacts are expected to be low. Bell South has an underground service along the west side of SR 1767. Duke power has an aerial service along the east side of SR 1767 with cable television attached. Tele Cov aerial facilities are currently attached to Duke Power's poles.

Duke Power will remove the existing pole line and set a new pole line on the east side (the same side) of SR 1767 with BellSouth and Tel Cov attached to the new pole line. The new pole will be located at the Right of Way edge approximately 20 –25 feet from the existing pole line. BellSouth's existing buried fiber optic cable will be abandoned and the new aerial facility installed with joint use of Duke Energy pole line. Tele Cov existing aerial facilities will be relocated to Duke's Power's pole line. No jurisdictional impacts will occur from the above utility pole relocations. There are no sewer or water lines in the project area.

FEDERALLY PROTECTED SPECIES

Plants and animals with a federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The USFWS lists 2 Federally – Protected species, as of January 29, 2003, for Rockingham County. The species under federal protection are listed in Table 1.

Table 1. Federally Protected Species for Rockingham County

Common Name	Scientific Name	Federal Status	Habitat	Biological Conclusion
James spinymussel	Pleurobema collina	Endangered	No	No Effect
Smooth Coneflower	Echinacea laevigata	Endangered	Yes	No Effect

Pleurobema collina (James spinymussel)

Freshwater mussel surveys were conducted on March 27, 2003 by NCDOT Biologists in areas which possessed any suitable habitat. Survey limits went to an estimated 1300 feet downstream to 330 feet upstream of the existing bridge. A total of 0.75 person-hours were spent during the survey. No mussels were found. Given the survey results and unsuitable habitat, it is apparent that the James spineymussel does not occur in the project footprint. Based on this information a "No effect" conclusion was drawn.

Echinacea laevigata (Smooth Coneflower)

Suitable habitat for the smooth coneflower is present within the road shoulders portions of the project area. A plant by plant survey for smooth coneflower, within the road shoulders area, was conducted on August, 2001 by NCDOT biologists. No specimens were found during surveys.

A resurvey for smooth coneflower was conducted on October 6, 2005. The area to be surveyed was determined by locating the right-of-way limits on the design sheets and finding on-site monument stakes with corresponding station numbers. A plant by plant survey was conducted in suitable habitat along the road shoulders and one field in the right-of-way area. Approximately 2 man-hours were spent completing surveys. No specimens were found during surveys. A review of the NC Natural Heritage Program database of rare species and unique habitats on July 29, 2005 revealed that no known populations occur within 1.0 mile of the project study area. No impacts to the smooth coneflower are anticipated.

AVOIDANCE, MINIMIZATION and MITIGATION

Avoidance and Minimization:
Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the US". The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts and to minimize impacts as part of the project design. Practical means to minimize impacts to surface waters temporarily impacted by the project include:

Project Specific Measures-

- During construction road closure is planned and traffic will diverted to an off-site detour
- The bridge is to be expanded to 95 feet from the existing length of 90 feet
- No end bents are to be placed in Birch Fork Creek
- No rip rap will be placed in jurisdictional wetlands

- Avoidance of wetlands: The project design was developed to keep the footprint of the proposed project away from the wetlands in the southwest quadrant
- Bridge drain holes are located away from the stream channel, not over the channel
- Temporary workpad(s) will be placed in uplands away from the stream channel

Standard Measures-

- Best Management Practices will be followed for this project as outlined in "NCDOT's Best Management Practices for Construction and Maintenance Activities"
- Reduction of runoff velocity, re-establishment of vegetation on exposed areas, judicious pesticide and herbicide usage, minimization of in-stream activity and litter/debris control
- Installation of temporary silt fences, earth berms and temporary ground cover during construction

Mitigation: No mitigation is proposed because of temporary impacts.

REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the temporary impacts of dewatering from construction of the V ditch will be authorized under a Section 404 Nationwide Permit 33. We are therefore requesting the issuance of a Nationwide Permit 33 for the temporary dewatering impacts from the lateral V ditch construction.

Section 401 Permit We anticipate 401 General Certification number 3366 will be applicable to this project. All general conditions of the Water Quality Certification will be met. Therefore, in accordance with 15A NCAC 2H, Section .0500(a) and 15A NCAC 2B .0200 we are providing 2 copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality for their notification.

Thank you for your time and assistance with this project. A copy of this permit application will be posted on the NCDOT website at http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html. Please contact Susan Thebert at (919) 715-1461 or sthebert@dot.state.nc.us if you have any questions or need any additional information.

Sincerely,

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

w/attachment
Mr. John Hennessy, NCDWQ (2 Copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS

Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. J. M. Mills, P.E., Division Engineer
Mr. Jerry Parker , DEO

w/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Majid Alghandour, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. John Williams, PDEA Project Planning Engineer
Mr. Scott McLendon, USACE, Wilmington

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 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 Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☐

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

II. Applicant Information

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

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: NA
   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: Replace Bridge #109 on SR 1767 over Birch Fork Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4253

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

4. Location
   County: Rockingham Nearest Town: Mayfield
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From US 29 north of Reidsville exit on SR 1767 north. Travel north approximately 2 to 2.5 miles (past SR 2023) to Birch Fork Creek bridge.

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): 36.48 81 °N 79.55 92 °W

6. Property size (acres): 1305 feet long x 30 feet wide = 0.90 acres

7. Name of nearest receiving body of water: Birch Fork Creek

8. 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/.)

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 project is in a rural area just south of Mayfield. The area immediately surrounding the bridge is forested with adjacent farmlands.

10. Describe the overall project in detail, including the type of equipment to be used: The NCDOT proposes to replace the existing 90 foot bridge no. 109 with a 95 foot single span box beam on reinforced concrete end bents on piles. The end bents will be placed on either side of Birch Fork Creek. The new bridge will be constructed approximately 30 feet east of the existing alignment with slight widening of the approaches. Traffic will be detoured off-site during construction. There will be 25 feet (0.01 acres) of temporary surface water impacts due to dewatering from construction of a lateral V ditch. A temporary workpad will be installed away from the creek in the uplands. Construction equipment will include heavy duty trucks, earth moving equipment, cranes etc.

11. Explain the purpose of the proposed work: The existing bridge, constructed in 1951, is considered structurally deficient and obsolete. The timber bridge piles have deteriorated and Bridge no. 109 has been temporary strengthened with a steel crutch to maintain traffic. The replacement bridge will result in a safer traffic operations.

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.NA

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.
NA

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: Temporary impacts include 25 feet or 0.01 acres from dewatering due to construction of a lateral V ditch. A temporary workpad is to be placed in uplands. Slight widening of the upland approaches is anticipated.

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)
NA					
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property: 0.0

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	Birch Fork Creek	Dewatering	Perrenial	15'	25' Temp	0.01 ac Temp
Total Stream Impact (by length and acreage)					25' Temp	0.01ac Temp

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)
NA				
Total Open Water Impact (acres)				

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

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

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.
NA

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.): NA
Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): NA
Current land use in the vicinity of the pond: NA
Size of watershed draining to pond: NA Expected pond surface area: NA

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 attached permit application

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.
   NA

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

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

IX. Environmental Documentation (required by DWQ)

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

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

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

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

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

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

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

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	NA	3 (2 for Catawba)	
2		1.5	
Total			

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

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

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.NA

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.
NA

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 ☒

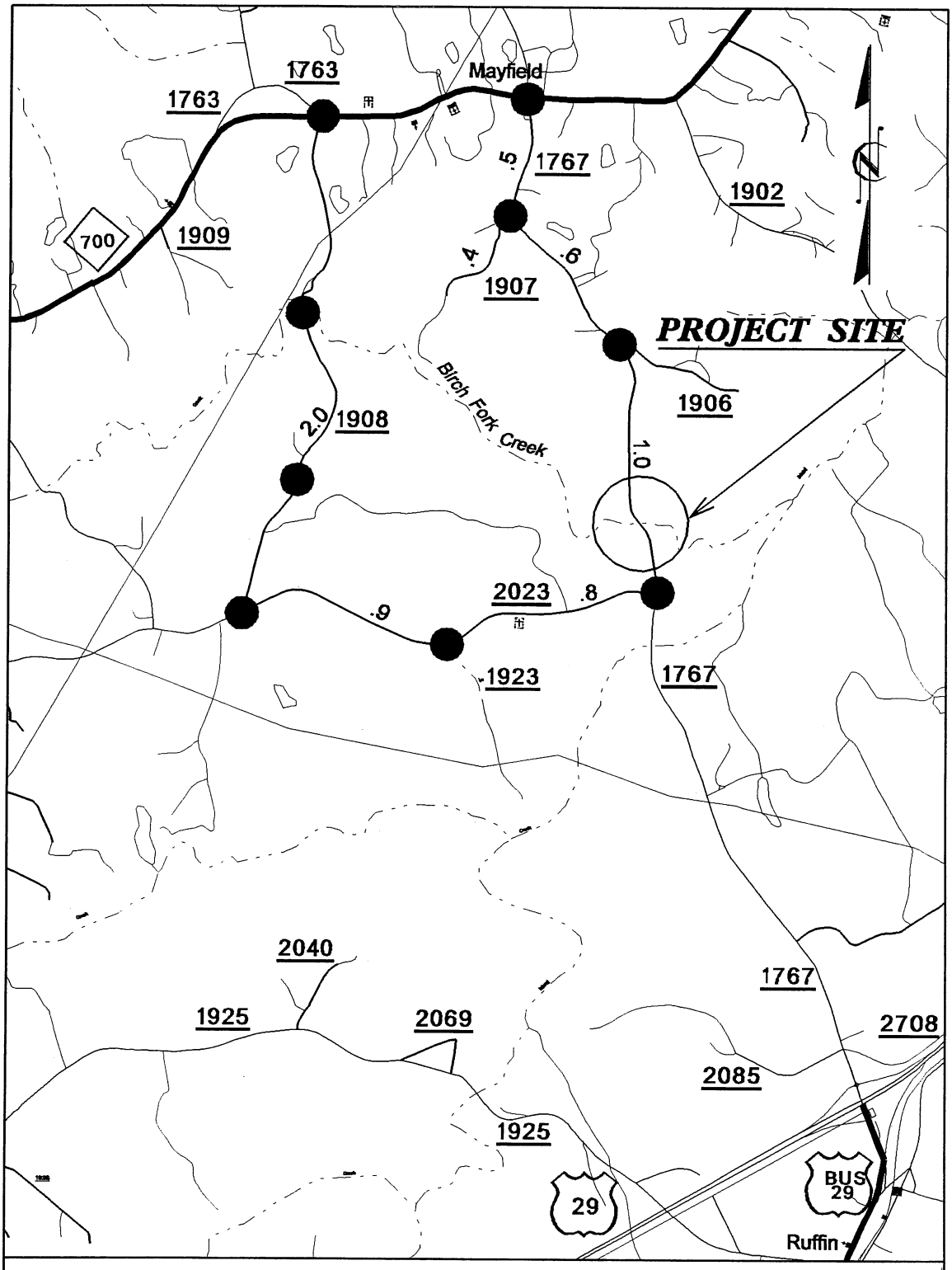
XIV. Cumulative Impacts (required by DWQ)

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:
NA

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).
NA

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



VICINITY MAP

OFF-SITE DETOUR

NCDOT
DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 33595.1.1 (B-4253)
REPLACE BRIDGE #109
OVER BIRCH FORK CREEK
ON SR 1767

SHEET 1 OF 4

WETLAND 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

COIR FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

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

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

NCDOT

DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 33595.1.1 (B-4253)
REPLACE BRIDGE #109
OVER BIRCH FORK CREEK
ON SR 1767

PROPERTY OWNER	ADDRESS
CHARLES W. AUSTIN	2093 MAYFIELD ROAD RUFFIN, NC 27326

NCDOT
DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 33595.1.1 (B-4253)
REPLACE BRIDGE #109
OVER BIRCH FORK CREEK
ON SR 1767

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	15+82 -L- Rt	Lateral "V" Ditch							0.009		25	
TOTALS:			0.00	0.00	0.00	0.00	0.00	0.00	0.01	0	25	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY
WBS - 33595.1.1 (B-4253)

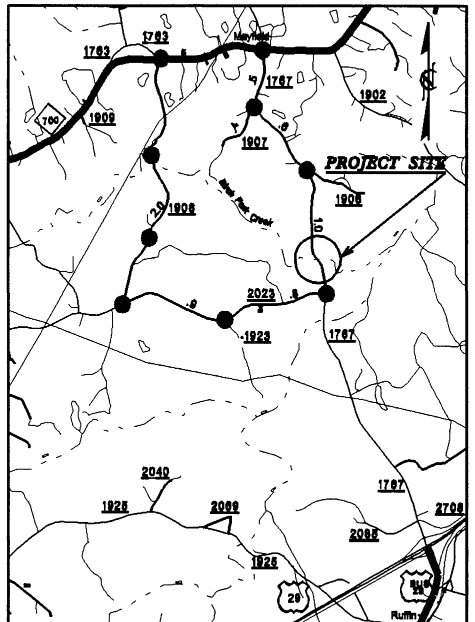
SHEET 4 of 4 ########

ATN Revised 3/31/05

CONTRACT: C201492

TIP PROJECT: B-4253

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



VICINITY MAP

OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

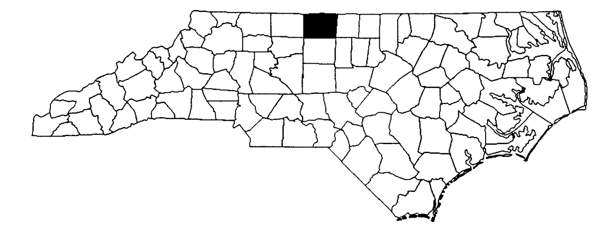
ROCKINGHAM COUNTY

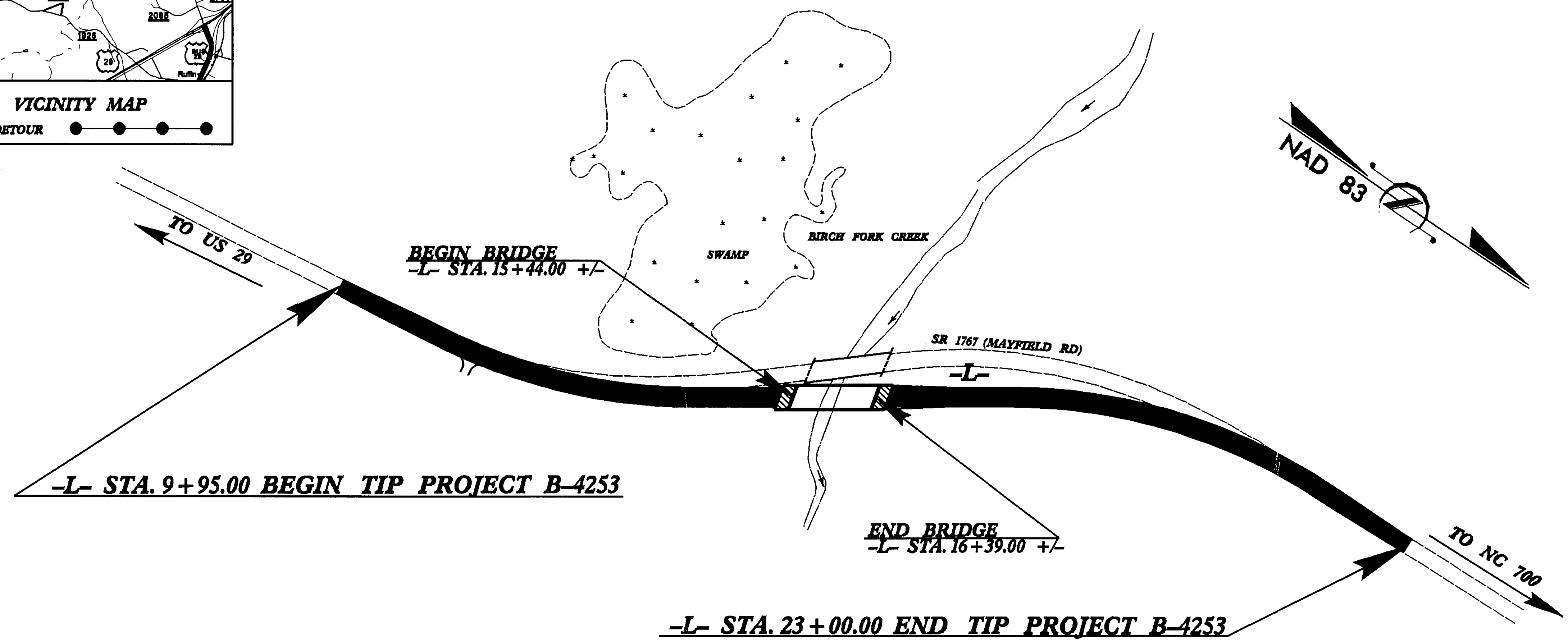
LOCATION: BRIDGE NO. 109 OVER BIRCH FORK CREEK AND APPROACHES ON SR 1767 (MAYFIELD ROAD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4253	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33595.1.1	BRZ-1767(2)	P.E.
33595.2.1	BRZ-1767(2)	R/W & UTIL.





PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

** DESIGN EXCEPTIONS FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE ARE REQUIRED.

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

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 2005 = 670 VPD
ADT 2030 = 1100 VPD
DHV = 10 %
D = 60 %
*T = 3 %
**V = 60 MPH
*(TTST 1% + DUAL 2 %)
FUNC CLASS = RURAL MINOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4253 = 0.229 MILES
LENGTH STRUCTURE TIP PROJECT B-4253 = 0.018 MILES
TOTAL LENGTH OF TIP PROJECT B-4253 = 0.247 MILES

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 25, 2005

LETTING DATE: MAY 16, 2006

GLENN W. MUMFORD, P.E.
PROJECT ENGINEER

JEFFREY L. TEAGUE, E.I.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

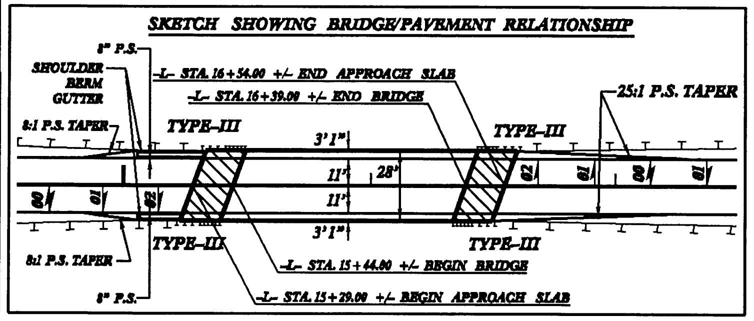
APPROVED
DIVISION ADMINISTRATOR DATE

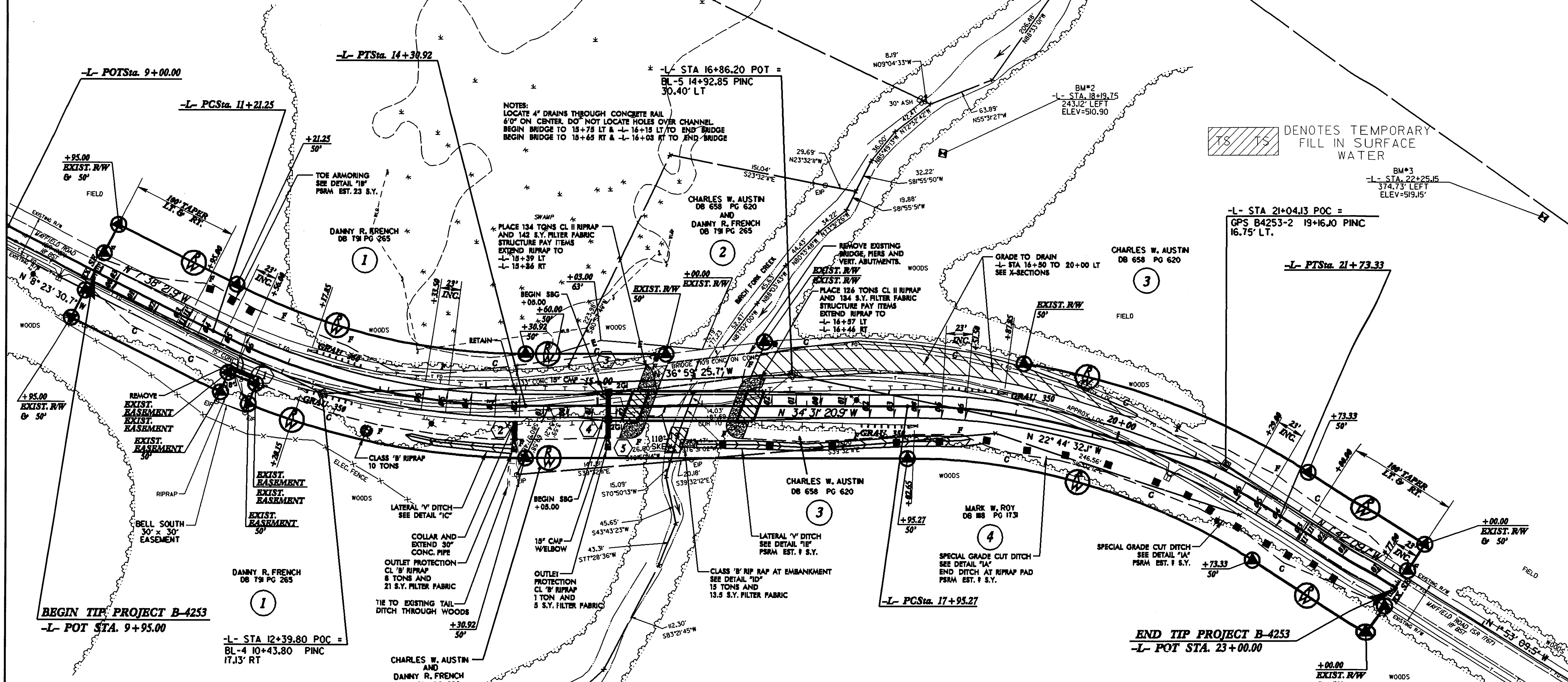
PROJECT REFERENCE NO.	SHEET NO.
B-4253	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

★ **DESIGN EXCEPTIONS FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE ARE REQUIRED.**

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

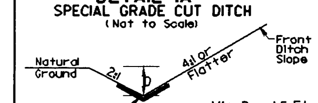




NAD 83
-L- POTSta. 9+00.00
-L- PCSta. 11+21.25
-L- PTSta. 14+30.92
-L- STA 16+86.20 POT = BL-5 14+92.85 PINC 30.40' LT
NOTES: LOCATE 4" DRAINS THROUGH CONCRETE RAIL 6'0" ON CENTER. DO NOT LOCATE HOLES OVER CHANNEL. BEGIN BRIDGE TO 15+75 LT & -L- 16+15 LT TO END BRIDGE BEGIN BRIDGE TO 15+65 RT & -L- 16+03 RT TO END BRIDGE
BM#2 -L- STA. 18+19.75 243.12' LEFT ELEV=510.90
DENOTES TEMPORARY FILL IN SURFACE WATER
BM#3 -L- STA. 22+25.15 374.73' LEFT ELEV=519.15'
-L- STA 21+04.13 POC = GPS B4253-2 19+16.10 PINC 16.75' LT.
-L- PTSta. 21+73.33
CHARLES W. AUSTIN DB 658 PG 620
DANNY R. FRENCH DB 791 PG 265
CHARLES W. AUSTIN AND DANNY R. FRENCH DB 658 PG 620
MARK W. ROY DB 188 PG 1731
PLACE 134 TONS CL II RIPRAP AND 142 S.Y. FILTER FABRIC STRUCTURE PAY ITEMS EXTEND RIPRAP TO -L- 15+39 LT -L- 15+26 RT
REMOVE EXISTING BRIDGE, PIERS AND VERT. ABUTMENTS.
PLACE 126 TONS CL II RIPRAP AND 134 S.Y. FILTER FABRIC STRUCTURE PAY ITEMS EXTEND RIPRAP TO -L- 16+57 LT -L- 16+46 RT
GRADE TO DRAIN -L- STA 16+50 TO 20+00 LT SEE X-SECTIONS
TOE ARMORING SEE DETAIL "IB" PSRM EST. 23 S.Y.
N 36°59' 25.7" W
N 34°31' 20.9" W
N 22°44' 32.1" W
N 8°23' 30.7" W
CLASS 'B' RIPRAP 10 TONS
LATERAL 'V' DITCH SEE DETAIL "IC"
COLLAR AND EXTEND 30" CONC. PIPE
OUTLET PROTECTION CL 'B' RIPRAP 8 TONS AND 21 S.Y. FILTER FABRIC
TIE TO EXISTING TAIL DITCH THROUGH WOODS
BEGIN SBG +05.00
15" CMP W/ELBOW
OUTLET PROTECTION CL 'B' RIPRAP 1 TON AND 5 S.Y. FILTER FABRIC
LATERAL 'V' DITCH SEE DETAIL "IE" PSRM EST. ? S.Y.
CLASS 'B' RIP RAP AT EMBANKMENT SEE DETAIL "ID" 15 TONS AND 13.5 S.Y. FILTER FABRIC
SPECIAL GRADE CUT DITCH SEE DETAIL "IA" END DITCH AT RIPRAP PAD PSRM EST. ? S.Y.
SPECIAL GRADE CUT DITCH SEE DETAIL "IA" PSRM EST. ? S.Y.
-L- PCSta. 17+95.27
BELL SOUTH 30' x 30' EASEMENT
REMOVE EXIST. EASEMENT
EXIST. R/W
BEGIN TIP PROJECT B-4253 -L- POT STA. 9+95.00
-L- STA 12+39.80 POC = BL-4 10+43.80 PINC 17.13' RT
END TIP PROJECT B-4253 -L- POT STA. 23+00.00
WOODS
FIELD
SWAMP

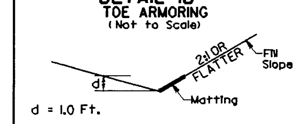
-L-	
★ PI Sta 12+78.99	★ PI Sta 19+89.64
Δ = 26° 52' 59.0" (LT)	Δ = 32° 49' 11.9" (RT)
D = 8° 40' 52.2"	D = 8° 40' 52.2"
L = 309.67'	L = 378.06'
T = 157.74'	T = 194.37'
R = 660.00'	R = 660.00'
SE = 0.06	SE = 0.06
RUNOFF = 138'	RUNOFF = 138'

DETAIL IA
SPECIAL GRADE CUT DITCH
(Not to Scale)



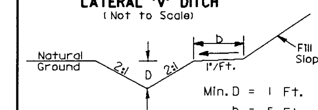
-L- 18+50 TO 23+00 RT

DETAIL IB
TOE ARMORING
(Not to Scale)



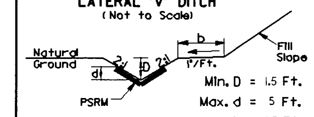
-L- 11+00 TO 11+50 LT

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



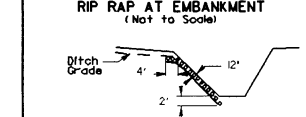
-L- 13+25 TO 14+20 RT

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



-L- 15+95 TO 18+50 RT

DETAIL ID
RIP RAP AT EMBANKMENT
(Not to Scale)



-L- 15+79 TO 15+95 RT

NOTES:
1.) FOR -L- PROFILE SEE SHEET 5.
2.) FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-?.
3.) ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.
4.) EXISTING FILL MATERIAL TO BE REMOVED (SEE X-SECTIONS).

REVISIONS

8/17/99

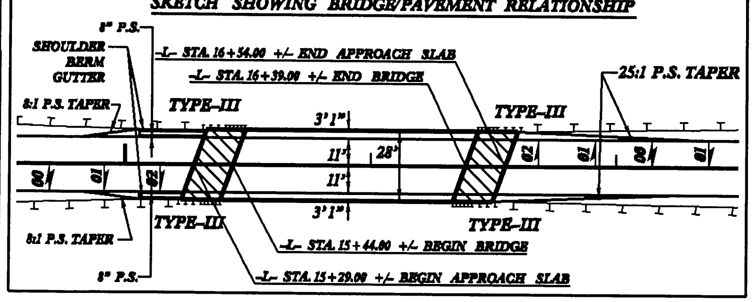
05-JAN-2006 10:34
s:\engrcoord\projects\galen\b-4253\design\b4253_rdy_psh.dgn

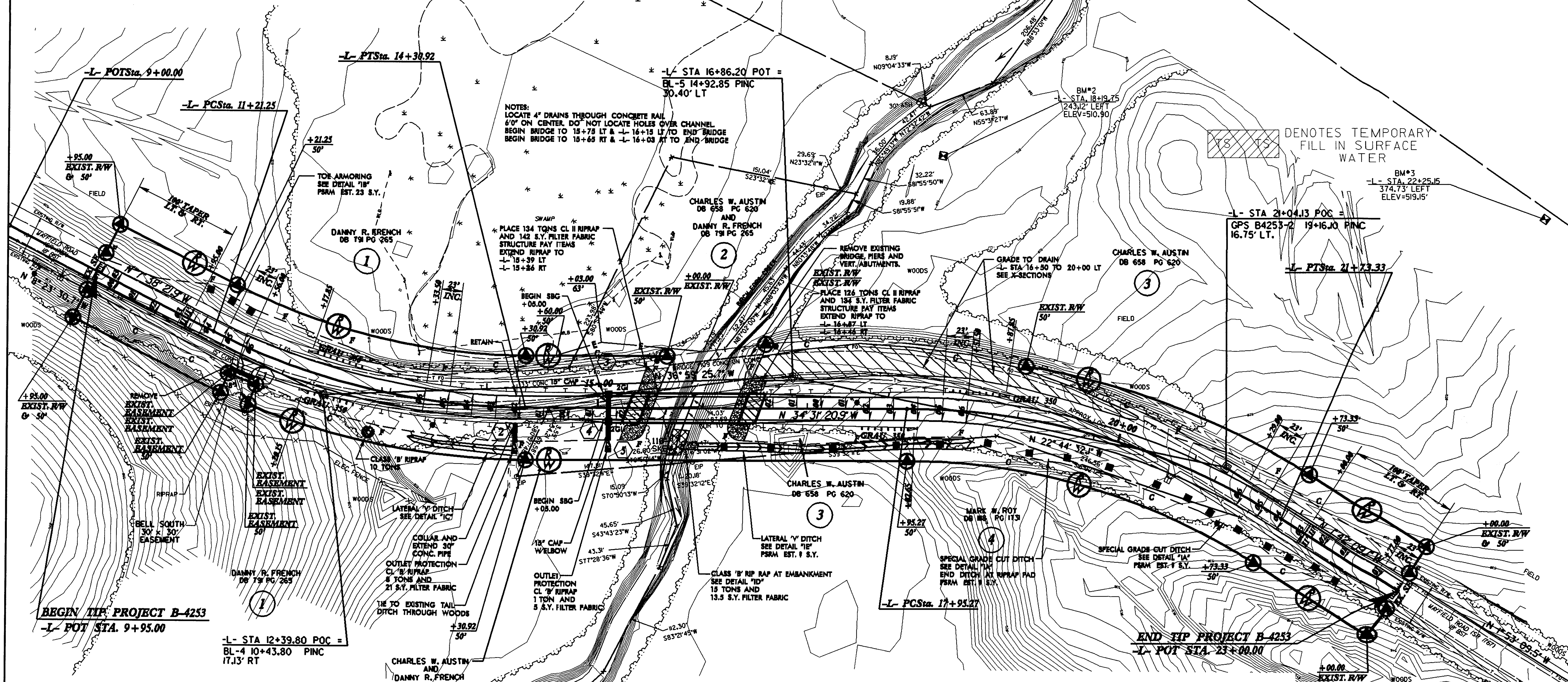
PROJECT REFERENCE NO.	SHEET NO.
B-4253	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

★ *DESIGN EXCEPTIONS FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE ARE REQUIRED.*

