STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

July 2, 2012

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. John T. Thomas, Jr.
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 23 , Section 401 Water Quality Certification, and Jordan Lake Watershed Riparian Buffer Authorization** for the replacement of Bridge No. 12 on SR 2343 (Price Mill Road) over Troublesome Creek in Rockingham County, North Carolina, TIP No. B-4804, Federal Aid Project No. BRZ-2343(2).

Debit $240.00 from WBS Element 38574.1.1

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 12 on SR 2343 (Price Mill Road) over Troublesome Creek in Rockingham County. This involves replacement of the existing single span 41-foot long bridge with a 3 barrel reinforced concrete box culvert on the existing location. An offsite detour will be used during construction. There will be 124 feet of permanent stream impacts due to replacement of the bridge. Bank stabilization accounts for 74 feet of the impacts. There will also be 107 feet of temporary stream impacts for installation of the box culvert.

Please find enclosed the Pre-Construction Notification (PCN) form, Ecosystem Enhancement Program (EEP) letter, stormwater management plan, permit drawings, buffer drawings, and design plans for the above referenced project. A Programmatic Categorical Exclusion (PCE) was completed for this project on May 16, 2011 and distributed shortly thereafter. Additional copies are available upon request.

The proposed let date for the project is February 19, 2013 with a review date of December 17, 2012. However, the let date may advance as additional funds become available.

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

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

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

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Deanna Riffey at driffey@ncdot.gov or (919) 707-6151.

Sincerely,

for Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 23 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No
1d. Type(s) of approval sought from the DWQ (check all that apply): ☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☒ Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☒ Yes	☐ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes	☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes	☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge No. 12 on SR 2343 (Price Mill Road) over Troublesome Creek
2b. County:	Rockingham
2c. Nearest municipality / town:	Stokesdale
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4804

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6151
3g. Fax no.:	(919) 212-5785
3h. Email address:	driffey@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	*not applicable*
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 36.262826 (DD.DDDDDD)	Longitude: - 79.899317 (-DD.DDDDDD)
1c. Property size:	1.61 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Troublesome Creek	
2b. Water Quality Classification of nearest receiving water:	WSIII; NSW	
2c. River basin:	Cape Fear	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Land use in the project vicinity is primarily agriculture, interspersed with residential development and forestland.		
3b. List the total estimated acreage of all existing wetlands on the property: 0.06		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 1544		
3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a single span 41-foot bridge with a 3 barrel reinforced concrete box culvert on the existing bridge location with an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: perennial stream	☒ Yes ☐ No ☐ Unknown	
4b. If the Corps made the jurisdictional determination, what type of determination was made? Andy Williams on 5/29/08; no JD received to date.	☐ Preliminary ☐ Final	
4c. If yes, who delineated the jurisdictional areas? Name (if known): D. Riffey, J. Pflaum, E. Mclamb	Agency/Consultant Company: NCDOT Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown	
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes ☒ No	
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☐ Wetlands ☒ Streams - tributaries ☒ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	

2h. Comments:

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☒ P ☐ T	Box culvert	Troublesome Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	15	50
Site 1 ☐ P ☒ T	Box culvert	Troublesome Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	15	107
Site 1 ☒ P ☐ T	Bank stabilization	Troublesome Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	15	74
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	124 Perm 107 Temp

3i. Comments:

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
	5f. Total							

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?	☐ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☒ Other: Jordan

6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☒ P ☐ T	Road crossing	Troublesome Creek	☐ Yes ☒ No	4601	1440
B2 ☒ P ☐ T	Road impact other than crossing	UT Troublesome Creek	☒ Yes ☐ No	1685	0
B3 ☐ P ☐ T			☐ Yes ☐ No		
			6h. **Total buffer impacts**	6041	1440

6i. Comments: In addition, there will be hand clearing in the buffer for aerial utility lines. Disturbance is 31.6 linear feet of riparian buffer and impacts are exempt.

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

The proposed culvert will be constructed on the existing bridge alignment. Wetlands are located in project vicinity, but are not impacted by project design. A culvert is being constructed to replace the bridge because it is less than half the cost, twice the life expectancy, low maintenance, and hydraulically adequate. Class I riprap will be used at the proposed culvert inlet/outlet to minimize erosion to the stream banks. An off-site detour will also be utilized.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

NCDOT will use Best Management Practices for Bridge Demolition and Removal as well as Best Management Practices for the Protection of Surface Waters. Design Standards in Sensitive Watersheds will also be used.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☒ Yes ☐ No If no, explain:
2b. If yes, mitigation is required by (check all that apply):	☒ DWQ ☒ Corps
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☒ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☒ Yes
4b. Stream mitigation requested:	100 feet (50 feet at 2:1 = 100 linear feet)
4c. If using stream mitigation, stream temperature:	☒ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	5055 square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. **Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?				☒ Yes ☐ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1	Roadway fill	1685	3 (2 for Catawba)	5055
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			5055
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund). Mitigation payment goes into an approved in-lieu fee fund, Ecosystem Enhancement Program.				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☒ Yes ☐ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments:	☒ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☒ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. 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. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat? Habitat for *Echinacea laevigata*	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts? No effect: A recent survey occurred 5/24/12.	☐ Yes	☒ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS county list and NCNHP database along with field surveys.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☐ Yes	☒ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Thorpe Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	7.2.12 Date

Ecosystem
PROGRAM

June 26, 2012

Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4804, Replace Bridge Number 12 over Troublesome Creek on SR 2343, Rockingham County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the stream mitigation and buffer mitigation for the subject project. Based on the information supplied by you on June 21, 2012, the stream impacts are located in CU 03030002 of the Cape Fear River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Cape Fear	03030002	CP	0	0	50	0	0	0

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the additional buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization Certification, EEP will transfer funds from MOA Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its additional riparian buffer mitigation responsibility for B-4804. Subsequently, EEP will conduct a review of current NCDOT ILF mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Fund. The buffer impacts are as follows:

Buffer	River Basin	CU Location	Eco-Region	Buffer		
				Zone 1	Zone 2	TOTAL
Impacts	Cape Fear	03030002 (Jordan Watershed – Haw Arm)	CP	1,685	0	1,685

This stream impact and associated mitigation need were under projected by the NCDOT in the 2012 impact data. EEP will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

Suzanne Klimek
EEP Acting Director

Cc: Mr. Andy Williams, USACE – Washington Regulatory Field Office
Mr. David Wainwright NC Division of Water Quality
File: B-4804

STORMWATER MANAGEMENT PLAN

B-4804, WBS No. 38574.1.1

Rockingham County

Hydraulics Project Manager: Stephen Morgan, PE

Date: 03/27/2012

ROADWAY DESCRIPTION

The project involves the replacement of Bridge No. 12 over Troublesome Creek on SR 2343 (Price Mill Road). The overall length of the project is 0.133 miles. The project will replace an existing 40'-6"single span timber bridge with a 49.7' 3@12' wide by 11' high precast reinforced concrete box culvert buried 1'. An offsite detour will be utilized.

ENVIRONMENTAL DESCRIPTION AND IMPACTS

The project is located in the Cape Fear River Basin. The drainage area at the crossing is approximately 7.31 mi^2. The proposed culvert impacts Troublesome Creek, which is classified as Class C; WS-III, NSW. Troublesome Creek is listed on the 2010 Final 303(d) list of impaired waters for Low Dissolved Oxygen. There are wetlands in the project vicinity, but are not impacted by the project design. Stream impacts are due to the proposed culvert.

Approximately 125' of permanent stream impacts and 202' of temporary stream impacts will occur.

Approximately 7728 ft^2 of buffer zones will be allowable impacts.

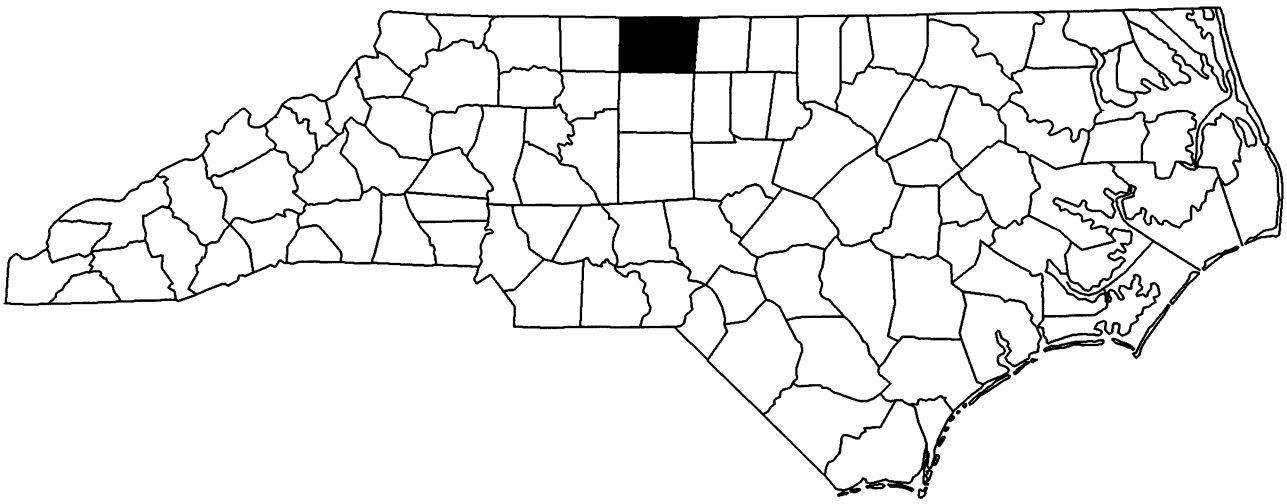
BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