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP





NAD 83
-L- POTSta. 9+00.00
-L- PCSta. 11+21.25
-L- PTSta. 14+30.92
-L- STA 16+86.20 POT = BL-5 14+92.85 PINC 30.40' LT
NOTES:
LOCATE 4" DRAINS THROUGH CONCRETE RAIL 6'0" ON CENTER. DO NOT LOCATE HOLES OVER CHANNEL.
BEGIN BRIDGE TO 15+75 LT & -L- 16+15 LT TO END BRIDGE
BEGIN BRIDGE TO 15+65 RT & -L- 16+03 RT TO END BRIDGE
BM#2 -L- STA. 18+19.75 243.12' LEFT ELEV=510.90
DENOTES TEMPORARY FILL IN SURFACE WATER
BM#3 -L- STA. 22+25.15 374.73' LEFT ELEV=519.15'
-L- STA 21+04.13 POC = GPS B4253-2 19+16.10 PINC 16.75' LT.
-L- PTSta. 21+73.33
DANNY R. FRENCH DB 791 PG 265
CHARLES W. AUSTIN DB 658 PG 620 AND DANNY R. FRENCH DB 791 PG 265
CHARLES W. AUSTIN DB 658 PG 620
MARK W. ROY DB 882 PG 1131
TOE ARMORING SEE DETAIL "IB" PSRM EST. 23 S.Y.
PLACE 134 TONS CL II RIPRAP AND 142 S.Y. FILTER FABRIC STRUCTURE PAY ITEMS EXTEND RIPRAP TO -L- 15+39 LT -L- 15+26 RT
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GRADE TO DRAIN -L- STA 16+50 TO 20+00 LT SEE X-SECTIONS
N 36° 53' 25.1" W
N 34° 31' 20.9" W
N 22° 44' 32.1" W
LATERAL 'V' DITCH SEE DETAIL "IC"
COLLAR AND EXTEND 30" CONC. PIPE
OUTLET PROTECTION CL 'B' RIPRAP 8 TONS AND 21 S.Y. FILTER FABRIC
TIE TO EXISTING TAIL DITCH THROUGH WOODS
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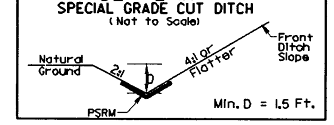
OUTLET PROTECTION CL 'B' RIPRAP 1 TON AND 5 S.Y. FILTER FABRIC
LATERAL 'V' DITCH SEE DETAIL "IE" PSRM EST. ? S.Y.
CLASS 'B' RIP RAP AT EMBANKMENT SEE DETAIL "ID" 15 TONS AND 13.5 S.Y. FILTER FABRIC
SPECIAL GRADE CUT DITCH SEE DETAIL "IA" END DITCH AT RIPRAP PAD PSRM EST. ? S.Y.
SPECIAL GRADE CUT DITCH SEE DETAIL "IA" PSRM EST. ? S.Y.
-L- PCSta. 17+95.27
BELL SOUTH 30' x 30' EASEMENT
CLASS 'B' RIPRAP 10 TONS
BEGIN TIP PROJECT B-4253 -L- POT STA. 9+95.00
-L- STA 12+39.80 POC = BL-4 10+43.80 PINC 17.13' RT
END TIP PROJECT B-4253 -L- POT STA. 23+00.00
MAYFIELD ROAD (SR 1767)

-L-

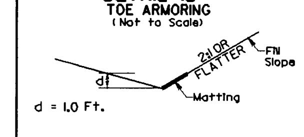
★ PI Sta 12+78.99	★ PI Sta 19+89.64
Δ = 26° 52' 59.0" (LT)	Δ = 32° 49' 11.9" (RT)
D = 8° 40' 52.2"	D = 8° 40' 52.2"
L = 309.67'	L = 378.06'
T = 157.74'	T = 194.37'
R = 660.00'	R = 660.00'
SE = 0.06	SE = 0.06
RUNOFF = 138'	RUNOFF = 138'

DETAIL IA
SPECIAL GRADE CUT DITCH
(Not to Scale)



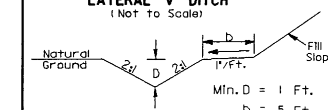
-L- 18+50 TO 23+00 RT

DETAIL IB
TOE ARMORING
(Not to Scale)



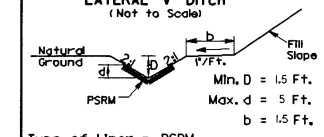
-L- 11+00 TO 11+50 LT

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



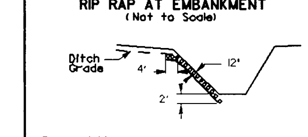
-L- 13+25 TO 14+20 RT

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



-L- 15+95 TO 18+50 RT

DETAIL ID
RIP RAP AT EMBANKMENT
(Not to Scale)



-L- 15+79 TO 15+95 RT

NOTES:

1.) FOR -L- PROFILE SEE SHEET 5.
2.) FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-?.
3.) ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.
4.) [hatched box] EXISTING FILL MATERIAL TO BE REMOVED (SEE X-SECTIONS).

REVISIONS

8/17/99

18-JAN-2006 15:24
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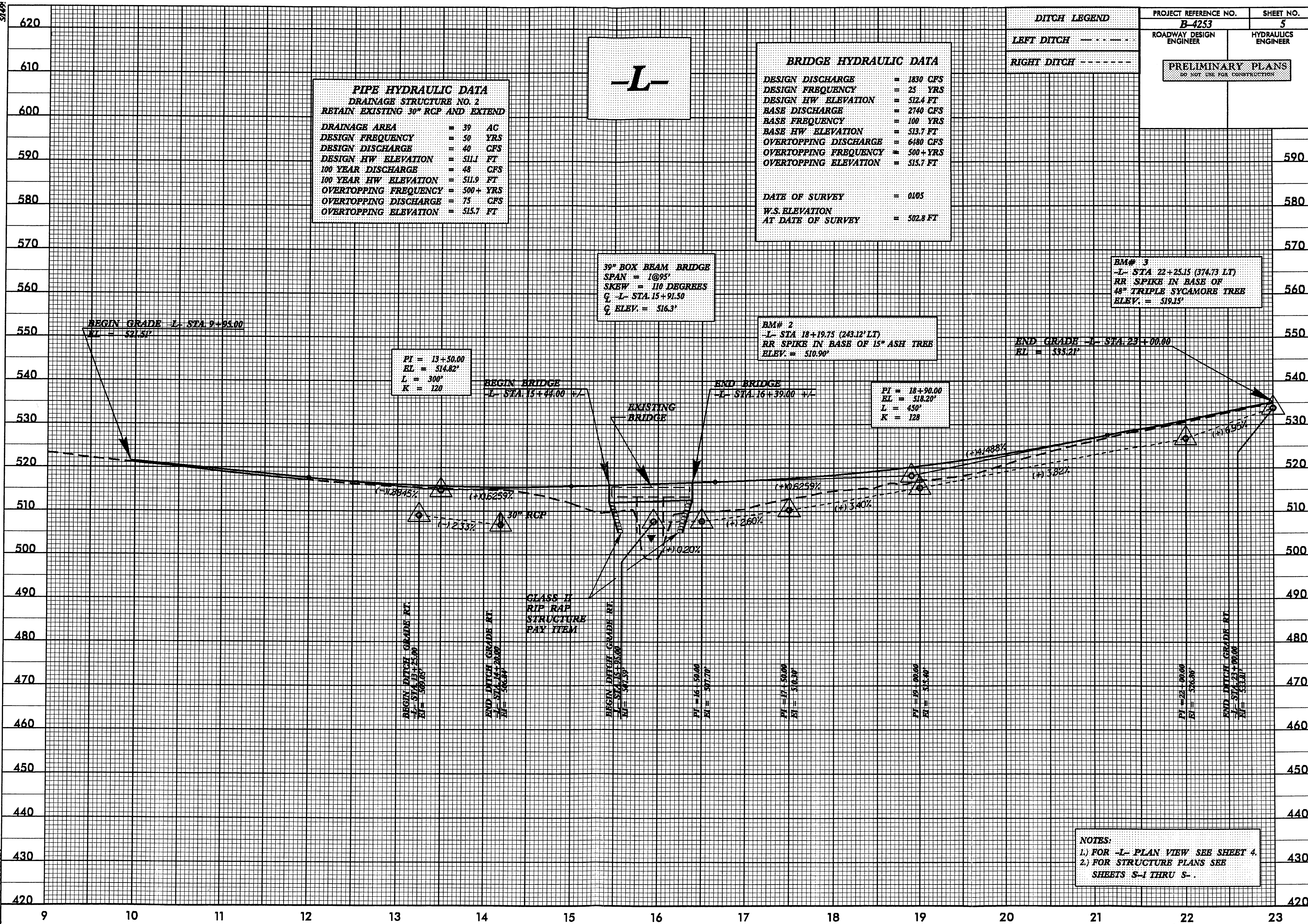


PROJECT REFERENCE NO. B-4253
SHEET NO. 5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
-L-
BEGIN GRADE -L- STA. 9+95.00
EL = 521.51'
PI = 13+50.00
EL = 514.82'
L = 300'
K = 120
39" BOX BEAM BRIDGE
SPAN = 1@95'
SKEW = 110 DEGREES
℄ -L- STA. 15+91.50
℄ ELEV. = 516.3'
BEGIN BRIDGE -L- STA. 15+44.00 +/-
END BRIDGE -L- STA. 16+39.00 +/-
EXISTING BRIDGE
BM# 2
-L- STA 18+19.75 (243.12' LT)
RR SPIKE IN BASE OF 15" ASH TREE
ELEV. = 510.90'
PI = 18+90.00
EL = 518.20'
L = 450'
K = 128
BM# 3
-L- STA 22+25.15 (374.73 LT)
RR SPIKE IN BASE OF
48" TRIPLE SYCAMORE TREE
ELEV. = 519.15'
END GRADE -L- STA. 23+00.00
EL = 535.21'
(-)1.8845%
(+)0.6259%
(-)1.233%
30" RCP
(+)0.6259%
(+)0.20%
(+)2.60%
(+)3.40%
(+)4.488%
(+)3.82%
(+)6.95%
CLASS II
RIP RAP
STRUCTURE
PAY ITEM
BEGIN DITCH GRADE RT.
-L- STA. 13+25.00
El = 509.05'
END DITCH GRADE RT.
-L- STA. 14+20.00
El = 506.84'
BEGIN DITCH GRADE RT.
-L- STA. 15+95.00
El = 507.59'
PI = 16+50.00
El = 507.70'
PI = 17+50.00
El = 510.30'
PI = 19+00.00
El = 515.40'
PI = 22+00.00
El = 526.86'
END DITCH GRADE RT.
-L- STA. 23+00.00
El = 533.81'
620
610
600
590
580
570
560
550
540
530
520
510
500
490
480
470
460
450
440
430
420
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
NOTES:
1.) FOR -L- PLAN VIEW SEE SHEET 4.
2.) FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S- .
28-JUN-2005 16:22
r:\hydraulics\... \b-4253\design\b4253_rdy_pfl.dgn
5/14/99

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 2
RETAIN EXISTING 30" RCP AND EXTEND

DRAINAGE AREA	= 39 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 40 CFS
DESIGN HW ELEVATION	= 511.1 FT
100 YEAR DISCHARGE	= 48 CFS
100 YEAR HW ELEVATION	= 511.9 FT
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 75 CFS
OVERTOPPING ELEVATION	= 515.7 FT

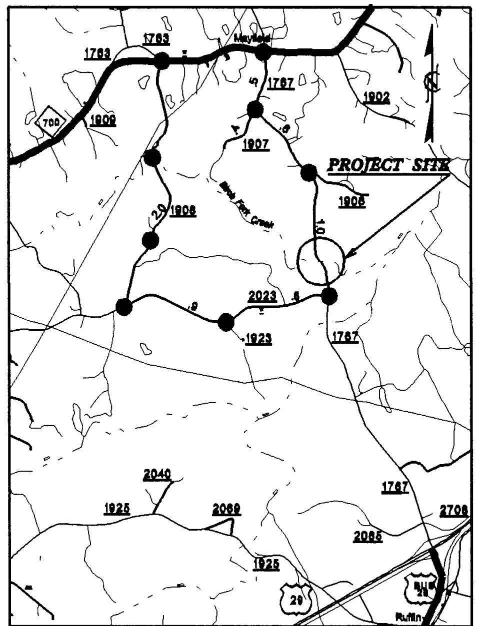
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1830 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 512.4 FT
BASE DISCHARGE	= 2740 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 513.7 FT
OVERTOPPING DISCHARGE	= 6480 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 515.7 FT
DATE OF SURVEY	= 01/05
W.S. ELEVATION AT DATE OF SURVEY	= 502.8 FT

TIP PROJECT: B-4253

CONTRACT: C201492

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



VICINITY MAP

OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

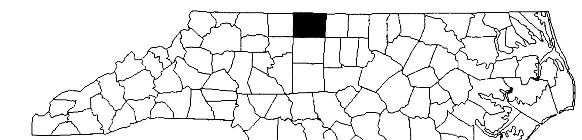
ROCKINGHAM COUNTY

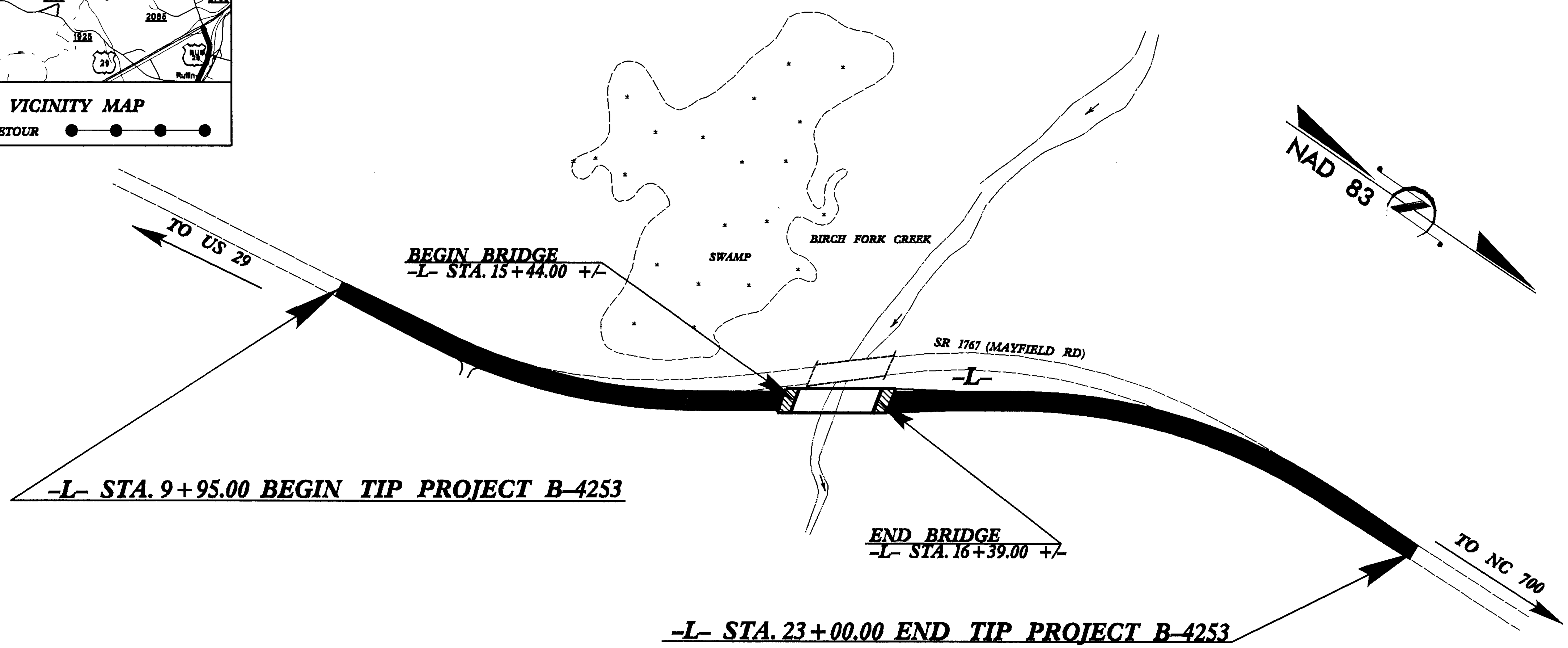
LOCATION: BRIDGE NO. 109 OVER BIRCH FORK CREEK AND APPROACHES ON SR 1767 (MAYFIELD ROAD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4253	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33595.1.1	BRZ-1767(2)	P.E.
33595.2.1	BRZ-1767(2)	R/W & UTIL.





PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

** DESIGN EXCEPTIONS FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE ARE REQUIRED.

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

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 2005 = 670 VPD
ADT 2030 = 1100 VPD
DHV = 10 %
D = 60 %
* T = 3 %
** V = 60 MPH
* (TTST 1% + DUAL 2 %)
FUNC CLASS = RURAL MINOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4253 = 0.229 MILES

LENGTH STRUCTURE TIP PROJECT B-4253 = 0.018 MILES

TOTAL LENGTH OF TIP PROJECT B-4253 = 0.247 MILES

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 25, 2005

LETTING DATE:
MAY 16, 2006

GLENN W. MUMFORD, P.E.
PROJECT ENGINEER

JEFFREY L. TEAGUE, E.I.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

PROJECT REFERENCE NO.	SHEET NO.
B-4253	1-B

5/28/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

*S.U.E = SUBSURFACE UTILITY ENGINEER

ROADS & RELATED ITEMS

- Edge of Pavement
- Curb
- Prop. Slope Stakes Cut (C)
- Prop. Slope Stakes Fill (F)
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Barbed Wire Fence
- Prop. Wheelchair Ramp (WCR)
- Curb Cut for Future Wheelchair Ramp (CCFR)
- Exist. Guardrail
- Prop. Guardrail
- Equality Symbol
- Pavement Removal

RIGHT OF WAY

- Baseline Control Point
- Existing Right of Way Marker
- Exist. Right of Way Line w/Marker
- Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
- Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
- Exist. Control of Access Line (C A)
- Prop. Control of Access Line (C A)
- Exist. Easement Line (E)
- Prop. Temp. Construction Easement Line (E)
- Prop. Temp. Drainage Easement Line (TDE)
- Prop. Perm. Drainage Easement Line (PDE)

HYDROLOGY

- Stream or Body of Water
- River Basin Buffer (BZ)
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Shoreline
- Falls, Rapids
- Prop Lateral, Tail, Head Ditches (FLOW)

STRUCTURES

MAJOR

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

MINOR

- Head & End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Boxes (CB)
- Paved Ditch Gutter

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal
- U/G Telephone Cable Hand Hold
- Cable TV Pedestal
- U/G TV Cable Hand Hold
- U/G Power Cable Hand Hold
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole
- Telephone Booth
- Cellular Telephone Tower
- Water Manhole
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole
- Power Transformer
- Sanitary Sewer Manhole
- Storm Sewer Manhole
- Tank; Water, Gas, Oil
- Water Tank With Legs
- Traffic Signal Junction Box
- Fiber Optic Splice Box
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement (TS)
- Recorded Water Line (W)
- Designated Water Line (S.U.E.*) (W)
- Sanitary Sewer (SS)
- Recorded Sanitary Sewer Force Main (FSS)
- Designated Sanitary Sewer Force Main(S.U.E.*) (FSS)
- Recorded Gas Line (G)
- Designated Gas Line (S.U.E.*) (G)
- Storm Sewer (S)
- Recorded Power Line (P)
- Designated Power Line (S.U.E.*) (P)
- Recorded Telephone Cable (T)
- Designated Telephone Cable (S.U.E.*) (T)
- Recorded U/G Telephone Conduit (TC)
- Designated U/G Telephone Conduit (S.U.E.*) (TC)
- Unknown Utility (S.U.E.*) (?UTL)
- Recorded Television Cable (TV)
- Designated Television Cable (S.U.E.*) (TV)
- Recorded Fiber Optics Cable (FO)
- Designated Fiber Optics Cable (S.U.E.*) (FO)
- Exist. Water Meter
- U/G Test Hole (S.U.E.*)
- Abandoned According to U/G Record (ATTUR)
- End of Information (E.O.I.)

BOUNDARIES & PROPERTIES

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Property Line Symbol
- Exist. Iron Pin (EIP)
- Property Corner
- Property Monument (ECM)
- Property Number (123)
- Parcel Number (6)
- Fence Line
- Existing Wetland Boundaries (WLB)
- High Quality Wetland Boundary (HQ WLB)
- Medium Quality Wetland Boundaries (MQ WLB)
- Low Quality Wetland Boundaries (LQ WLB)
- Proposed Wetland Boundaries (WLB)
- Existing Endangered Animal Boundaries (EAB)
- Existing Endangered Plant Boundaries (EPB)

WW & ISBW

BUILDINGS & OTHER CULTURE

- Buildings
- Foundations
- Area Outline
- Gate
- Gas Pump Vent or U/G Tank Cap
- Church
- School
- Park
- Cemetery
- Dam
- Sign
- Well
- Small Mine
- Swimming Pool

TOPOGRAPHY

- Loose Surface
- Hard Surface
- Change in Road Surface
- Curb
- Right of Way Symbol (R/W)
- Guard Post (GP)
- Paved Walk
- Bridge
- Box Culvert or Tunnel
- Ferry
- Culvert
- Footbridge
- Trail, Footpath
- Light House

VEGETATION

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (VINEYARD)

RAILROADS

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)

revised 02/02/00

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kmdwiggins AT RD223162

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4253	1-C
LOCATION AND SURVEYS	

B-4253 SURVEY CONTROL SHEET

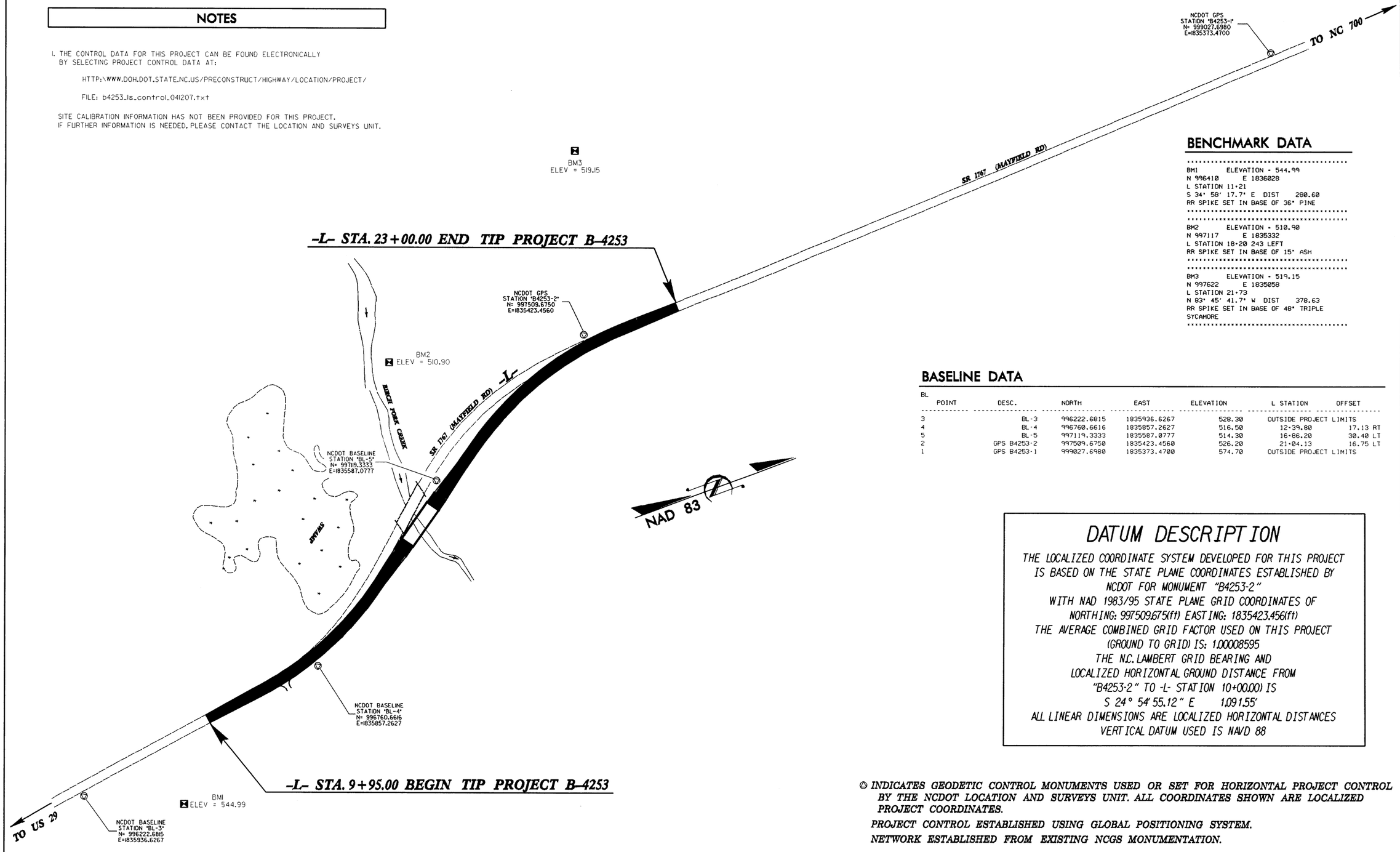
NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

   HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   FILE: b4253_ls_control_041207.txt

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.



BENCHMARK DATA

BM1 ELEVATION = 544.99
N 996410 E 1836028
L STATION 11+21
S 34° 58' 17.7" E DIST 280.60
RR SPIKE SET IN BASE OF 36" PINE

BM2 ELEVATION = 510.90
N 997117 E 1835332
L STATION 18+20 243 LEFT
RR SPIKE SET IN BASE OF 15" ASH

BM3 ELEVATION = 519.15
N 997622 E 1835058
L STATION 21+73
N 83° 45' 41.7" W DIST 378.63
RR SPIKE SET IN BASE OF 48" TRIPLE SYCAMORE

BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	996222.6815	1835936.6267	528.30	OUTSIDE PROJECT LIMITS	
4	BL-4	996760.6616	1835857.2627	516.50	12+39.80	17.13 RT
5	BL-5	997119.3333	1835587.0777	514.30	16+86.20	30.40 LT
2	GPS B4253-2	997509.6750	1835423.4560	526.20	21+04.13	16.75 LT
1	GPS B4253-1	999027.6980	1835373.4700	574.70	OUTSIDE PROJECT LIMITS	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4253-2" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 997509.675(ft) EASTING: 1835423.456(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00008595
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4253-2" TO -L- STATION 10+00.00) IS S 24° 54' 55.12" E 1,091.55'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT. ALL COORDINATES SHOWN ARE LOCALIZED PROJECT COORDINATES.*

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING NCGS MONUMENTATION.

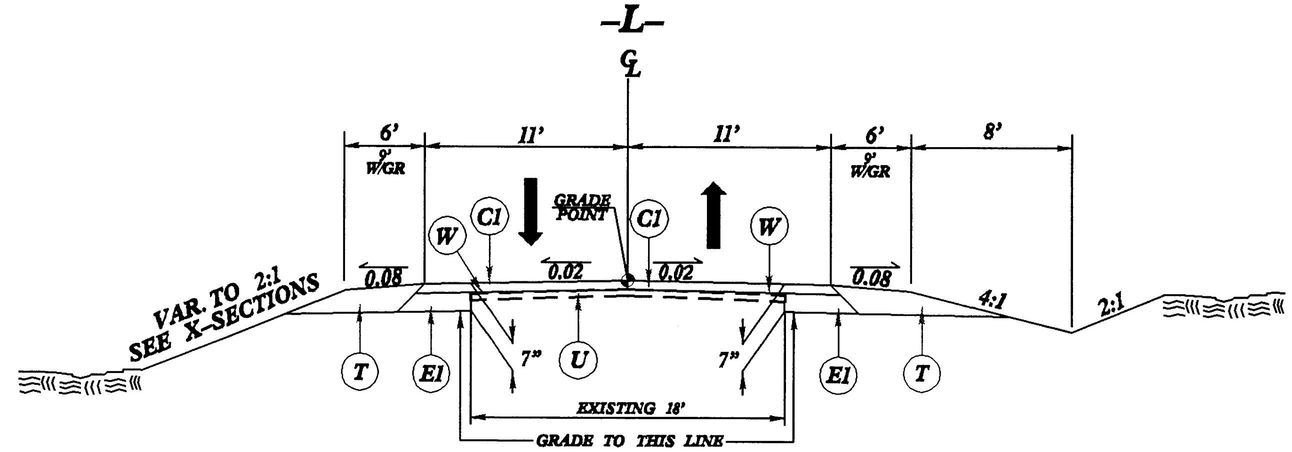
NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4253	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 2" IN DEPTH.
E1	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS NO. 1 & NO. 2).

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



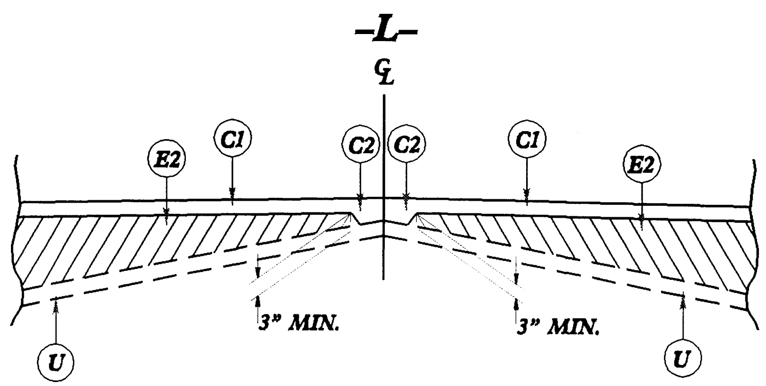
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

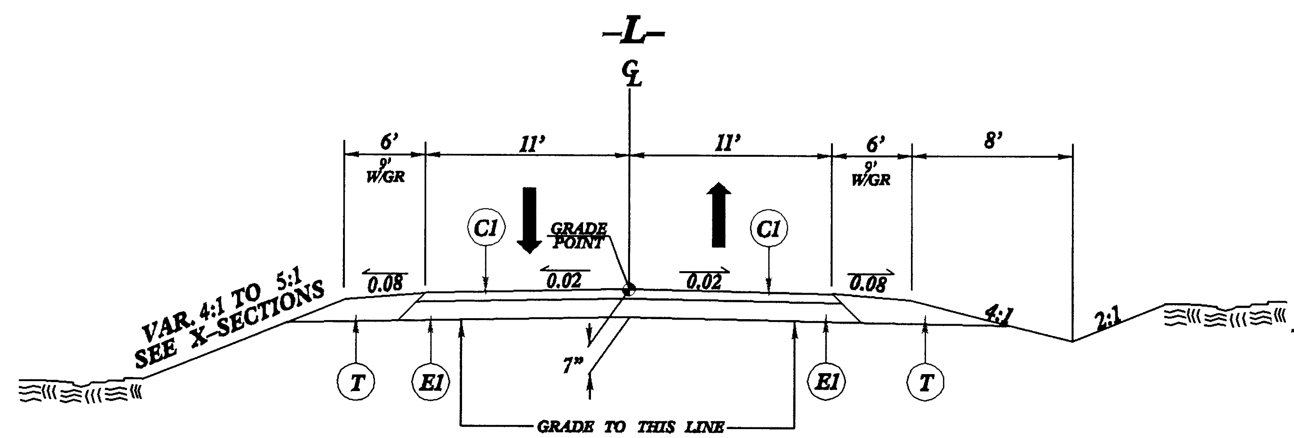
TRANSITION FROM EXISTING @ -L- STA. 9+95.00 TO TYPICAL SECTION NO. 1 @ -L- STA. 10+95.00

-L- STA. 10+95.00 TO 14+85.00
-L- STA. 20+50.00 TO 22+00.00

TRANSITION FROM TYPICAL SECTION NO. 1 @ -L- STA. 22+00.00 TO EXISTING @ -L- STA. 23+00.00



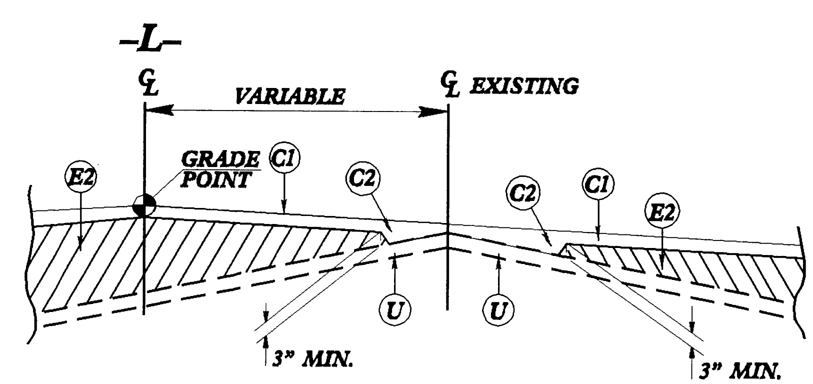
DETAIL SHOWING METHOD OF WEDGING NO. 1
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1



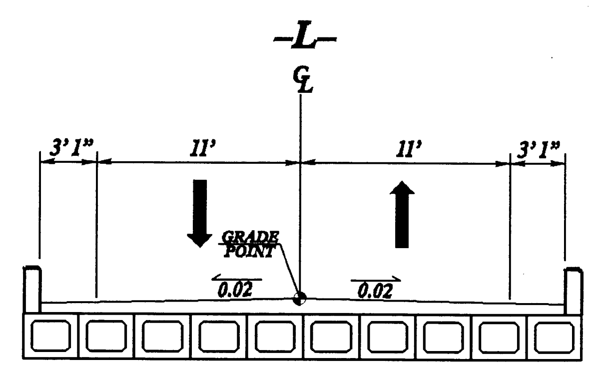
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:

-L- STA. 14+85.00 TO 15+44.00 +/- (BEGIN BRIDGE)
-L- STA. 16+39.00 +/- (END BRIDGE) TO 20+50.00



DETAIL SHOWING METHOD OF WEDGING NO. 2
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 3
BOX BEAM BRIDGE

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

-L- STA. 15+44.00+/- (BEGIN BRIDGE) TO
-L- STA. 16+39.00+/- (END BRIDGE)

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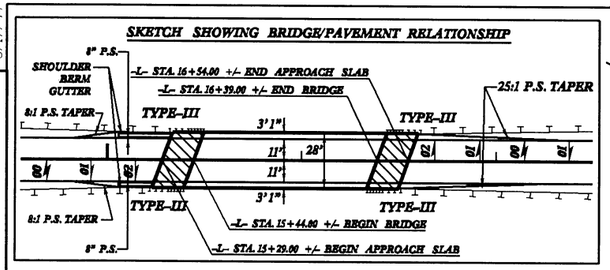
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4253	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

★ *DESIGN EXCEPTIONS FOR HORIZONTAL ALIGNMENT AND HORIZONTAL STOPPING SIGHT DISTANCE ARE REQUIRED.*

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP



NAD '83

-L- POTSta. 9+00.00

-L- PCSta. 11+21.25

-L- PTSta. 14+30.92

-L- STA 16+86.20 POT = BL-5 14+92.85 PINC 30.40' LT

-L- PTSta. 21+73.33

-L- STA 21+04.13 POC = GPS B4253-2 19+16.10 PINC 16.75' LT.

NOTES:
LOCATE 4" DRAINS THROUGH CONCRETE RAIL 6'0" ON CENTER. DO NOT LOCATE HOLES OVER CHANNEL.
BEGIN BRIDGE TO 15+75 LT & -L- 16+15 LT TO END BRIDGE
BEGIN BRIDGE TO 15+65 RT & -L- 16+03 RT TO END BRIDGE

BM#2 -L- STA. 18+19.75 243.12' LEFT ELEV=510.90

BM#3 -L- STA. 22+25.15 374.73' LEFT ELEV=519.15'

DANNY R. FRENCH DB 791 PG 265 (1)

CHARLES W. AUSTIN DB 658 PG 620 AND DANNY R. FRENCH DB 791 PG 265 (2)

CHARLES W. AUSTIN DB 658 PG 620 (3)

MARK W. ROY DB 188 PG 1731 (4)

CHARLES W. AUSTIN AND DANNY R. FRENCH DB 658 PG 620 (2)

BELL SOUTH 30' x 30' EASEMENT

BEGIN TIP PROJECT B-4253
-L- POT STA. 9+95.00

END TIP PROJECT B-4253
-L- POT STA. 23+00.00

-L- PCSta. 17+95.27

TOE ARMORING SEE DETAIL "IB" PSRM EST. 23 S.Y.

PLACE 134 TONS CL II RIPRAP AND 142 S.Y. FILTER FABRIC STRUCTURE PAY ITEMS EXTEND RIPRAP TO -L- 15+39 LT -L- 15+36 RT

REMOVE EXISTING BRIDGE, PIERS AND VERT. ABUTMENTS.

PLACE 126 TONS CL II RIPRAP AND 134 S.Y. FILTER FABRIC STRUCTURE PAY ITEMS EXTEND RIPRAP TO -L- 16+27 LT -L- 16+46 RT

GRADE TO DRAIN -L- STA 16+50 TO 20+00 LT SEE X-SECTIONS

REMOVE EXIST. EASEMENT

EXIST. EASEMENT 50'

CLASS 'B' RIPRAP 10 TONS

LATERAL 'V' DITCH SEE DETAIL "IC"

COLLAR AND EXTEND 30" CONC. PIPE

OUTLET PROTECTION CL 'B' RIPRAP 8 TONS AND 21 S.Y. FILTER FABRIC

TIE TO EXISTING TAIL DITCH THROUGH WOODS

15" CMP W/ELBOW

OUTLET PROTECTION CL 'B' RIPRAP 1 TON AND 5 S.Y. FILTER FABRIC

LATERAL 'V' DITCH SEE DETAIL "IE" PSRM EST. # S.Y.

CLASS 'B' RIP RAP AT EMBANKMENT SEE DETAIL "ID" 15 TONS AND 13.5 S.Y. FILTER FABRIC

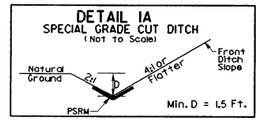
SPECIAL GRADE CUT DITCH SEE DETAIL "IA" END DITCH AT RIPRAP PAD PSRM EST. # S.Y.

SPECIAL GRADE CUT DITCH SEE DETAIL "IA" PSRM EST. # S.Y.

-L-

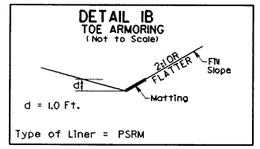
★ PI Sta 12+78.99	★ PI Sta 19+89.64
Δ = 26° 52' 59.0" (LT)	Δ = 32° 49' 11.9" (RT)
D = 8° 40' 52.2"	D = 8° 40' 52.2"
L = 309.67'	L = 378.06'
T = 157.74'	T = 194.37'
R = 660.00'	R = 660.00'
SE = 0.06	SE = 0.06
RUNOFF = 138'	RUNOFF = 138'

DETAIL IA
SPECIAL GRADE CUT DITCH
(Not to Scale)



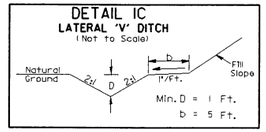
-L- 18+50 TO 23+00 RT

DETAIL IB
TOE ARMORING
(Not to Scale)



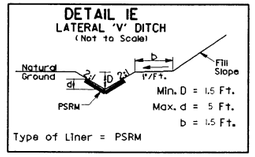
-L- 11+00 TO 11+50 LT

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



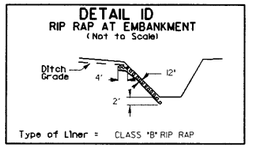
-L- 13+25 TO 14+20 RT

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



-L- 15+95 TO 18+50 RT

DETAIL ID
RIP RAP AT EMBANKMENT
(Not to Scale)



-L- 15+79 TO 15+95 RT

NOTES:
1.) *FOR -L- PROFILE SEE SHEET 5.*
2.) *FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-?.*
3.) *ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.*
4.) ▨ *EXISTING FILL MATERIAL TO BE REMOVED (SEE X-SECTIONS).*

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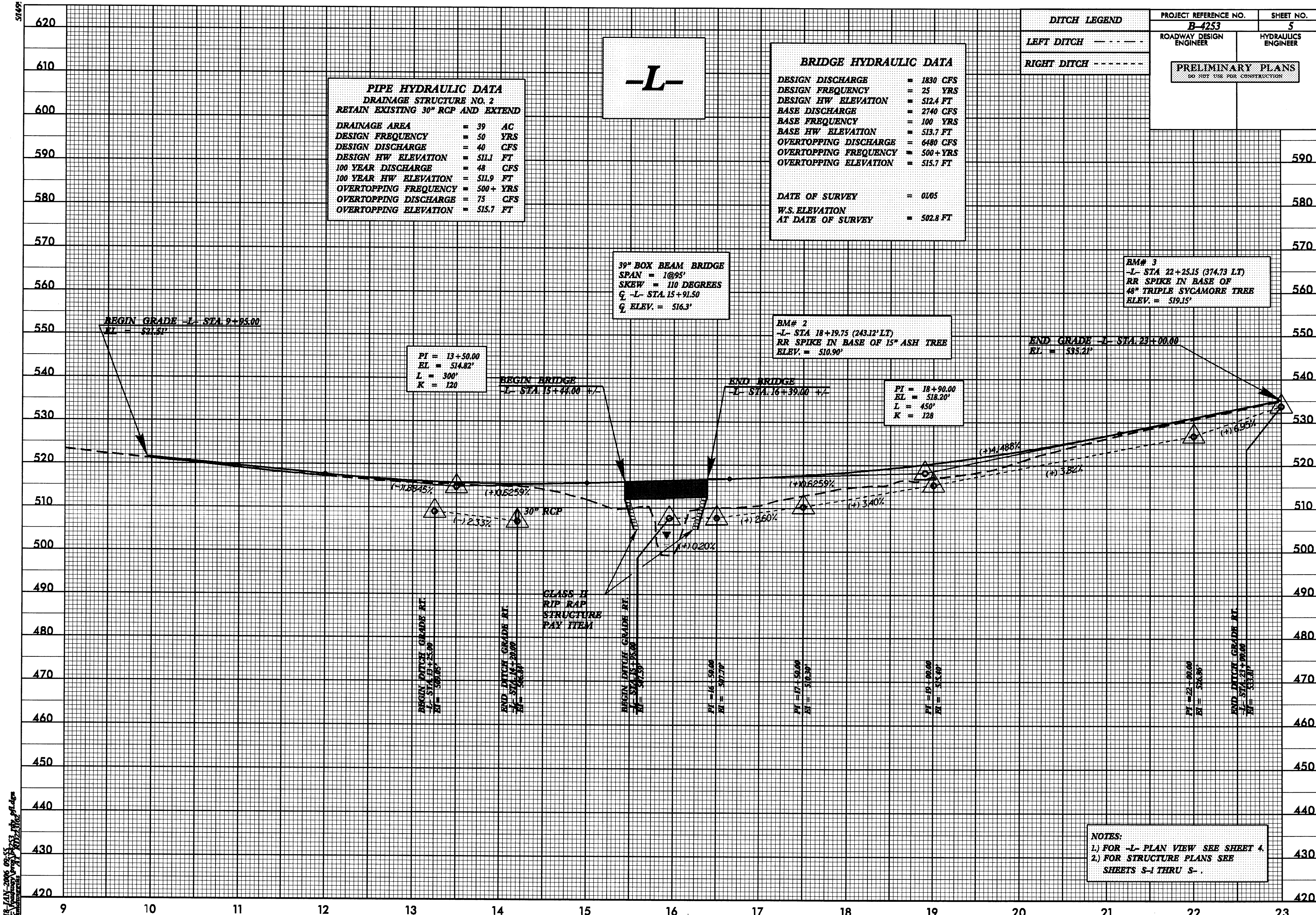
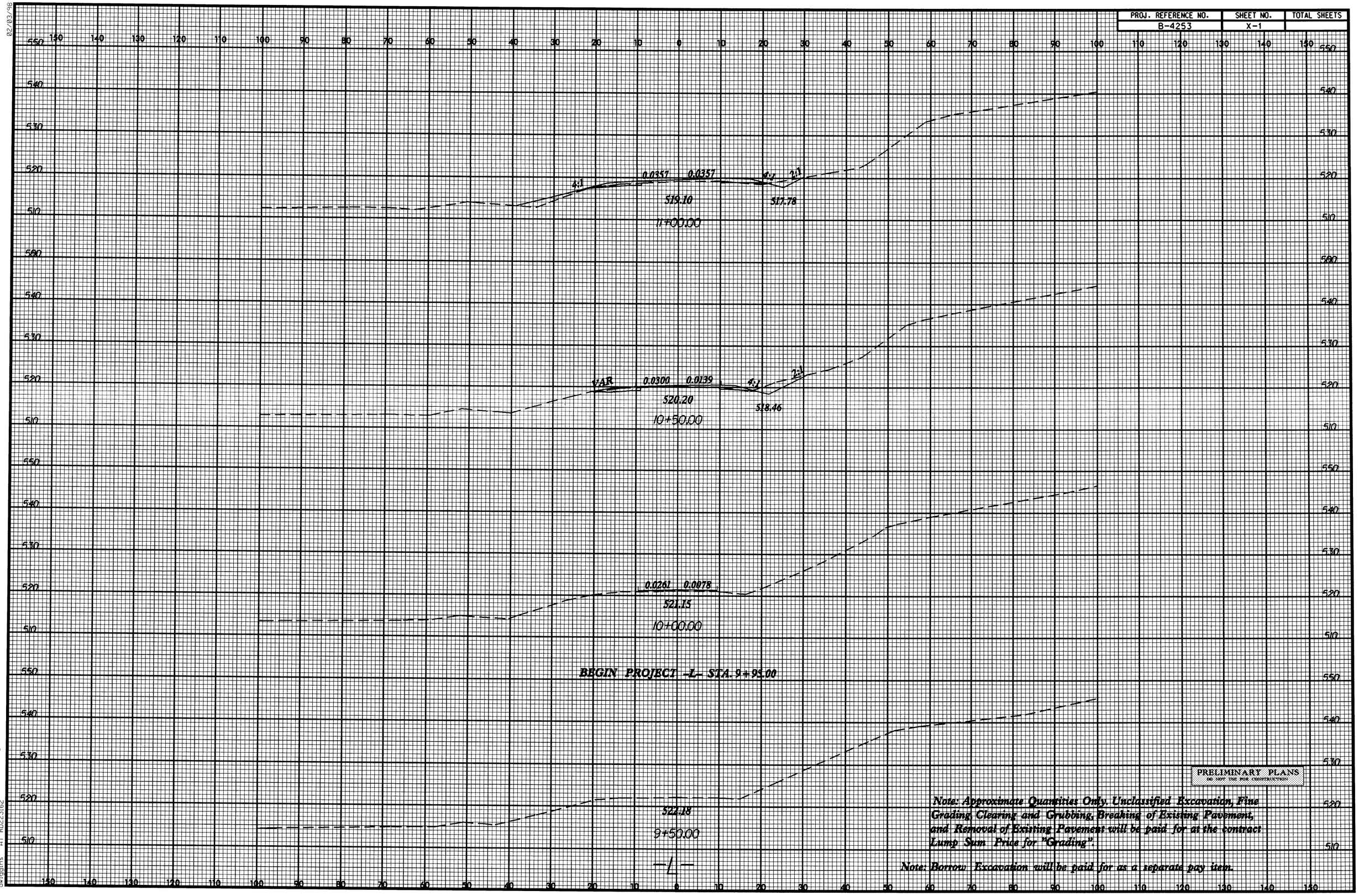


PROJECT REFERENCE NO. B-4253
SHEET NO. 5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
-L-
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 2
RETAIN EXISTING 30" RCP AND EXTEND
DRAINAGE AREA = 39 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 40 CFS
DESIGN HW ELEVATION = 511.1 FT
100 YEAR DISCHARGE = 48 CFS
100 YEAR HW ELEVATION = 511.9 FT
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 75 CFS
OVERTOPPING ELEVATION = 515.7 FT
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 1830 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 512.4 FT
BASE DISCHARGE = 2740 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 513.7 FT
OVERTOPPING DISCHARGE = 6480 CFS
OVERTOPPING FREQUENCY = 500+YRS
OVERTOPPING ELEVATION = 515.7 FT
DATE OF SURVEY = 01/05
W.S. ELEVATION AT DATE OF SURVEY = 502.8 FT
39" BOX BEAM BRIDGE
SPAN = 1@95'
SKEW = 110 DEGREES
℄ -L- STA. 15+91.50
℄ ELEV. = 516.3'
BM# 3
-L- STA 22+25.15 (374.73 LT)
RR SPIKE IN BASE OF 48" TRIPLE SYCAMORE TREE
ELEV. = 519.15'
BM# 2
-L- STA 18+19.75 (243.12' LT)
RR SPIKE IN BASE OF 15" ASH TREE
ELEV. = 510.90'
BEGIN GRADE -L- STA. 9+95.00
EL = 521.51'
END GRADE -L- STA. 23+00.00
EL = 535.21'
PI = 13+50.00
EL = 514.82'
L = 300'
K = 120
PI = 18+90.00
EL = 518.20'
L = 450'
K = 128
BEGIN BRIDGE -L- STA. 15+44.00 +/-
END BRIDGE -L- STA. 16+39.00 +/-
(-)1.3845%
(+)0.6259%
(+)0.6259%
(+)4.488%
(+)6.95%
(+)3.82%
(+)3.40%
(+)2.60%
(+)0.20%
(-)2.33%
30" RCP
CLASS II RIP RAP STRUCTURE PAY ITEM
BEGIN DITCH GRADE RT. -L- STA. 13+25.00 EL = 509.05'
END DITCH GRADE RT. -L- STA. 14+20.00 EL = 506.84'
BEGIN DITCH GRADE RT. -L- STA. 15+95.00 EL = 507.59'
PI = 16+50.00 EL = 507.70'
PI = 17+50.00 EL = 510.30'
PI = 19+00.00 EL = 515.40'
PI = 22+00.00 EL = 526.86'
END DITCH GRADE RT. -L- STA. 23+00.00 EL = 533.81'
NOTES:
1.) FOR -L- PLAN VIEW SEE SHEET 4.
2.) FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S- .
620 610 600 590 580 570 560 550 540 530 520 510 500 490 480 470 460 450 440 430 420
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
18-JAN-2006 09:55

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4253	X-1	



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Note: Approximate Quantities Only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract Lump Sum Price for "Grading".