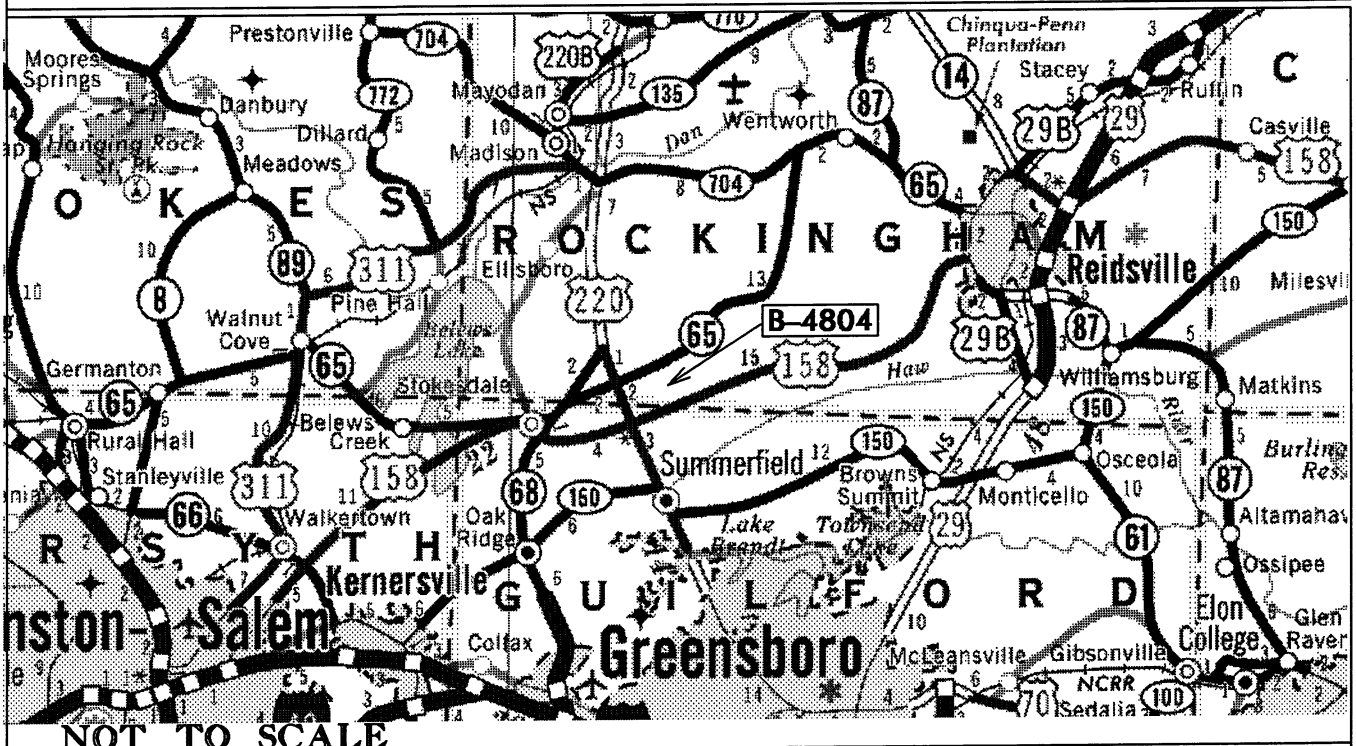
Best management practices (BMP's) and measures used on the project are an attempt to reduce the impacts to the receiving stream due to erosion and runoff. Class I rip rap is used at the proposed culvert inlet/outlet to minimize erosion to the stream banks.

CULVERT

-L- Station 22+68.92 replace existing bridge over Troublesome Creek with a 3@12' wide by 11' high precast reinforced concrete box culvert. The culvert will be buried 1'.

NORTH CAROLINA





WETLAND/ SURFACE WATER VICINITY MAP

NCDOT

DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

PROJECT: 38574.1.1 (B-4804)

BRIDGE NO.12

SR 2343, (PRICE MILL RD.)

OVER TROUBLESOME CREEK

SHEET 1 **OF** 9 **6/16/11**

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	DONNA H. BATES	130 GEM STONE LOOP SUMMERFIELD, NC 27358
2	ROY J. JR. & REBECCA P. TURNER	430 PRICE MILL RD. SUMMERFIELD, NC 27358
3	WALTER OLIVER HENDREN JR.	157 GEM STONE LOOP SUMMERFIELD, NC 27358
4	SANDRA D. HAZELWOOD	926 LAKECREST AVE. HIGH POINT, NC 27265
5	PETER R. HORWICH	P.O. BOX 663 SUMMERFIELD, NC 27358

NCDOT

DIVISION OF HIGHWAYS

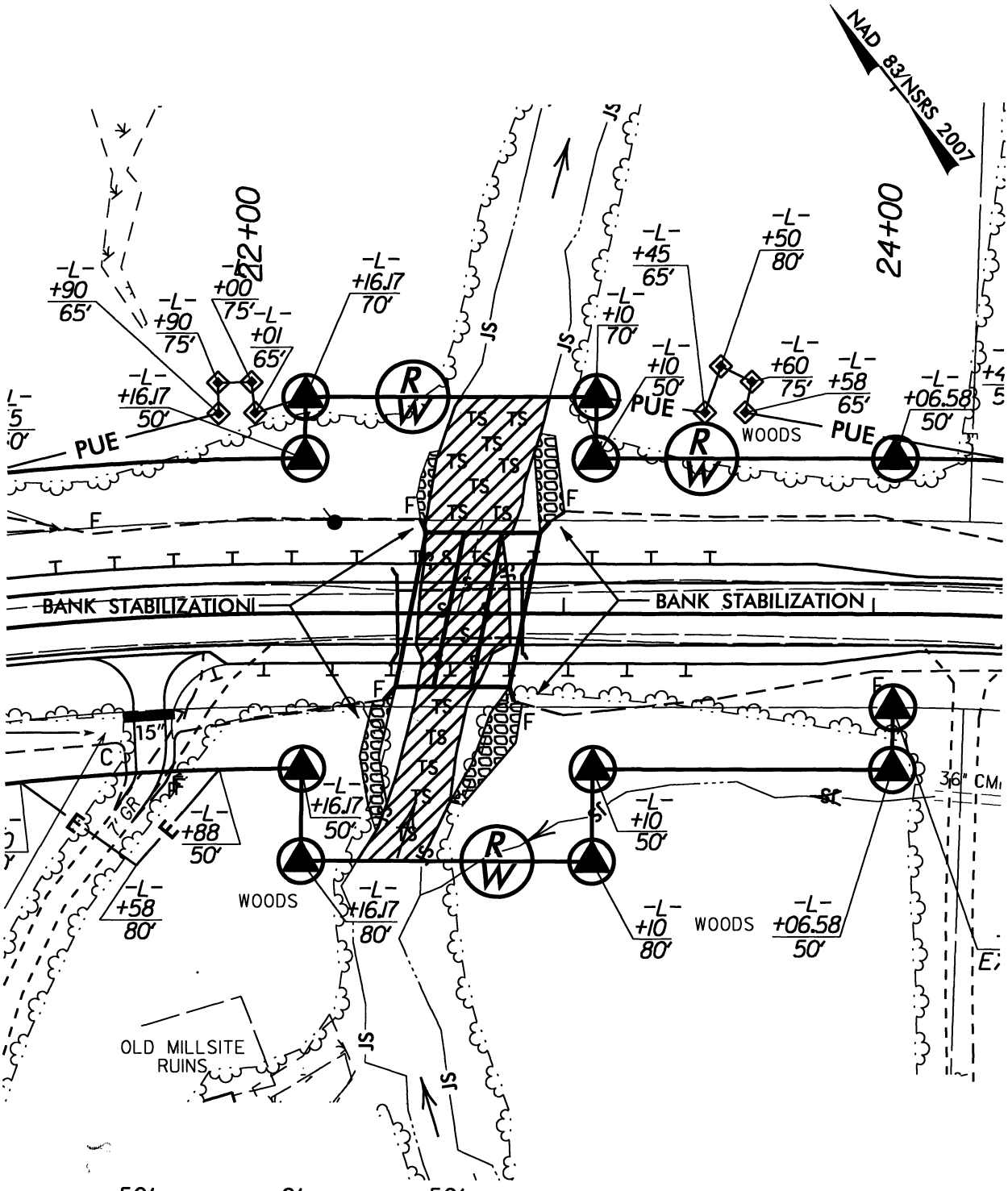
ROCKINGHAM COUNTY

PROJECT: 38574.1.1 (B-4804)