Note: Borrow Excavation will be paid for as a separate pay item.

02/03/98

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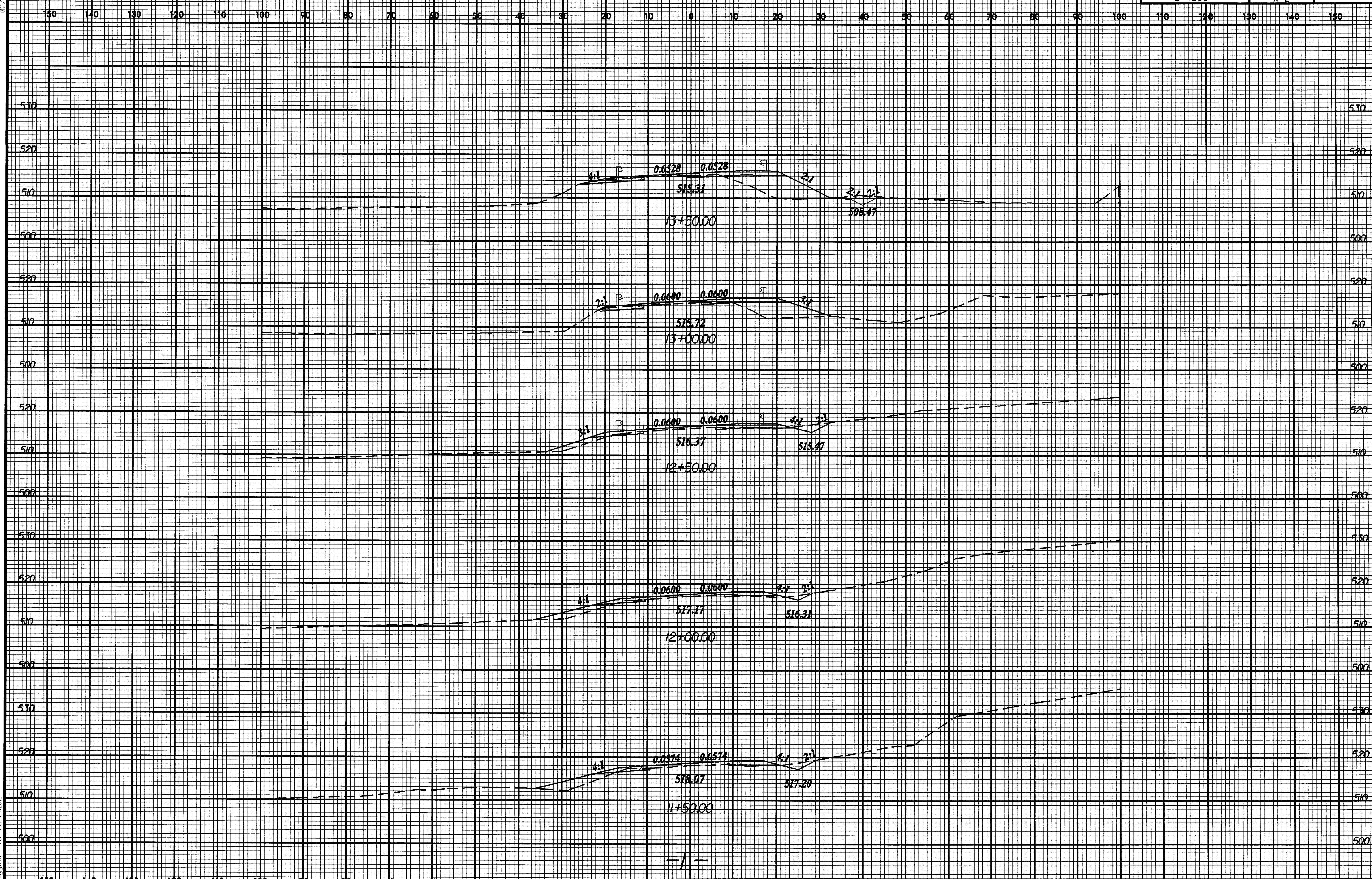
dwiggins
AT R0223162

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4253	X-2	



02/03/98

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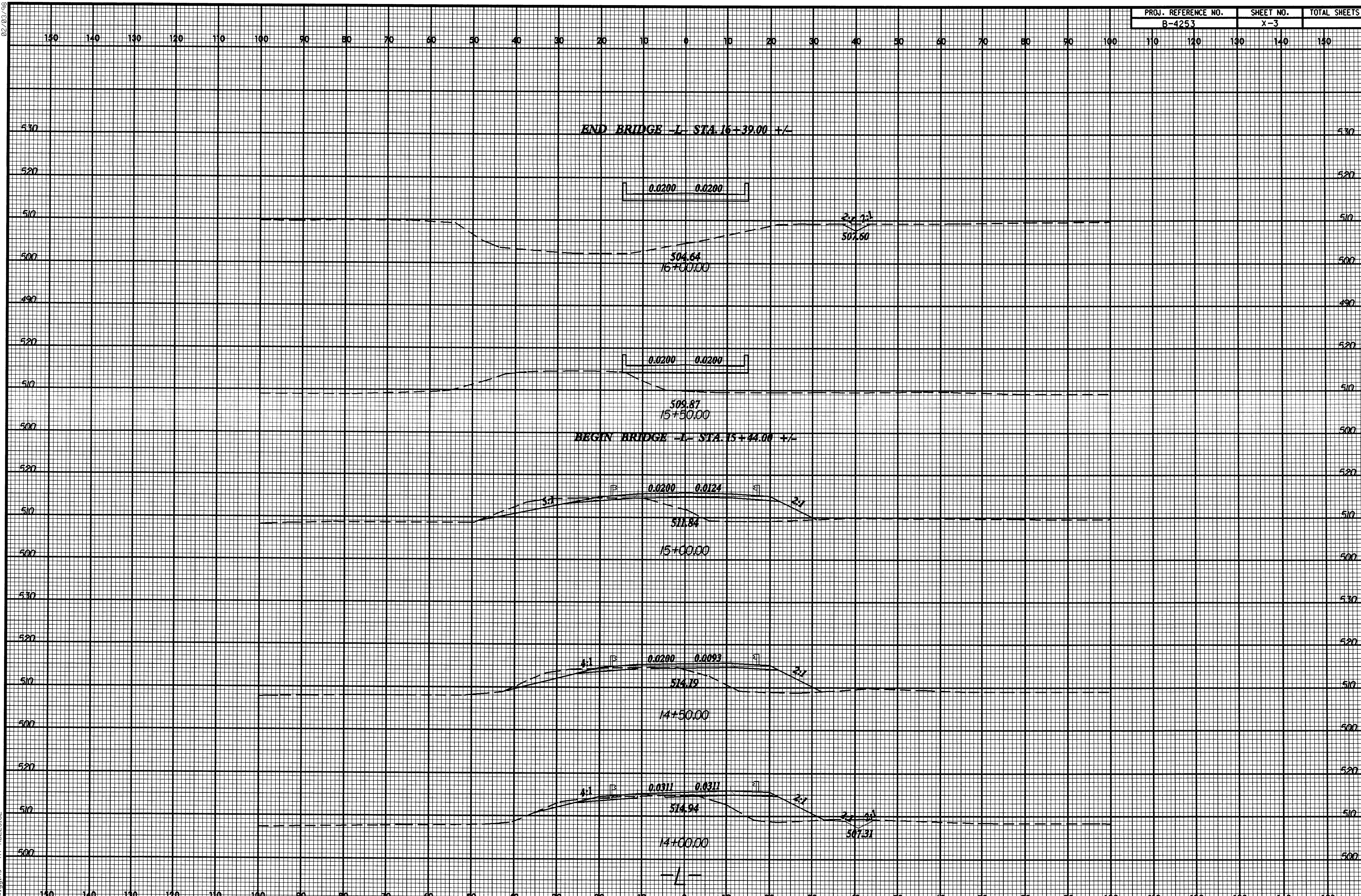
dwiggins AT RO223162

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4253	X-3	



02/03/98

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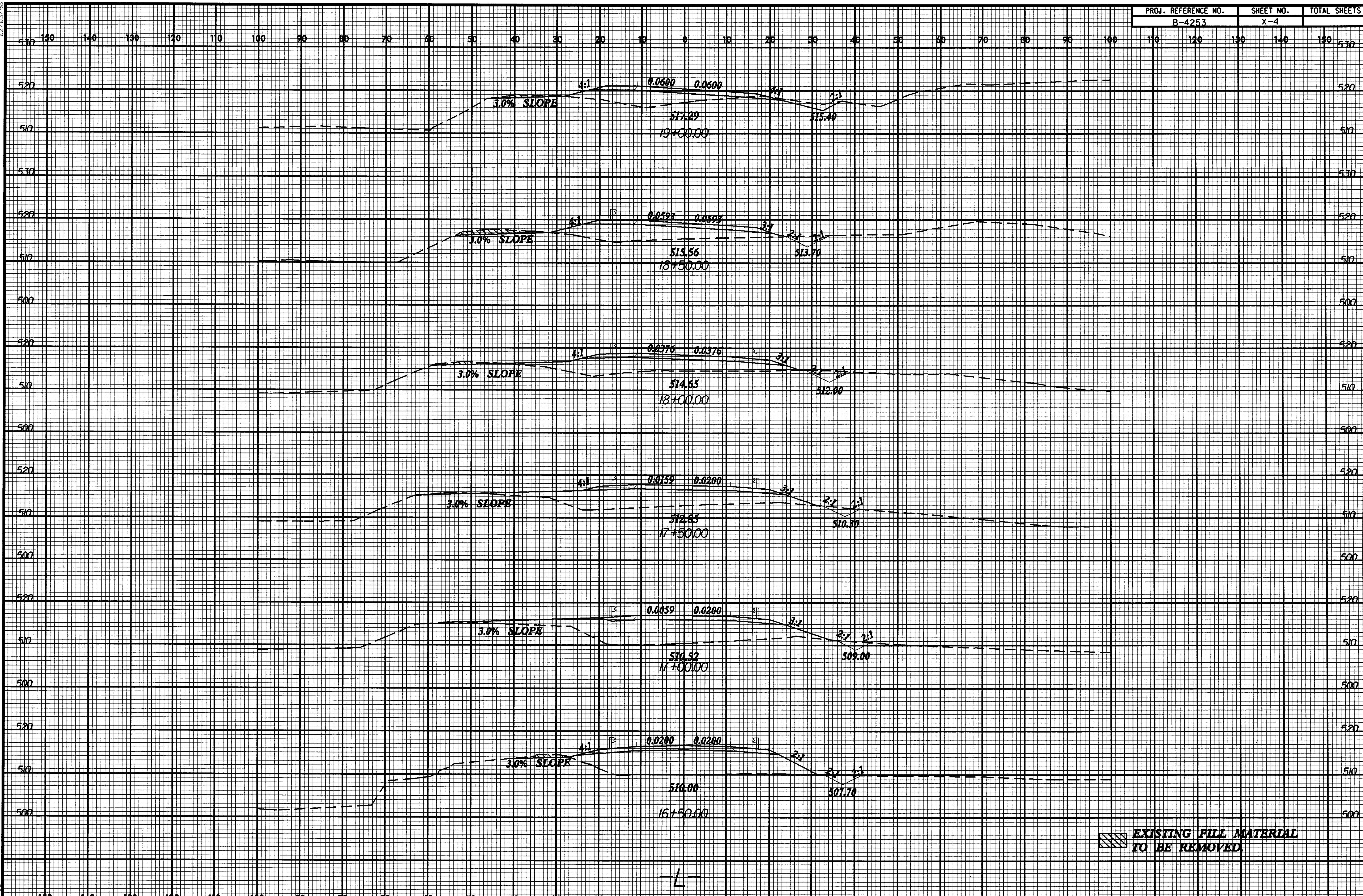
dwiggins AT RO223162

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4253	X-4	



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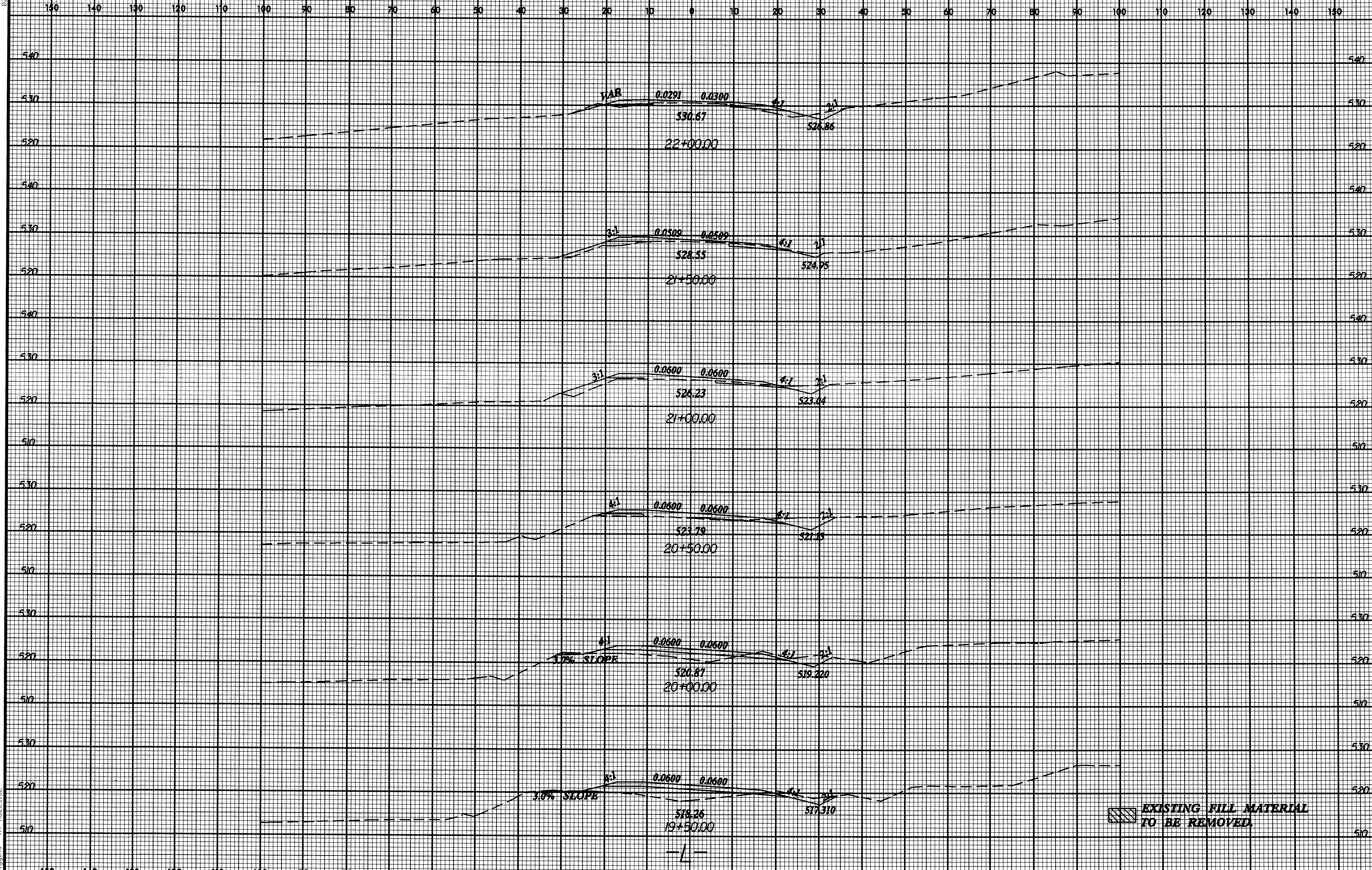

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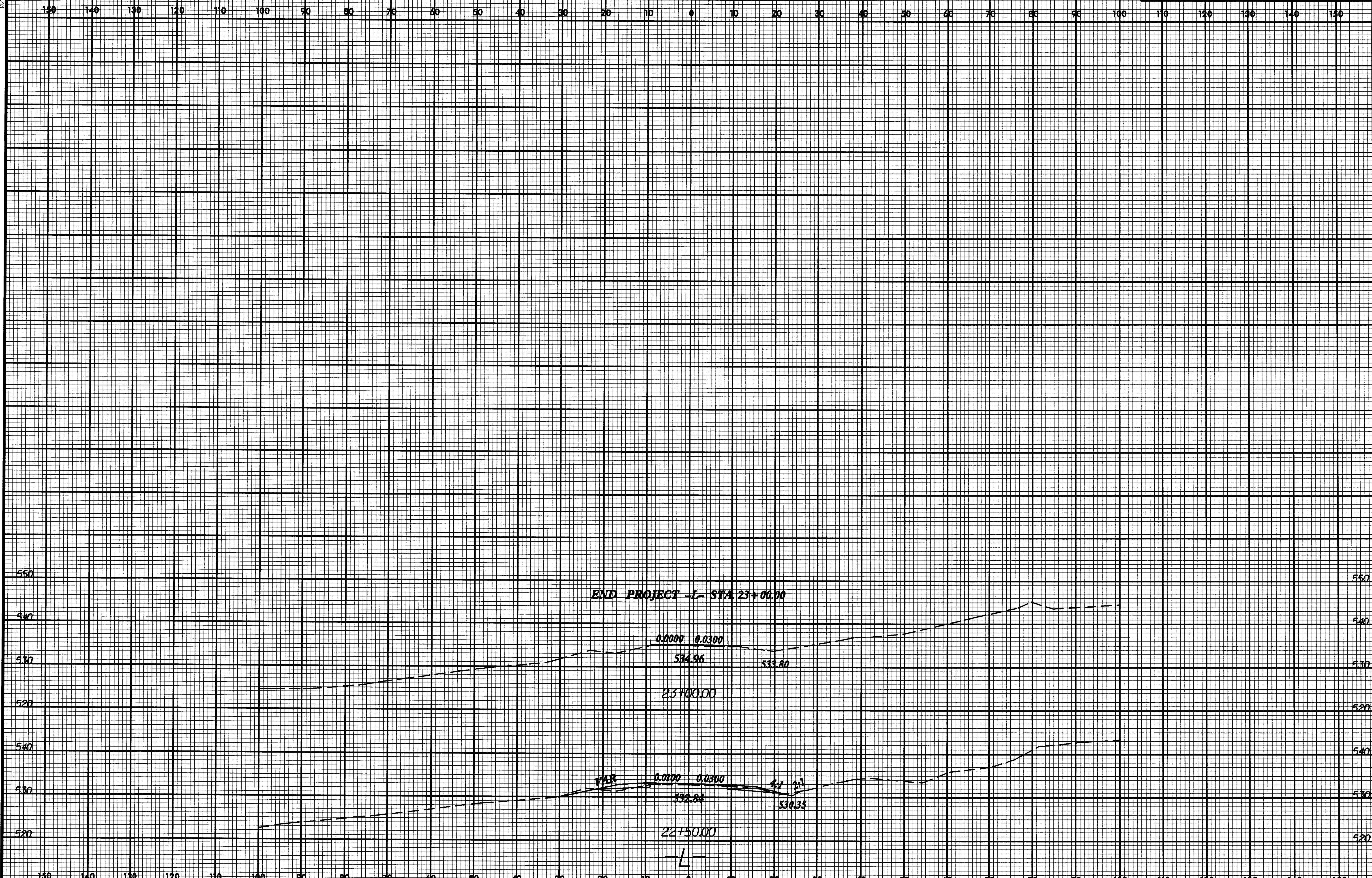

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Feulner

Rockingham County
Bridge No. 109 on SR 1767
Over Birch Fork Creek
Federal Aid Project No. BRZ-1767(2)
State Project No. 8.2511501
W.B.S. No. 33595.1.1
T.I.P. No. B-4253

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

Approved:

10-4-04
DATE

for Gregory J. Thorpe, PhD, Environmental Manager
Project Development & Environmental Analysis Branch

10-6-04
DATE

for John F. Sullivan, III, P.E. Division Administrator
Federal Highway Administration

Rockingham County
Bridge No. 109 on SR 1767
Over Birch Fork Creek
Federal Aid Project No. BRZ-1767(2)
State Project No. 8.2511501
W.B.S. No. 33595.1.1
T.I.P. No. B-4253

CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Branch By:

October 2004

John L. Williams, PE
Project Planning Engineer

William T. Goodwin Jr., PE, Unit Head
Bridge Replacement Planning Unit

PROJECT COMMITMENTS:

Rockingham County
Bridge No. 109 on SR 1767
Over Birch Fork Creek
Federal Aid Project No. BRZ-1767(2)
State Project No. 8.2511501
W.B.S. No. 33595.1.1
T.I.P. No. B-4253

There are no special commitments for this project.

Rockingham County
Bridge No. 109 on SR 1767
Over Birch Fork Creek
Federal Aid Project No. BRZ-1767(2)
State Project No. 8.2511501
W.B.S. No. 33595.1.1
T.I.P. No. B-4253

INTRODUCTION: Bridge No. 109 is included in the 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and is eligible for the Federal-Aid Bridge Replacement and Rehabilitation Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

Bridge No. 109 includes a three-span superstructure composed of a six-inch reinforced concrete deck on I-beams. The original substructure includes reinforced concrete caps on timber piles. The structure has been temporarily strengthened with a steel crutch.

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 23.2 out of a possible 100 for a new structure. The bridge is considered structurally deficient with structural appraisal of 2 out of 9 according to Federal Highway Administration (FHWA) guidelines and therefore eligible for FHWA's Highway Bridge Replacement and Rehabilitation Program.

Wear and tear resulting from increasing traffic, aging (53 year old) bridge components, increasing maintenance costs, and a structure that has required a temporary crutch to maintain traffic all justify the replacement of this bridge.

II. EXISTING CONDITIONS

The project is located in the northeast corner of Rockingham County (see Figure 1). The area contains a mix of agricultural and forested land.

SR 1767 is classified as a rural minor collector in the Statewide Functional Classification System and it is not a National Highway System Route. This route is not a designated bicycle route.

In the vicinity of the bridge, SR 1767 has an 18-foot pavement width with 4-foot grass shoulders. The roadway grade is relatively flat through the project area. While the bridge is in a tangent section, curves begin just off either end of the bridge. The roadway is situated approximately 13 feet above the streambed.

The existing bridge (see Figure 3) was constructed in 1951. The overall length of the structure is 90 feet. The clear roadway width is 22 feet. The bridge is posted with weight restrictions of 17 tons for single vehicles and 22 tons for truck-tractor semi-trailers.

Utility impacts are anticipated to be low to moderate. Bell South has an underground service along the west side of SR 1767 (aerial across Birch Fork Creek). Duke Power has an aerial service along the east side of SR 1767 with cable television attached.

The current traffic volume of 600 vehicles per day (VPD) is expected to increase to 1100 VPD by the year 2030. The projected volume includes one-percent truck-tractor semi-trailer (TTST) and two-percent dual-tired vehicles (DT). There is no posted speed limit in the project area. The School Bus Transportation Director has indicated there are two school busses currently utilizing the road.

There were no accidents reported in the vicinity of Bridge No. 109 during a check of a recent three-year period.

III. ALTERNATIVES

A. Project Description

The replacement structure will consist of a 90-foot long bridge on an alignment shifted approximately 30 feet east of the existing alignment. Traffic will be detoured offsite during construction

The roadway grade of the new structure will be approximately the same as the existing facility at this location. The bridge will be of sufficient width to provide for two 11-foot lanes and 3-foot offsets. Roadwork for the shifted alignment will begin approximately 550 feet to the south of the existing bridge and approximately 670 feet north of the existing bridge.

The existing roadway approaches will be widened to a 22-foot pavement width to provide two 11-foot lanes. Eight-foot (11-foot where guardrail is required) grass shoulders will be provided on each side. This roadway will be designed as a rural minor collector with a 60 mile per hour design speed.

Although the horizontal alignment will be improved with the proposed design, a design exception will still be required for horizontal alignment. To improve beyond the proposed becomes impractical considering topographic and environmental constraints and keeping cost in mind.

B. Reasonable and Feasible Alternatives

Only one build alternative was developed as a feasible alternative. Bridge No. 109 will be replaced on a shifted alignment with a new bridge (See Figure 2). Traffic will be detoured offsite during construction.

C. Alternatives Eliminated From Further Consideration

The "do-nothing" alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 1767.

Timber bridge components typically do not last beyond 30 to 40 years of age due to the natural deterioration rates of wood. Past a certain degree of deterioration, structures with timber piles become impractical to maintain and are programmed for replacement, as is the case for this bridge. The bridge has been temporarily crutched to remain in service.

Because of the proximity of the reverse curves on the existing alignment, replacing on the existing location would have required construction of a transition of superelevation on the bridge that is impractical. In addition, the widening of the approaches required to meet the desired cross section would have impacted the wetlands in the southeast quadrant. For these reasons, replacing on the existing location was not developed as a feasible alternative.

Since an acceptable (see reasoning in Section D below) offsite detour is present, an onsite detour was not considered.

D. Preferred Alternative

Bridge No. 109 will be replaced on a shifted alignment as shown in Figure 2. Traffic will be detoured offsite during construction (see Figure 1).

There were four primary factors considered in developing the proposed alignment:

There is an acceptable offsite detour present. A 3.0-minute additional travel time (2.2-miles additional travel) would result from the offsite detour (see Figure 1). According to NCDOT Guidelines for Evaluation of Offsite Detours For Bridge Replacement Projects a project with a 9-month duration of road closure and an additional travel time of less than 5 minutes is considered an acceptable delay in consideration that there are no mitigating circumstances. Rockingham County Emergency Services and the School Bus Transportation Director for Rockingham County have indicated that an offsite detour is acceptable.

The design was developed to allow for proper super elevation transition off the proposed bridge.

The design was developed to keep the footprint of the proposed project off the wetlands in the southwest quadrant (see Figure 2).

The design was developed to keep the cost to a minimum.

NCDOT Division 7 concurs with this proposed recommendation.

IV. ESTIMATED COSTS

The estimated costs for the build alternative is as follows:

Item	Alternate 1
Structure	$ 176,000
Roadway Approaches	305,000
Structure Removal	16,000
Eng. & Contingencies	104,000
Mobilization & Miscellaneous	224,000
Total Construction Cost	$ 825,000
Right-of-way Costs	$ 49,000
Total Project Cost	$ 870,000

V. NATURAL RESOURCES

A. Physical Resources

Water Resources

One stream, Birch Fork Creek, will be directly impacted by the proposed project. Birch Fork Creek is located in sub-basin 03-02-03 of the Roanoke River Basin. The channel of Birch Fork Creek, in the project vicinity is approximately 25 feet wide and has an average depth of 10 feet. The average streamflow was moderate and measured approximately 15 feet wide and 1 feet deep. The substrate is composed of gravel, sand and silt. Streams are assigned a best usage classification by the DWQ. The classification of Birch Fork Creek [Index no. 22-48-4] is **C**. The **"C"** classification denotes freshwaters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture.

Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within 1.0 mile of project study area.

Agricultural activities may serve as a source for various forms of nonpoint source pollutants. Land clearing and plowing may disturb soils to a degree where they are susceptible to erosion, which can lead to sedimentation in streams. Sediment is the most widespread cause of nonpoint source pollution in North Carolina. Pesticides, chemical fertilizers, and land application of animal wastes can be transported via runoff to receiving streams and can potentially elevate concentrations of toxic compounds and nutrients. Animal wastes can also be a source of bacterial contamination and can elevate biochemical oxygen demand (BOD). Drainage ditches on poorly drained soils enhance the transportation of stormwater into surface waters (NCDEHNR-DEM, 1993).

Biotic Resources

Four communities are found in the project study area: Maintained/Disturbed, Piedmont/Low Mountain Alluvial Forest, Forested Wetland and Piedmont Perennial Stream. Community boundaries within the study areas are well defined without a significant transition zone between them, and terrestrial faunal species likely to occur within the study area will exploit all communities for shelter and foraging opportunities or as movement corridors.

Table 1. Anticipated Impacts to Biotic Communities

Community	Alternate 1
Maintained/Disturbed	0.80
Piedmont Alluvial Forest	0.63
Forested Wetland	0.37
Total:	**1.8**

Note: Values cited are in acres.

Bridge Demolition

Bridge No. 109 is composed of timber, steel and concrete. It is likely that the bridge can removed without dropping components into the water.

Permits

One wetland system is present within the project area. It is classified using the classification scheme of Cowardin et al. (1979) as Palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A).

Birch Fork Creek is the only jurisdictional surface water, under Section 404 of the Clean Water Act (33 U.S.C. 1344), present within the project study area. Discussion of the biological, physical and water quality aspects of these streams are presented in previous sections of this report.

Impacts to jurisdictional surface waters are anticipated. In accordance with provisions of section 404 of the Clean Water Act (33 U.S.C. 1344), a permit will be required from the USACE for the discharge of dredged or fill material into "Waters of the United States".

A Section 404 Nationwide Permit 33 CFR 330.5(a) (23) is likely to be applicable for all impacts to Waters of the United States from the proposed project. This permit authorizes activities undertaken, assisted, authorized, regulated, funded or financed in whole, or part, by another Federal agency or department where that agency or department has determined that pursuant to the council on environmental quality regulation for implementing the procedural provisions of the National Environmental Policy Act.

A North Carolina Division of Water Quality (DWQ) Section 401 Water Quality Certification is required prior to the issuance of the section 404 permit. Section 401 of the Clean Water Act

requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to Waters of the U.S.

Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. Currently the US Fish & Wildlife Service lists two federally-protected species for Rockingham County (Table 3).

Table 3. Federally-Protected Species for Rockingham County

Scientific Name	Common Name	Status
Pleurobema collina	James spinymussel	Endangered
Echinacea laevigata	Smooth coneflower	Endangered

SMOOTH CONEFLOWER **ENDANGERED**

Suitable habitat for smooth coneflower is present within the road shoulder portions of the project study area. A plant by plant survey for smooth coneflower, within the road shoulder area, was conducted on August 27, 2001 by NCDOT biologists Karen M. Lynch and Lynn Smith. No specimens were found during the survey. A review of the NC Natural Heritage Program database of rare species and unique habitats on December 7, 2001 revealed that no known occurrences of smooth coneflower occur within 1.0 mile of the project study area. Therefore, project construction will not affect smooth coneflower.