REPLACE BRIDGE 12

ON SR 2343

OVER TROUBLESOME CREEK



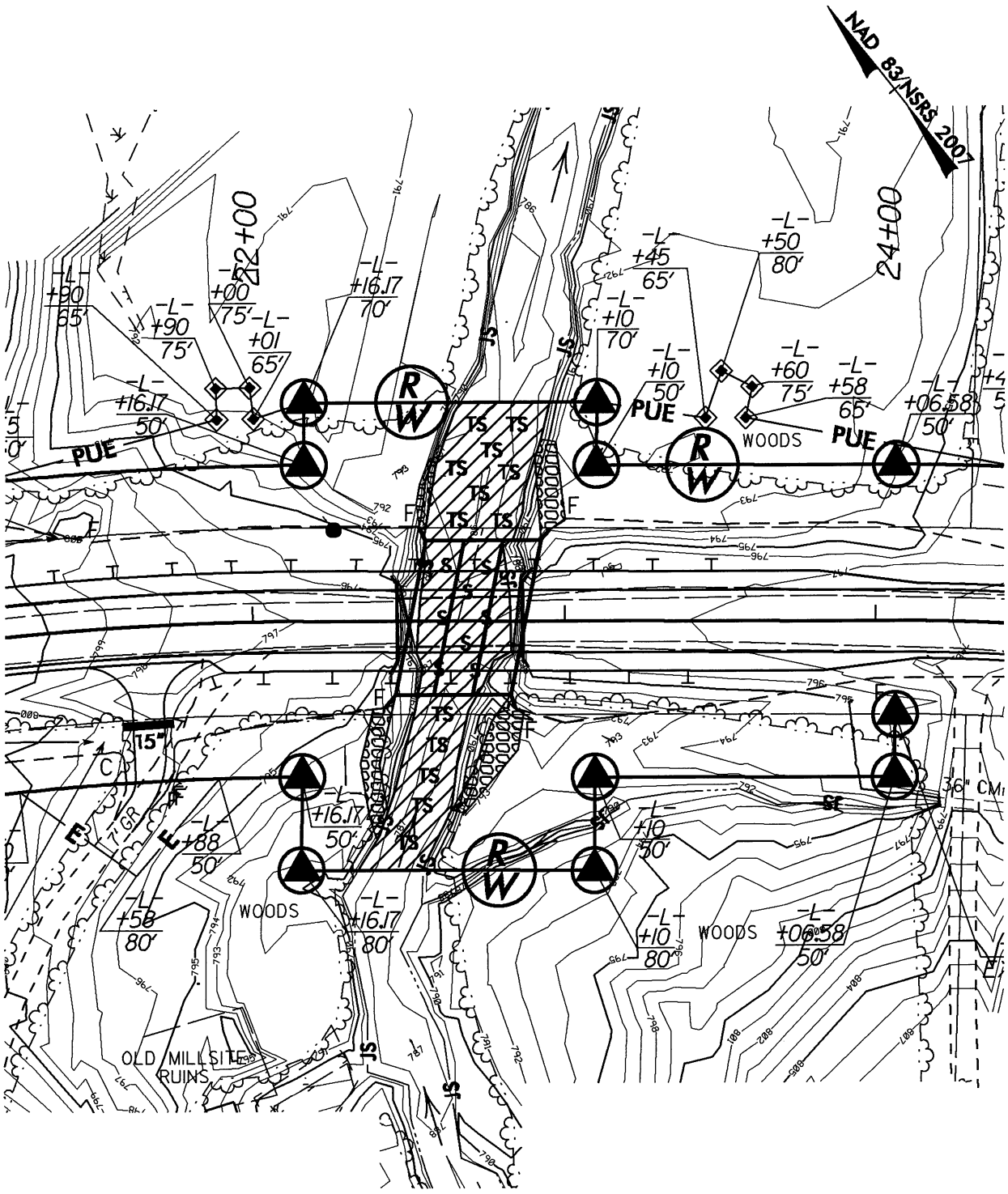
SURFACE WATER IMPACTS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NCDOT

DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 38574.1.1 (B-4804)
REPLACE BRIDGE 12
ON SR 2343 (PRICE MILL RD.)
OVER TROUBLESOME CREEK



50' 0' 50'

GRAPHIC SCALE

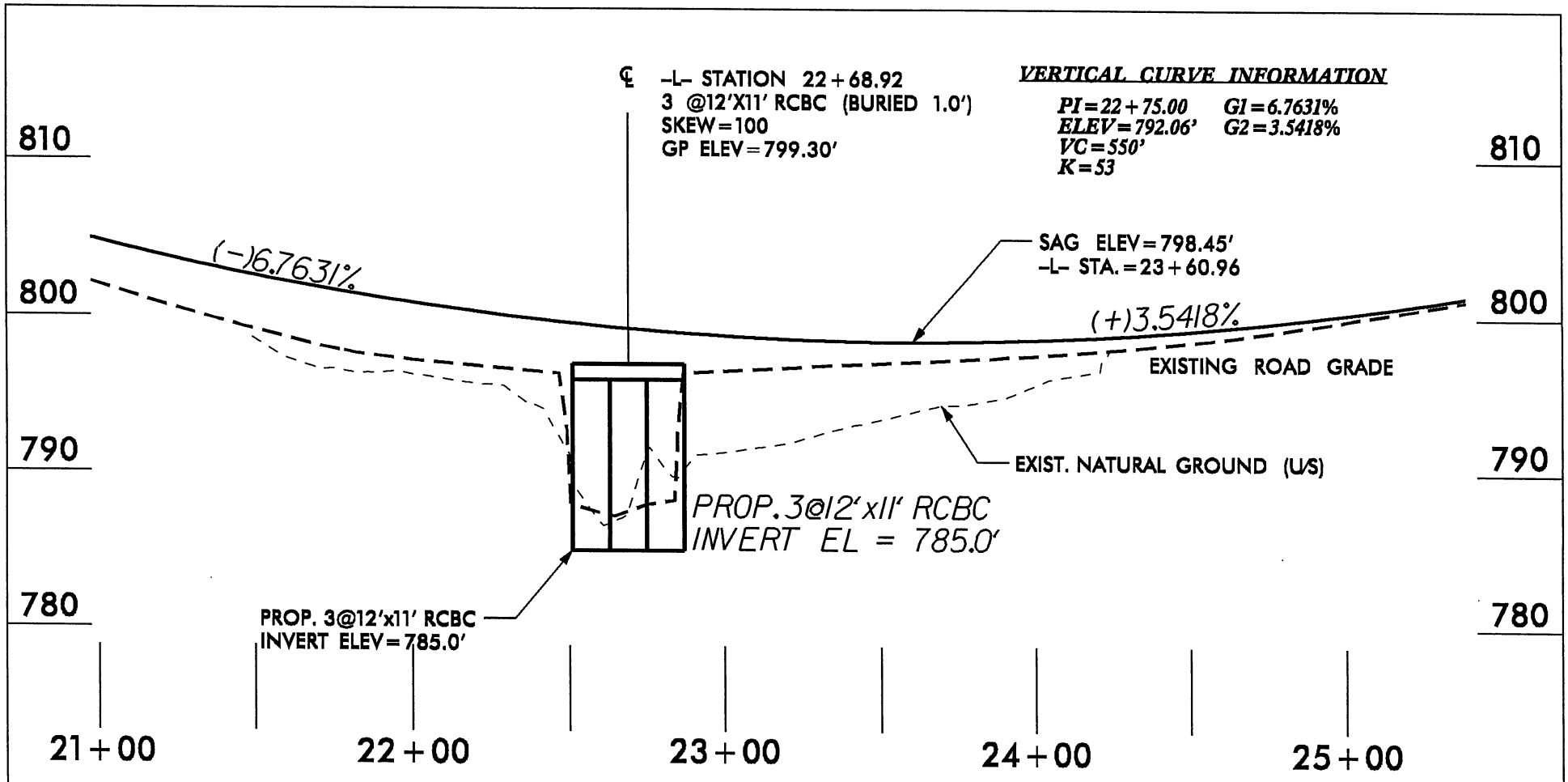
SURFACE WATER IMPACTS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NCDOT

DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 38574.1.1 (B-4804)
REPLACE BRIDGE 12
ON SR 2343 (PRICE MILL RD.)
OVER TROUBLESOME CREEK



PROFILE

NCDOT

DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

PROJECT: 38574.1.1 (B-4804)

REPLACE BRIDGE 12

ON SR 2343

OVER TROUBLESOME CREEK

SHEET 5 OF 9

3/26/12

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
	22+50.60/22+87.24-L-	3 @ 12'X11' RCBC						0.03	0.05	50	107	
	22+76 to 22+84 -L- Rt	Bank Stabilization								42		
	22+91 to 23+00 -L- Lt	Bank Stabilization								32		
TOTALS:								0.03	0.05	124	107	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY
WBS - 38574.1.1 - (B-4804)

SHEET 6 of 9

Rev. 06/21/12
5/15/2012

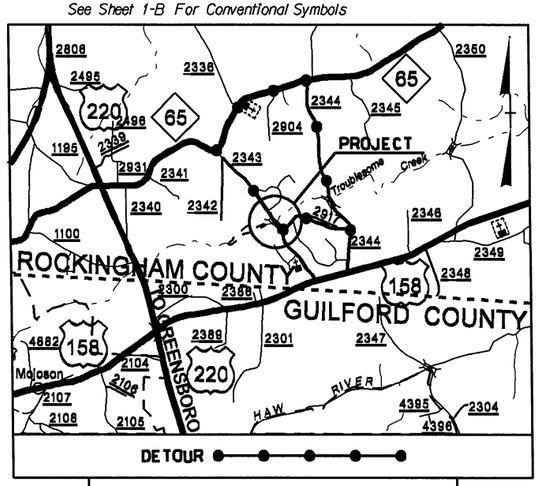
ATN Revised 3/31/05

TIP PROJECT: B-4804

CONTRACT:

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

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

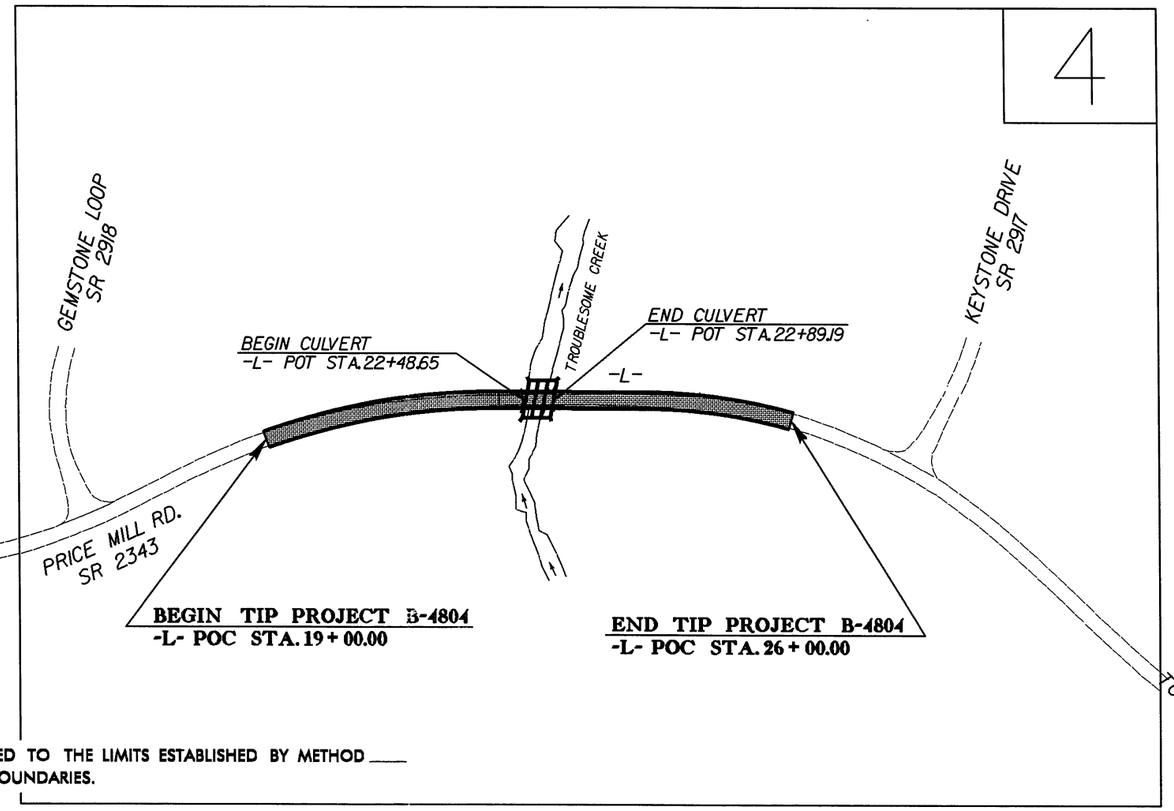
LOCATION: BRIDGE NO. 12 OVER TROUBLESOME CREEK ON SR 2343

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4804	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38574.1.1	BRZ-2343(2)	P.E.	

Permit Drawing 7 of 9
Sheet

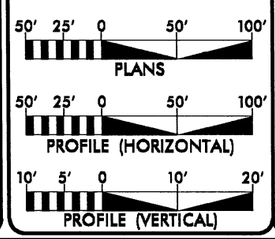
SURFACE WATER IMPACTS



NAD 83/ NSRS 2007

NOTES: (1) CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____
(2) THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 1,421
ADT 2035 = 2,600
DHV = 10 %
D = 60 %
T = 3 % *
V = 45 MPH
FUNC. CLASS. = LOCAL
* TTST 1% DUAL 2%
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4804 = 0.125 MI.
LENGTH STRUCTURE TIP PROJECT B-4804 = 0.008 MI.
TOTAL LENGTH OF TIP PROJECT B-4804 = 0.133 MI.

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 2012

LETTING DATE:
FEBRUARY 19, 2013

REKHA PATEL, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

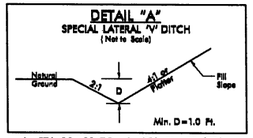
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
B-4804	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 8 of 9

-L- CURVE DATA

PI Sta 20+00.72	PI Sta 26+89.66
Δ = 27° 31' 24.1" (RT)	Δ = 43° 11' 54.5" (RT)
D = 6° 15' 42.6"	D = 8° 00' 48.2"
L = 439.54'	L = 539.08'
T = 224.10'	T = 283.08'
R = 915.00'	R = 715.00'
SE = .06	SE = .04
INC = SEE PLANS	INC = SEE PLANS

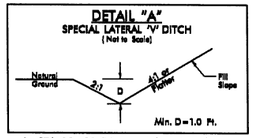
-L- STA. 20+50 TO -L- STA. 21+50 (RT.)
-L- STA. 20+50 TO -L- STA. 21+20 (LT.)

▨ S	DENOTES IMPACTS IN SURFACE WATER
▨ TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100' 200' 300'
GRAPHIC SCALE

REVISIONS

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



PROJECT REFERENCE NO.	SHEET NO.
B-4804	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 9 of 9

REVISIONS

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L = 539.08'
T = 283.08'
R = 715.00'
SE = .04
INC = SEE PLANS

DETAIL "A"
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

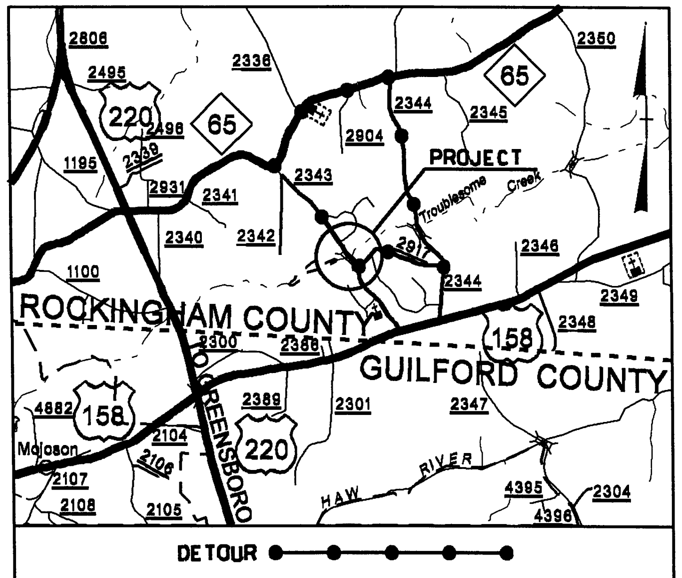
-L- STA. 20+50 TO -L- STA. 21+50 (RT.)
-L- STA. 20+50 TO -L- STA. 21+20 (LT.)

S / S DENOTES IMPACTS IN SURFACE WATER

TS / TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

LOCATION: BRIDGE NO. 12 OVER TROUBLESOME CREEK ON SR 2343

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

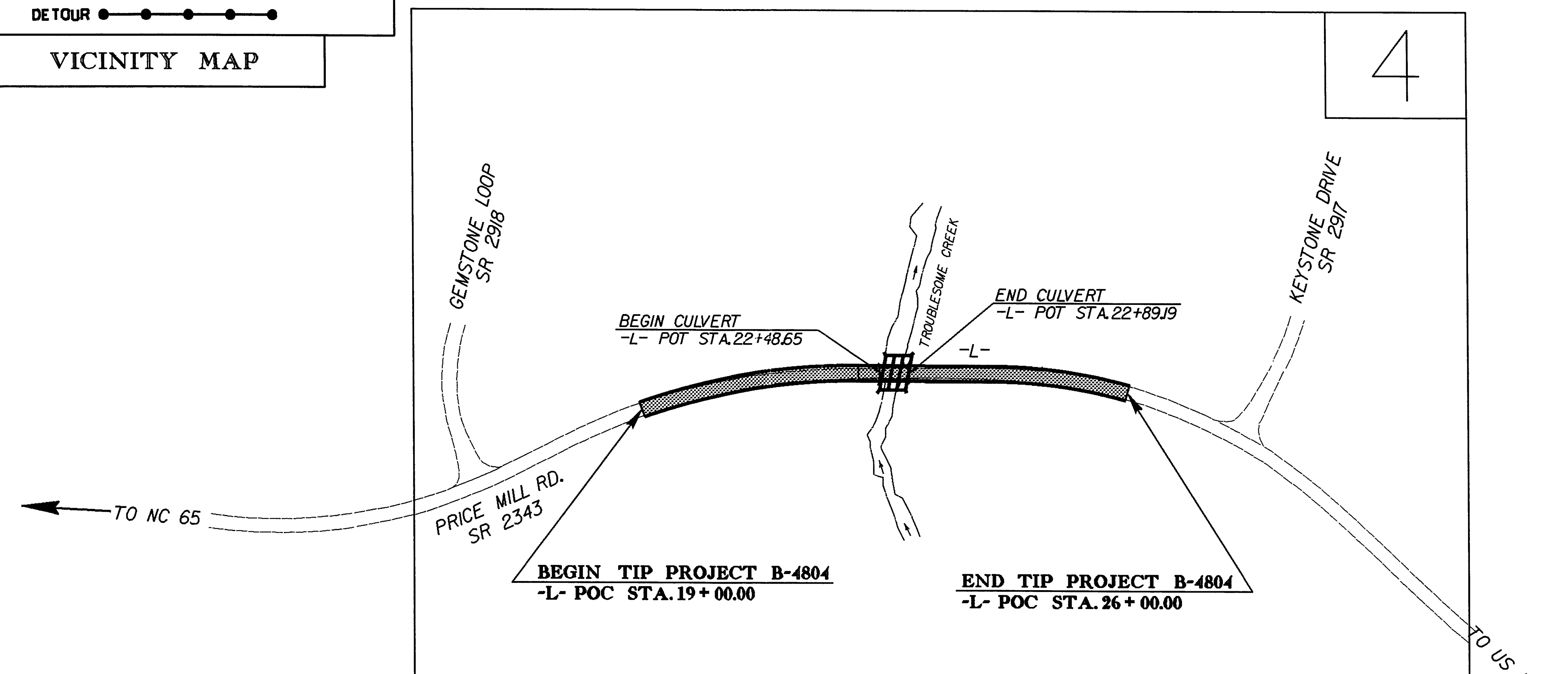
BUFFER IMPACTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4804	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38574.1.1	BRZ-2343(2)	P.E.