BIOLOGICAL CONCLUSION **NO EFFECT**

JAMES SPINYMUSSEL **ENDANGERED**

NCDOT Environmental Specialists Karen Lynch, Mary Frazer and Sharon Snider visited the project site on March 27, 2003. Freshwater mussel surveys were conducted in any areas which possessed suitable habitat. Survey limits went to an estimated 1300 feet downstream to 330 feet upstream of the existing bridge. A total of 0.75 person-hours were spent during the survey. No mussels were found. Given the survey results and unsuitable habitat, it is apparent that the James spinymussel does not occur in the project footprint.

BIOLOGICAL CONCLUSION **NO EFFECT**

Federal Species of Concern and State Listed Species

Heller's trefoil (*Lotus helleri*) is the only Federal Candidate and State listed species listed for Rockingham County. The species' state status is as "Candidate" species. Candidate species are very rare in North Carolina generally due to habitat destruction. These species are also either rare throughout their ranges or disjunct in North Carolina from a main range in a different part of the country or world. Also included are species which may have 20-50 populations in North Carolina, but fewer than 50 populations rangewide. If present land use trends continue, candidate species are likely to merit listing as Endangered or Threatened. **Suitable habitat for Heller's trefoil does exist in the study area.** This data is provided for information purposes as the status of this species may be upgraded in the future.

A review of the NCNHP database of rare species and unique habitats revealed no records of North Carolina rare and/or protected species in or near the project study area. **Surveys for this species were not conducted during the site visit, nor was the species observed.**

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

B. Historic Architecture

The North Carolina Department of Cultural Resources has reviewed this project and determined that no structures of historic significance will be affected by the project (see attached letter).

C. Archaeology

The North Carolina Department of Cultural Resources has reviewed this project and determined that there are no likely archaeological resources of historic significance that could be affected by the project (see attached letter) and a survey is not required.

VII. GENERAL ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

The project is considered to be a Federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

No adverse impact on families or communities is anticipated. Right-of-Way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. There are no soils classified as prime, unique, or having state or local importance to be affected by the project.

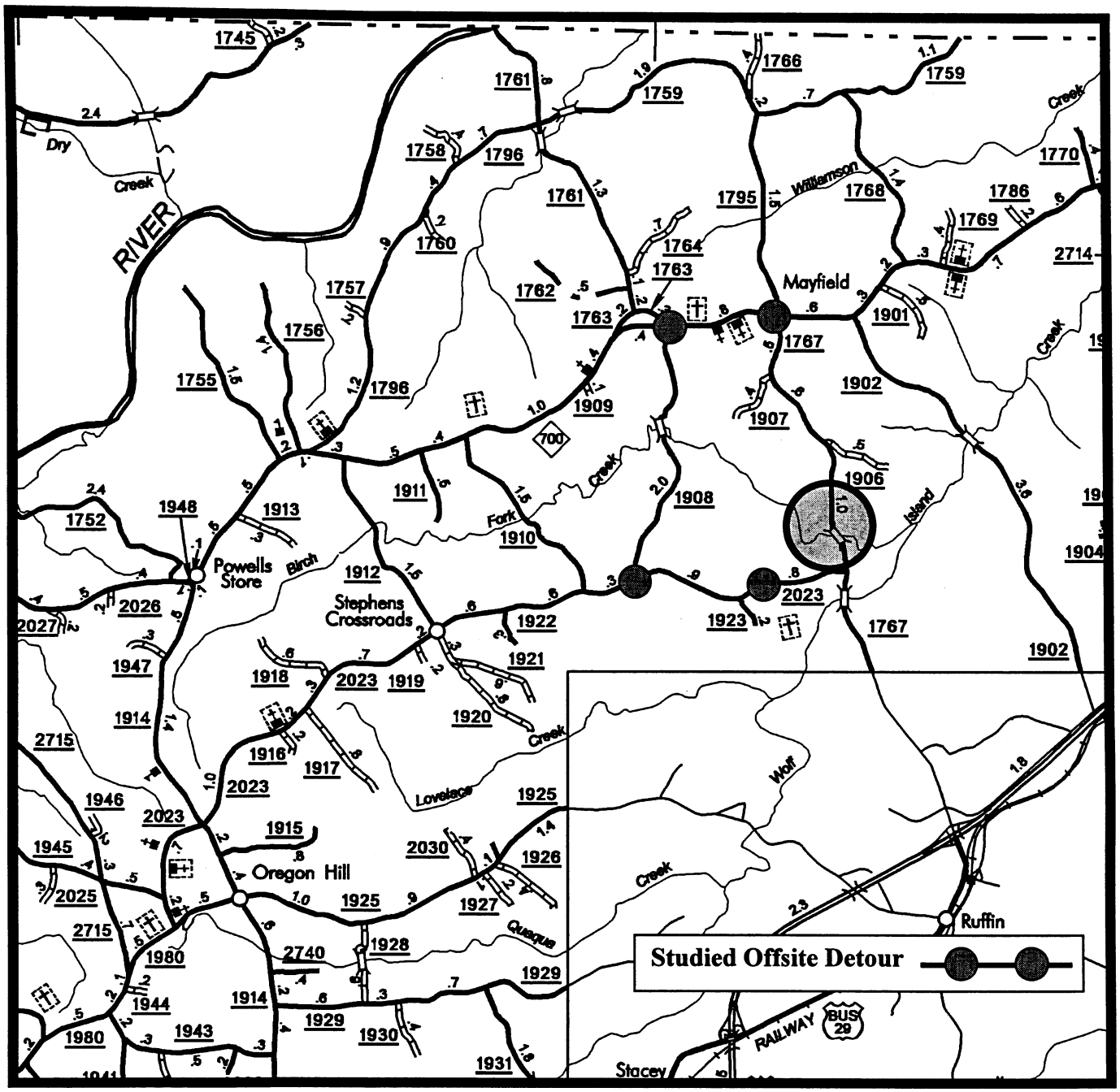
This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520.

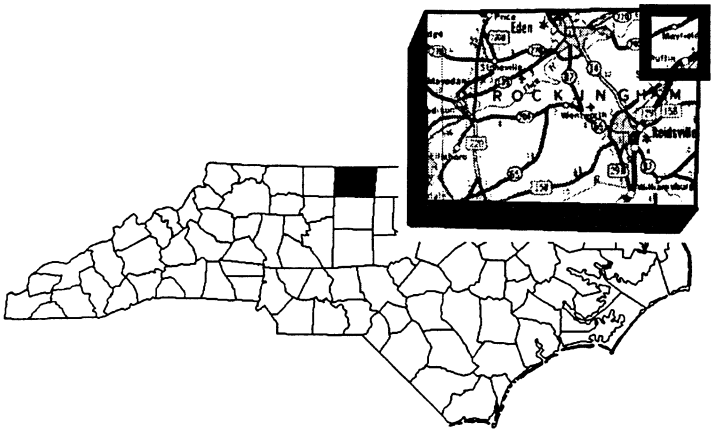
Noise levels could increase during construction but will be temporary. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulation (CFR), Part 772 and for air quality (1990 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Environmental Management, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

Rockingham County is a participant in the National Flood Insurance Program. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project.





NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

ROCKINGHAM COUNTY
REPLACE BRIDGE 109 ON SR 1767
OVER BIRCH FORK CREEK
B-4253

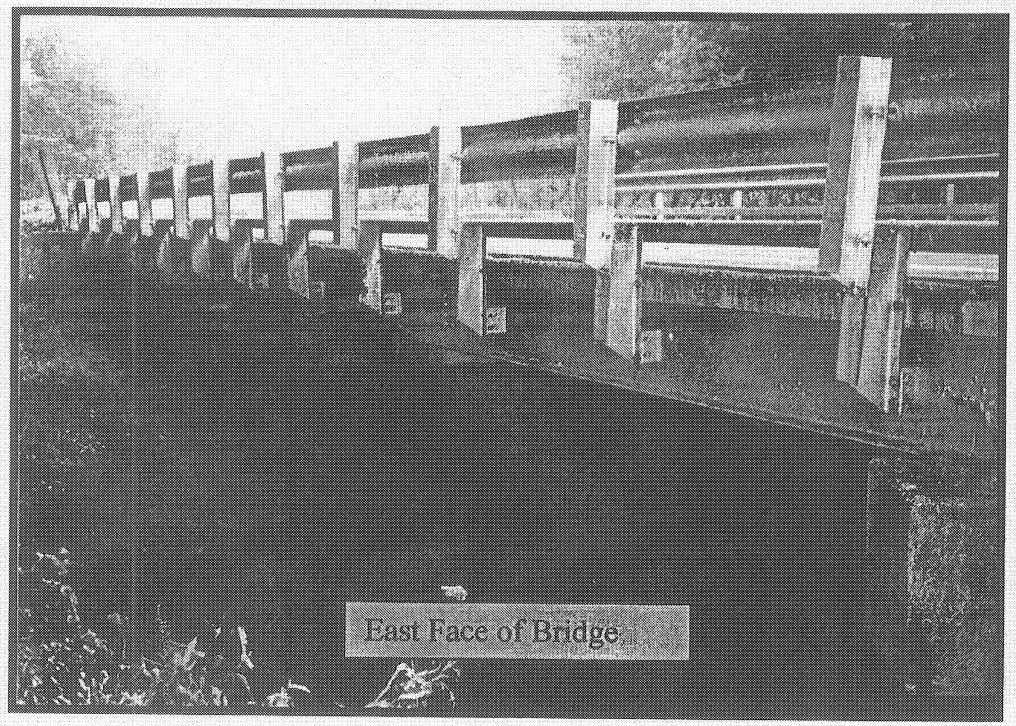
Figure 1

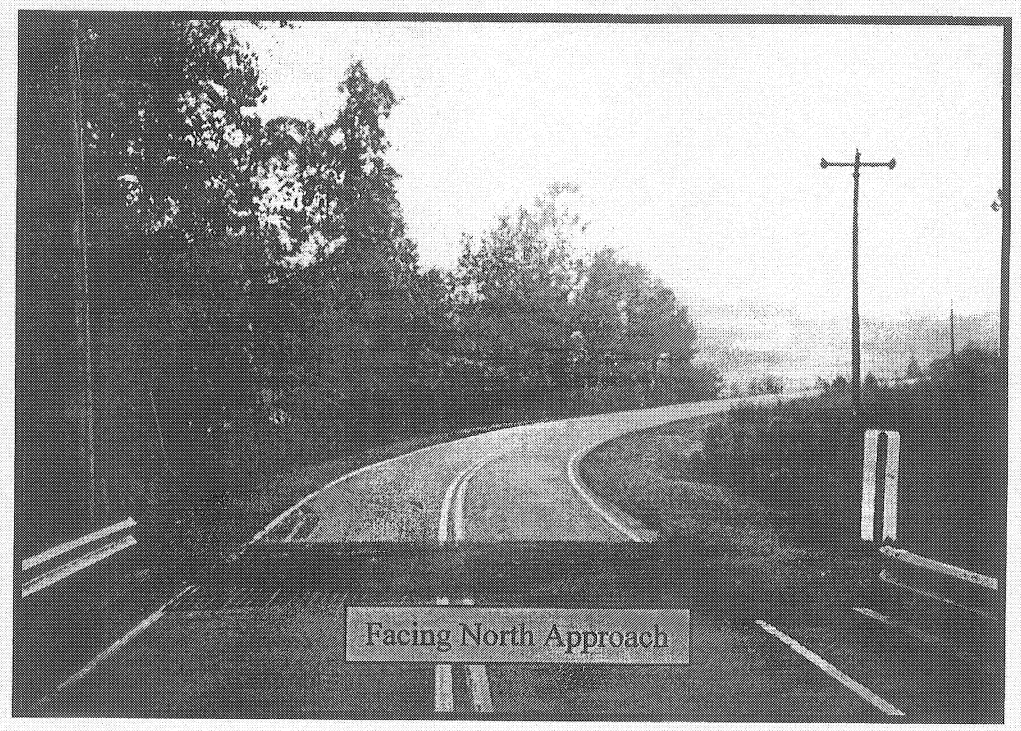
North Carolina
Department of Transportation
Project Development &
Environemental Analysis Branch

B-4253
Proposed Alignment

Scale 1"=100'

Figure 2


East Face of Bridge


Facing North Approach

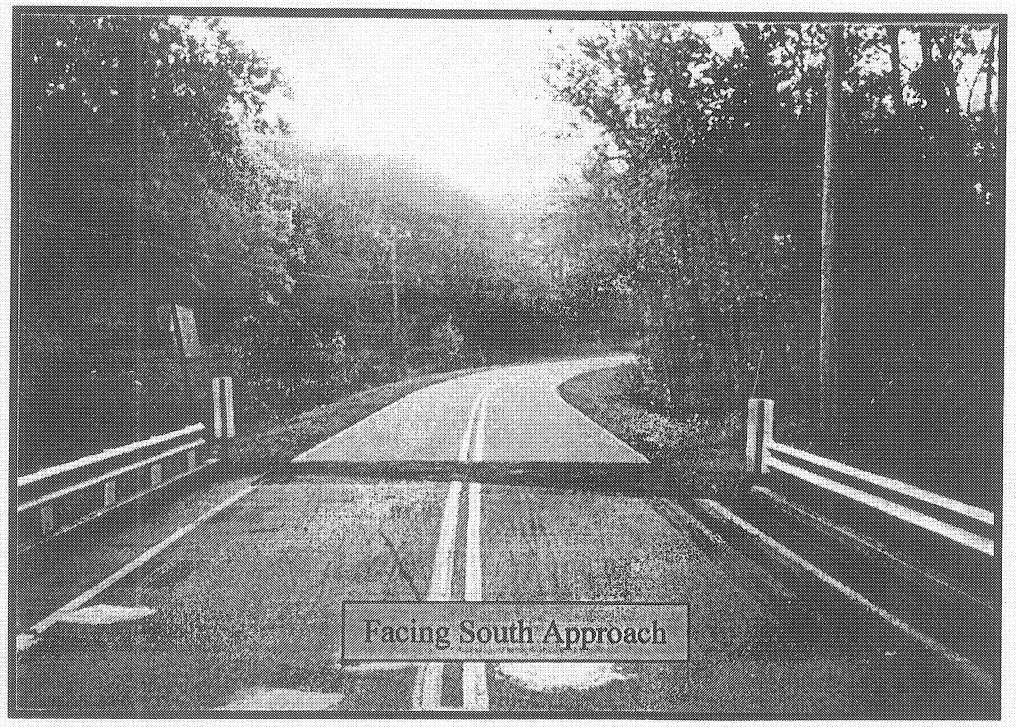

Facing South Approach

Figure 3

Williams

North Carolina Department of Cultural Resources

James B. Hunt, Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
William S. Price, Jr., Director

January 8, 2001

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook Peggy for David Brook
Deputy State Historic Preservation Officer

Re: Replacement of Bridge No. 109 on SR 1767 over Birch Fork Creek, TIP No. B-4253, Rockingham County, ER 01-7937

On November 28, 2000, April Montgomery of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. She reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources we are aware of no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

There are no known archaeological sites within the proposed project area. However, there is a fairly large floodplain. Therefore, we require more detailed drawings of the bridge location, replacements and any detours and approach work prior to making our recommendations.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have any questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

cc: T. Padgett

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Division of Historical Resources
David J. Olson, Director

September 17, 2002

MEMORANDUM

TO: John Williams
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook RGE for David Brook.
Deputy State Historic Preservation Officer

SUBJECT: Replacement of Bridge No. 109 on SR 1767 over Birch Fork Creek, TIP No. B-4253, Rockingham County, ER 01-7937

Thank you for your letter of August 8, 2002, forwarding additional information for the above project.

Given the limits of the proposed project and the hydrological characteristics of the proposed bridge replacement, we do not recommend any archaeological investigation in connection with this project.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above-referenced tracking number.

DB:kgc

cc: Matt Wilkerson, NCDOT