Buffer Drawing
Sheet 1 of 5

NAD 83/ NSRS 2007



NOTES: (1) CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____
(2) THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

TIP PROJECT: B-4804

CONTRACT:

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

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 2013 = 1,421
ADT 2035 = 2,600
DHV = 10 %
D = 60 %
T = 3 % *
V = 45 MPH
FUNC. CLASS. = LOCAL
* TTST 1% DUAL 2%
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY	TIP PROJECT B-4804	=	0.125 MI.
LENGTH STRUCTURE	TIP PROJECT B-4804	=	0.008 MI.
TOTAL LENGTH OF	TIP PROJECT B-4804	=	0.133 MI.

Prepared In the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr.
Raleigh, NC 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 2012

LETTING DATE:
FEBRUARY 19, 2013

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PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
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HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
B-4804	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing Sheet 4 of 5

NAD 83/NSRS 2007

REVISIONS

-L- CURVE DATA

PI Sta 20+00.72	PI Sta 26+89.66
Δ = 27° 31' 24.1" (RT)	Δ = 43° 11' 54.5" (RT)
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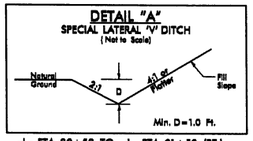
SE = .06	SE = .04
INC = SEE PLANS	INC = SEE PLANS

DETAIL "A"
SPECIAL LATERAL "V" DITCH
(Not to Scale)



-L- STA. 20+50 TO -L- STA. 21+50 (RT.)
-L- STA. 20+50 TO -L- STA. 21+20 (LT.)

-L- PT Sta.22+16.17
-L- PC Sta.24+06.58
-L- PC Sta.17+76.63
-L- POT Sta.16+93.27
-L- PT Sta.29+45.66
-L- POT Sta.31+00.06

FORREST, STEVEN LEE & CAROL A.
DB 946 PG 1291
PB 35 PG 13

CRAVER BOBBY W. & VIRGINIA C.
DB 954 PG 907
PB 35 PG 13

GRAIGHEAD, PHYLLIS JEAN
DB 1122 PG 2495
PB 35 PG 13

1 BATES, DONNA H.
DB 558 PG 596
PB 35 PG 13

3 HENDREN JR., WALTER OLIVER
DB 1344 PG 2461
PB 35 PG 13

2 TURNER, ROY J. JR. & REBECCA P.
DB 837 PG 1444

ATKINS, GARY R. & DEBRA D.
DB 1095 PG 858

4 HAZELWOOD, SANDRA D.
DB 988 PG 293
PB 30 PG 50

LOVE, EDWARD A. & LAURA ANNE
DB 863 PG 1
PB 28 PG 440

5 HORWICH, PETER R.
DB 860 PG 1244
PB 28 PG 351

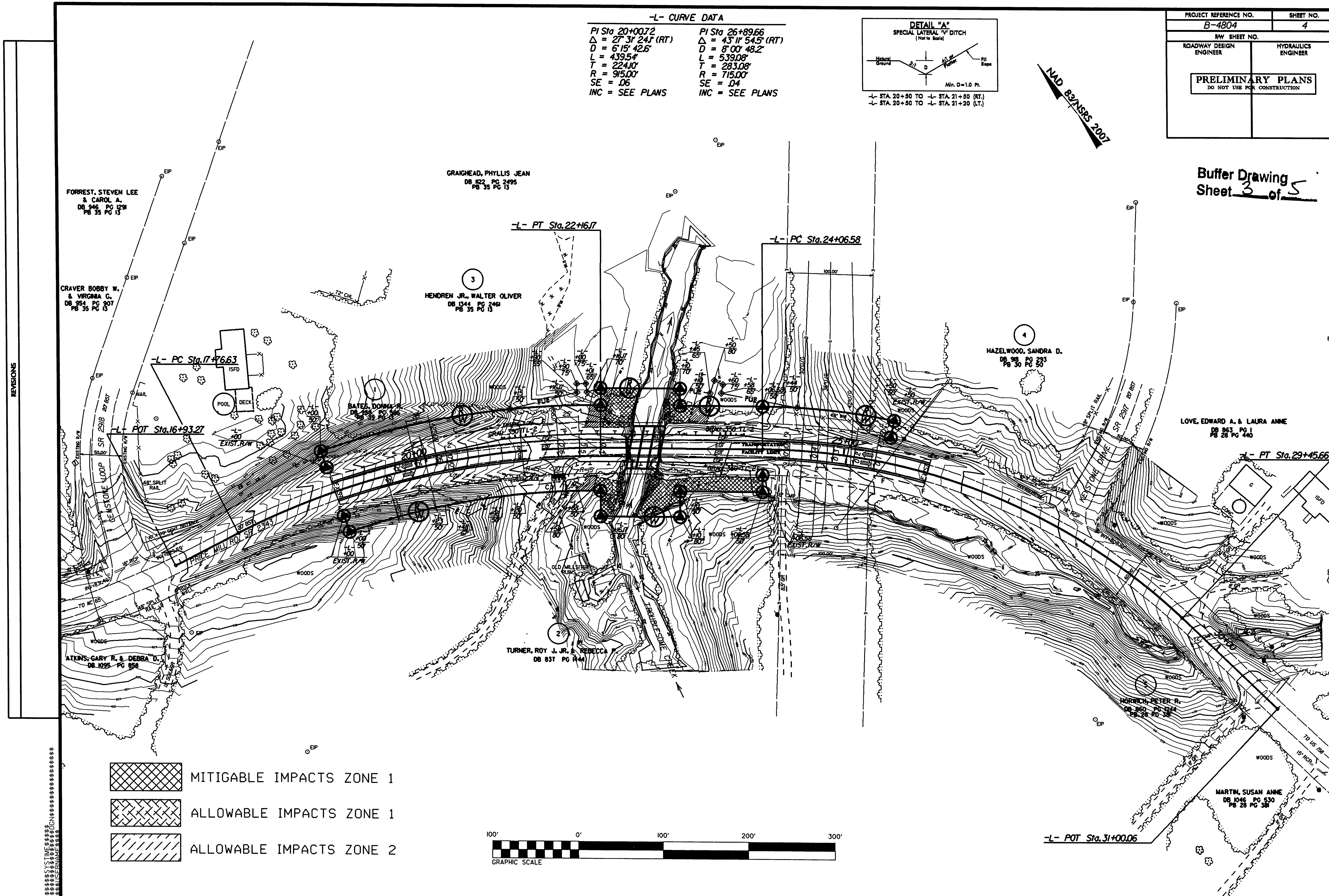
MARTIN, SUSAN ANNE
DB 1046 PG 530
PB 28 PG 351

GEMSTONE LOOP SR 2918
KEYSTONE DRIVE SR 2917
PRICE MILL RD. SR 2343
TROUBLESOME CREEK
OLD MILLSITE RUINS

MITIGABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2

100' 0' 100' 200' 300'
GRAPHIC SCALE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$USERNAME$$$$$$


PROJECT REFERENCE NO. B-4804
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Buffer Drawing Sheet 3 of 5
-L- CURVE DATA
PI Sta 20+00.72
Δ = 27° 31' 24.1" (RT)
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INC = SEE PLANS
PI Sta 26+89.66
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R = 715.00'
SE = .04
INC = SEE PLANS
DETAIL "A"
SPECIAL LATERAL "V" DITCH
(Not to Scale)
Min. D=1.0 Ft.
-L- STA. 20+50 TO -L- STA. 21+50 (RT.)
-L- STA. 20+50 TO -L- STA. 21+20 (LT.)
NAD 83/NSRS 2007
FORREST, STEVEN LEE & CAROL A.
DB 946 PG 1291
PB 35 PG 13
CRAVER BOBBY W. & VIRGINIA G.
DB 954 PG 907
PB 35 PG 13
GRAIGHEAD, PHYLLIS JEAN
DB 1122 PG 2495
PB 35 PG 13
HENDREN JR., WALTER OLIVER
DB 1344 PG 2461
PB 35 PG 13
HAZELWOOD, SANDRA D.
DB 918 PG 293
PB 30 PG 50
LOVE, EDWARD A. & LAURA ANNE
DB 863 PG 1
PB 28 PG 440
TURNER, ROY J. JR. & REBECCA P.
DB 837 PG 1444
ATKINS, GARY R. & DEBRA D.
DB 1095 PG 858
HORWICH, PETER R.
MARTIN, SUSAN ANNE
DB 1046 PG 630
PB 28 PG 381
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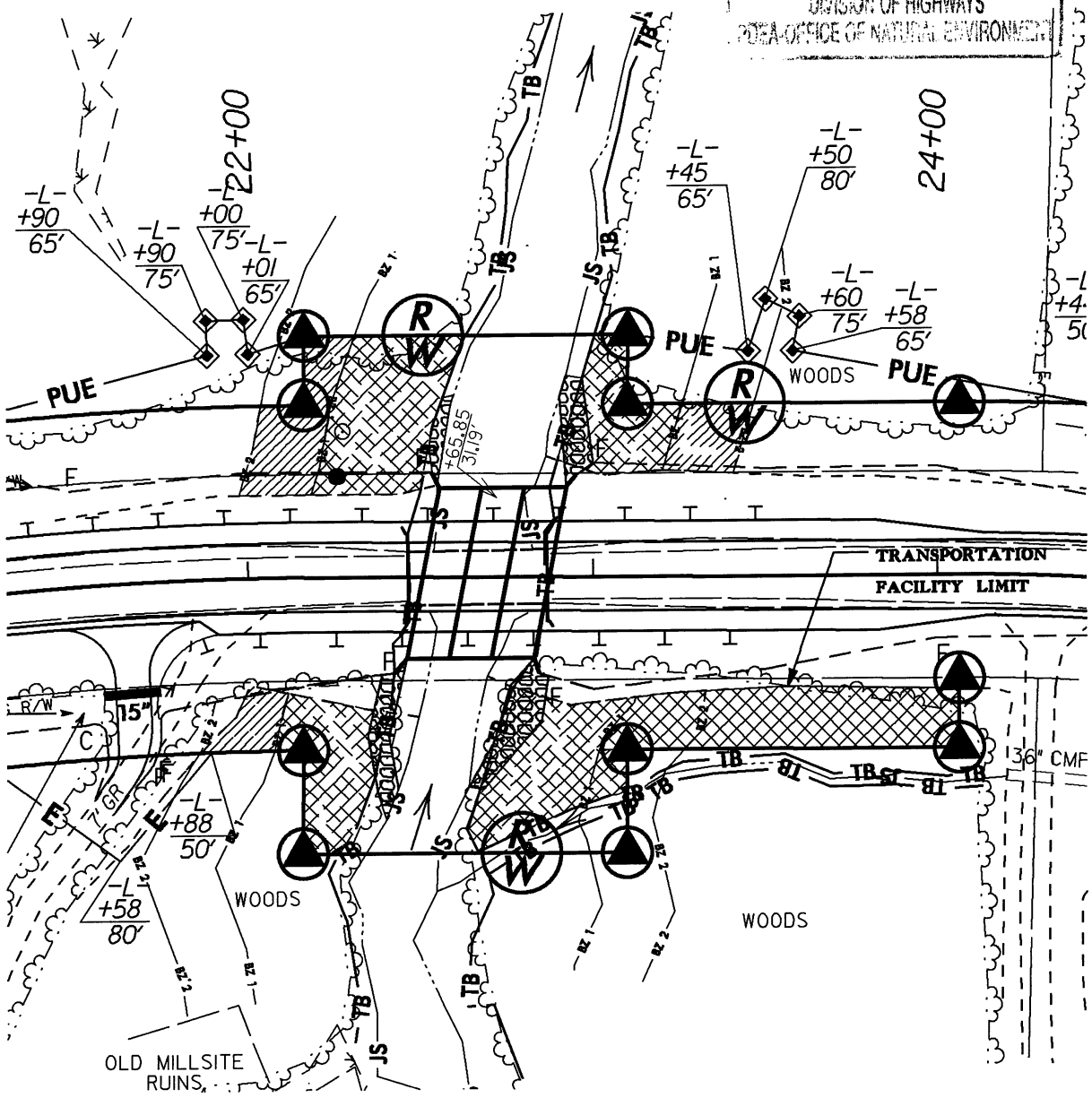
-L- PT Sta.22+16.17
-L- PC Sta.24+06.58
-L- PT Sta.29+45.66
-L- POT Sta.31+00.06
PRICE MILL RD. SR 2343
GEMSTONE LOOP SR 2918
KEYSTONE DRIVE SR 2917
TO NC 65
TO US 158
OLD MILL SITE RUINS
WOODS
MITIGABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
GRAPHIC SCALE
100' 0' 100' 200' 300'
REVISIONS



BUFFER IMPACTS

TROUBLESOME CREEK

MITIGABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

NCDOT

DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 38574.1.1 (B-4804)
REPLACE BRIDGE 12
ON SR 2343 (PRICE MILL RD.)
OVER TROUBLESOME CREEK

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	3 @ 12'X11" RCBC	21+82/23+48 -L-	X			4601	1440	6041					
1	ROADWAY FILL	23+20/24+06 -L-			X				1685		1685		
TOTAL:						4601	1440	6041	1685	0	1685		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY
PROJECT: 38574.1.1 (B-4804)

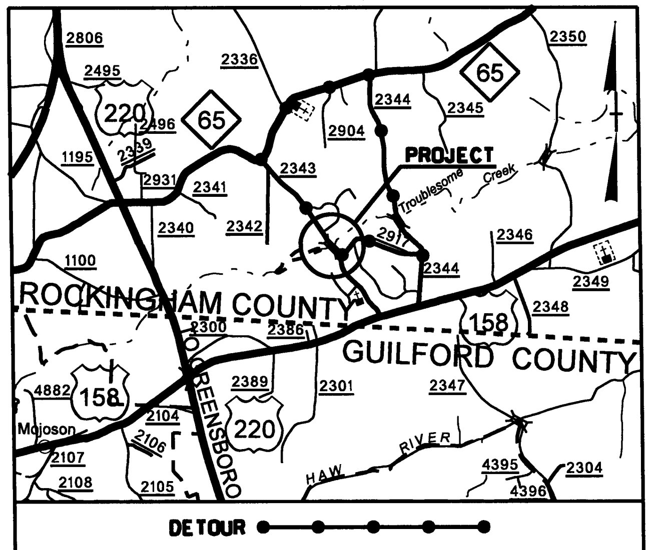
6/25/2012

revised 6/20/2012

5 SHEET 5 OF

Rev. May 2006

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

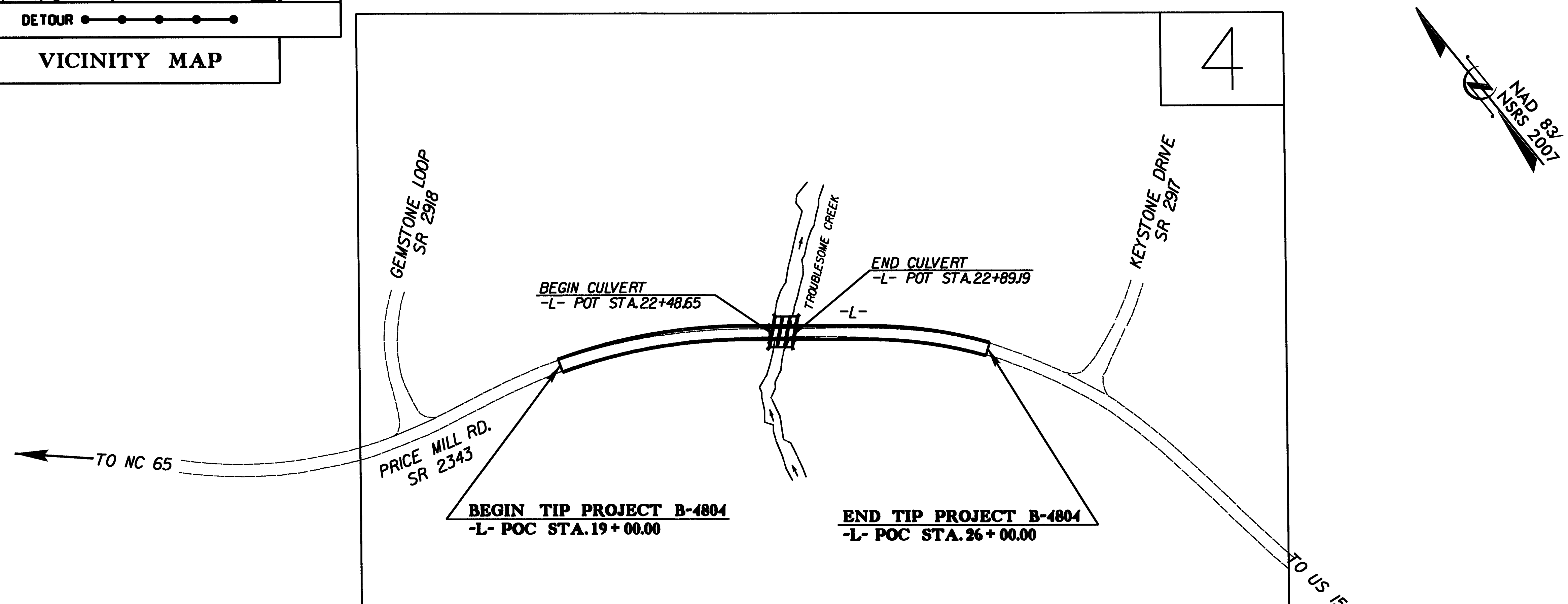
ROCKINGHAM COUNTY

LOCATION: BRIDGE NO. 12 OVER TROUBLESOME CREEK ON SR 2343

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4804	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38574.1.1	BRZ-2343(2)	P.E.
38574.2.1	BRZ-2343(2)	ROW & UTIL.



NOTES: (1) CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II
(2) THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

TIP PROJECT: B-4804

CONTRACT:

23-JAN-2012 09:49
r:\roadway\proj\b-4804_rdy_tsh.dgn
$$$$USERNAME$$$$

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 2013 = 1,425
ADT 2035 = 2,600
DHV = 10 %
D = 60 %
T = 3 % *
V = 45 MPH
FUNC. CLASS. = LOCAL
* TTST 1% DUAL 2%
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY	TIP PROJECT B-4804 =	0.125 MI.
LENGTH STRUCTURE	TIP PROJECT B-4804 =	0.008 MI.
TOTAL LENGTH OF	TIP PROJECT B-4804 =	0.133 MI.

Prepared In the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr.
Raleigh, NC 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 4, 2012

LETTING DATE:
FEBRUARY 19, 2013

REKHA PATEL, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4804	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 — 23
- 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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- 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
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite R/W Marker
- Proposed Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- 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

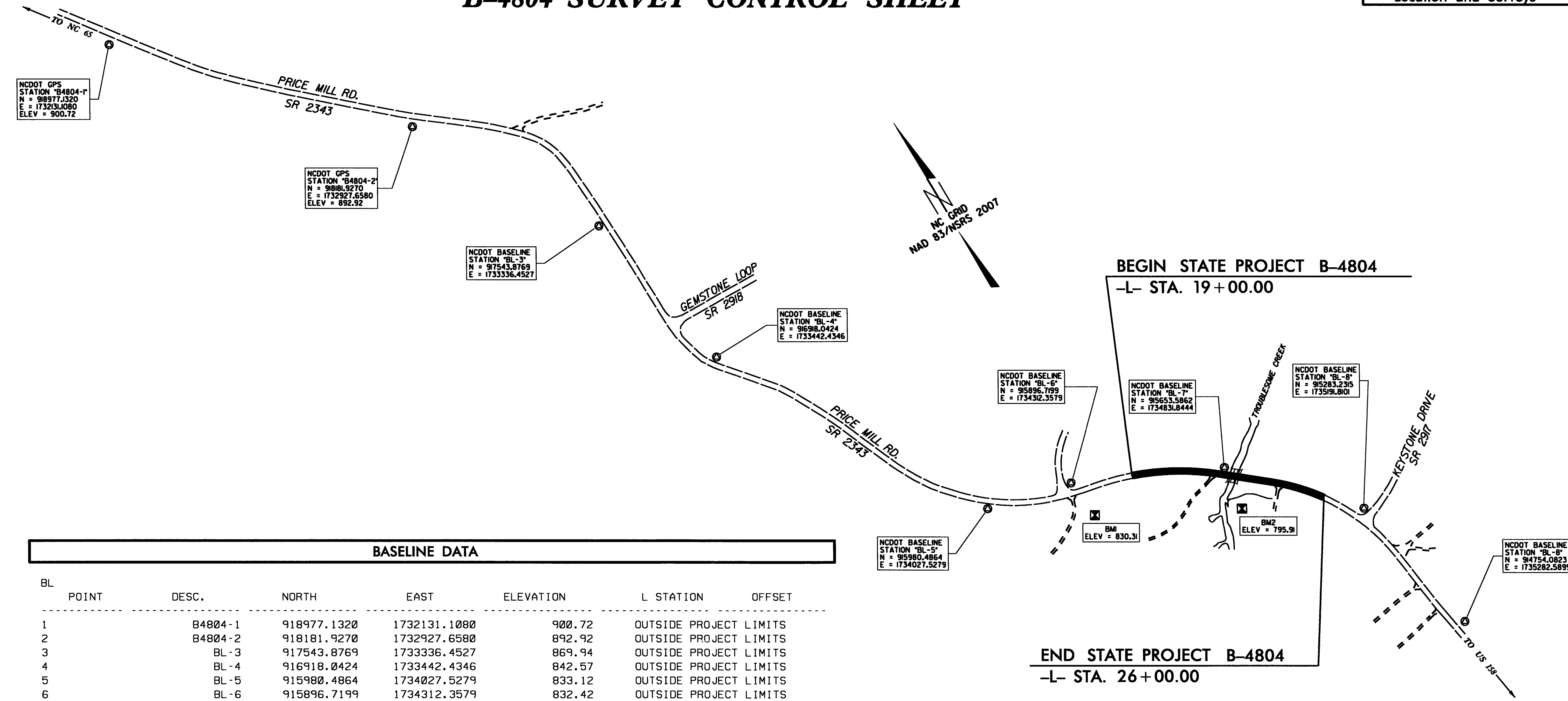
SANITARY SEWER:

- 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
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

B-4804 SURVEY CONTROL SHEET



BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4804-1	918977.1320	1732131.1080	900.72	OUTSIDE PROJECT LIMITS	
2	B4804-2	918181.9270	1732927.6580	892.92	OUTSIDE PROJECT LIMITS	
3	BL-3	917543.8769	1733336.4527	869.94	OUTSIDE PROJECT LIMITS	
4	BL-4	916918.0424	1733442.4346	842.57	OUTSIDE PROJECT LIMITS	
5	BL-5	915980.4864	1734027.5279	833.12	OUTSIDE PROJECT LIMITS	
6	BL-6	915896.7199	1734312.3579	832.42	OUTSIDE PROJECT LIMITS	
7	BL-7	915653.5862	1734831.8444	795.61	22+39.71	11.90 LT
8	BL-8	915283.2315	1735191.8101	811.06	27+49.73	33.92 LT
9	BL-9	914754.0823	1735282.5899	838.42	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

BM1 ELEVATION = 830.31
N 915756 E 1734343
L STATION 17+26.00 99 RIGHT
R/R SPIKE IN BASE OF 12" RED OAK

BM2 ELEVATION = 795.91
N 915512 E 1734813
L STATION 23+14.00 110 RIGHT
R/R SPIKE IN BASE OF 12" POPLAR

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4804-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 918181.927(ft) EASTING: 1732927.658(ft)
ELEVATION: 892.92(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999927190
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4804-2" TO -L- STATION 19+00.00 IS
S 34°04'09.3" E 2,861.71 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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:
   b4804_ls_control.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 NGS ONLINE POSITIONING SERVICE (OPUS)
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

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6/2/99

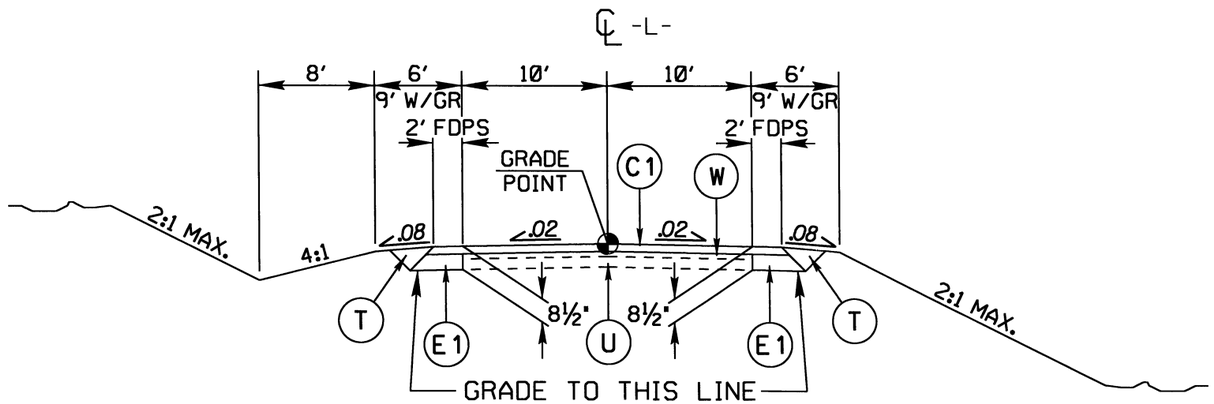
PROJECT REFERENCE NO.	SHEET NO.
B-4804	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

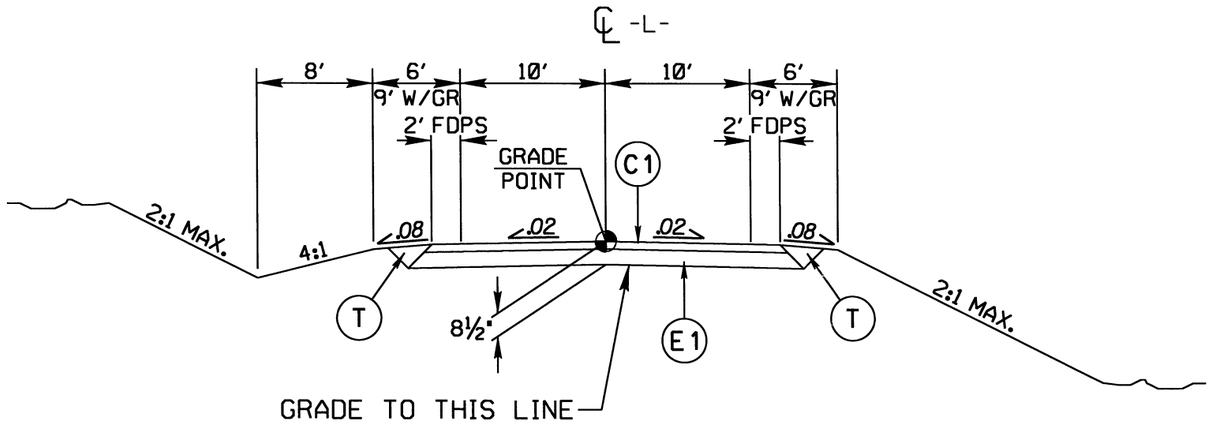
PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
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 1½" IN DEPTH	U	EXISTING PAVEMENT
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH		

NOTE: PAVEMENT EDGE SLOPES ARE ℓ UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO. 1



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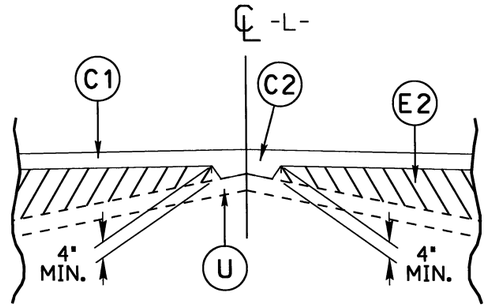

DETAIL SHOWING METHOD OF WEDGING

USE TYPICAL SECTION NO. 1

-L- STA. 19+50.00 TO -L- STA. 20+00.00
-L- STA. 24+00.00 TO -L- STA. 25+50.00

NOTES: (1) TRANSITION FROM EXISTING TO T.S.NO.1
-L- STA. 19+00.00 TO -L- STA. 19+50.00
(2) TRANSITION FROM T.S.NO.1 TO EXISTING
-L- STA. 25+50.00 TO -L- STA. 26+00.00

USE TYPICAL SECTION NO. 2

-L- STA. 20+00.00 TO -L- STA. 24+00.00

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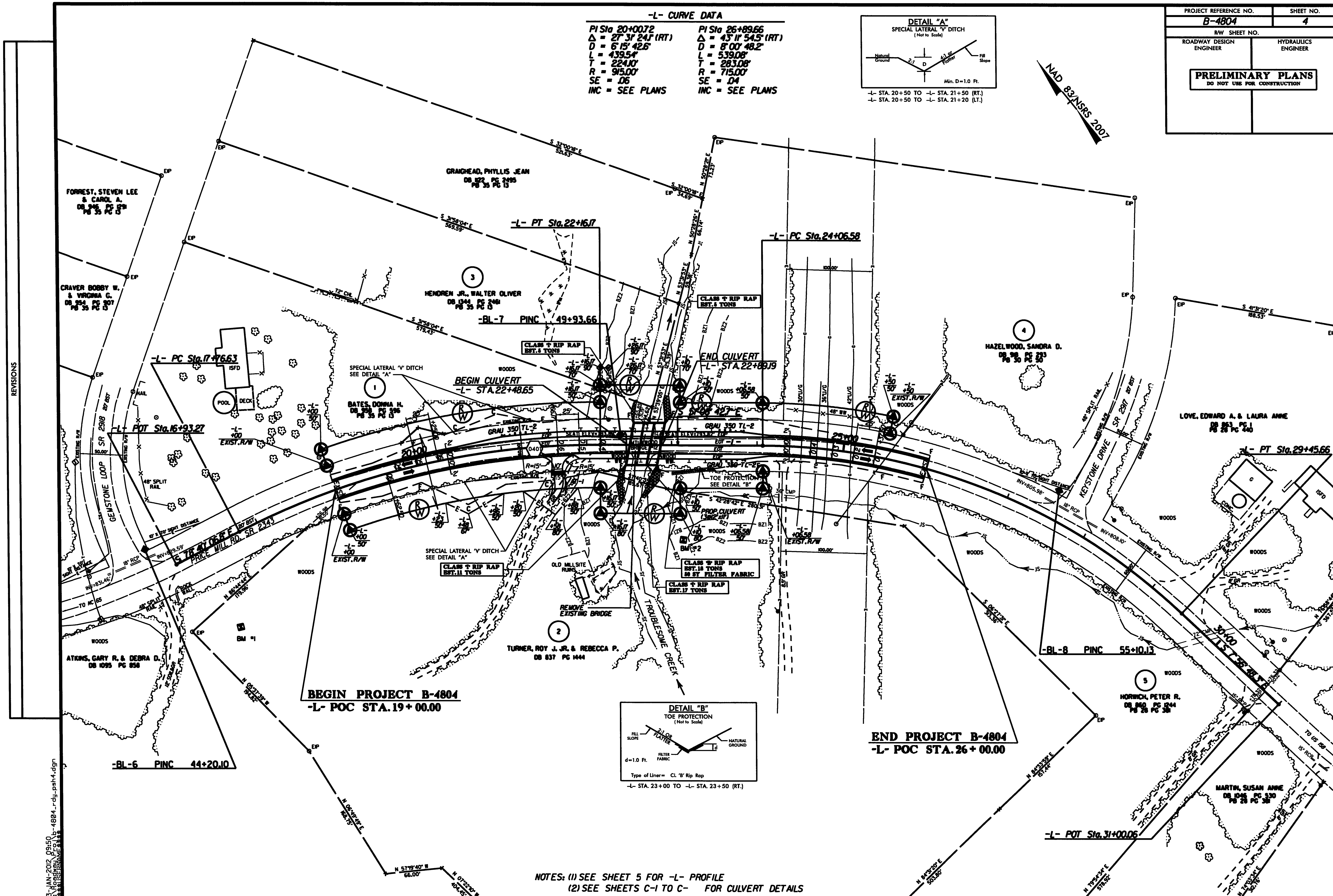

PROJECT REFERENCE NO. B-4804
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L- CURVE DATA
PI Sta 20+00.72
Δ = 27° 31' 24.1" (RT)
D = 6° 15' 42.6"
L = 439.54'
T = 224.10'
R = 915.00'
SE = .06
INC = SEE PLANS
PI Sta 26+89.66
Δ = 43° 11' 54.5" (RT)
D = 8° 00' 48.2"
L = 539.08'
T = 283.08'
R = 715.00'
SE = .04
INC = SEE PLANS
DETAIL "A"
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D=1.0 Ft.
-L- STA. 20+50 TO -L- STA. 21+50 (RT.)
-L- STA. 20+50 TO -L- STA. 21+20 (LT.)
NAD 83/NSRS 2007
CRAIGHEAD, PHYLLIS JEAN
FORREST, STEVEN LEE & CAROL A.
CRAVER BOBBY W. & VIRGINIA G.
HENDREN JR., WALTER OLIVER
BATES, DONNA H.
HAZELWOOD, SANDRA D.
LOVE, EDWARD A. & LAURA ANNE
TURNER, ROY J. JR. & REBECCA P.
ATKINS, GARY R. & DEBRA D.
HORWICH, PETER R.
MARTIN, SUSAN ANNE
-L- PT Sta.22+16.17
-L- PC Sta.24+06.58
-L- PC Sta.17+76.63
-L- POT Sta.16+93.27
-L- PT Sta.29+45.66
-L- POT Sta.31+00.06
-BL-7 PINC 49+93.66
-BL-6 PINC 44+20.10
-BL-8 PINC 55+10.13
BEGIN CULVERT -L- STA.22+48.65
END CULVERT -L- STA.22+89.19
CLASS 'I' RIP RAP EST.5 TONS
CLASS 'I' RIP RAP EST.11 TONS
CLASS 'B' RIP RAP EST.18 TONS 50 SY FILTER FABRIC
CLASS 'I' RIP RAP EST.17 TONS
SPECIAL LATERAL 'V' DITCH SEE DETAIL "A"
TOE PROTECTION SEE DETAIL "B"
OLD MILL SITE RUINS
REMOVE EXISTING BRIDGE
TROUBLESOME CREEK
PRICE MILL RD. SR 2343
GEMSTONE LOOP SR 2918
KEYSTONE DRIVE SR 2917
WOODS
BM #1
BM #2
BEGIN PROJECT B-4804
-L- POC STA.19+00.00
END PROJECT B-4804
-L- POC STA.26+00.00
DETAIL "B"
TOE PROTECTION
(Not to Scale)
FILL SLOPE
NATURAL GROUND
FILTER FABRIC
d=1.0 Ft.
Type of Liner= CL 'B' Rip Rap
-L- STA. 23+00 TO -L- STA. 23+50 (RT.)
NOTES: (1) SEE SHEET 5 FOR -L- PROFILE
(2) SEE SHEETS C-1 TO C- FOR CULVERT DETAILS
REVISIONS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4804	5

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BM1 ELEVATION = 830.31'
N 915756 E 1734343
-BL- STATION 45+07 114 RIGHT
-L- STATION 17+26.35 99.38' RIGHT
R/R SPIKE IN BASE OF 12" RED OAK

BM2 ELEVATION = 795.91'
N 915512 E 1734813
-BL- STATION 50+82 112 RIGHT
-L- STATION 23+13.52 110.42 RIGHT
R/R SPIKE IN BASE OF 12" POPLAR

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1790	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 796.2	FT
BASE DISCHARGE	= 2485	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 797.7	FT
OVERTOPPING DISCHARGE	= 2850	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 798.5	FT

FEATHER TO EXISTING -L- STA.19+00.00

BEGIN GRADE -L- STA.19+50.00
EL = 844.04 (INCL.3" RESURF.)

BEGIN SPECIAL DITCH GRADE -L-
STA.19+90.00
EL = 825.28

PI = 21+00.00
EL = 806.84
END SPECIAL DITCH GRADE -L-
STA.21+90.00
EL = 788.39

BEGIN SPECIAL DITCH GRADE -L-
STA.21+90.00
EL = 788.39

PI = 21+00.00
EL = 788.44

END SPECIAL DITCH GRADE -L-
STA.19+90.00
EL = 825.28

PI = 22+75.00
EL = 792.06
V = 550'
K = 53

BEGIN CULVERT
-L- STA.22+48.65

END CULVERT
-L- STA.22+89.19

PROP. 36"Ø RCBC
INVERT EL = 785.7

C/L -L- STA.22+69.92
BEGIN ROW (SHIELD 12)
STEW-001
RP EL=V=798.30'

END GRADE -L- STA.25+50.00
EL = 801.80 (INCL.3" RESURF.)

FEATHER TO EXISTING -L- STA.26+00.00

FOR -L- PLAN VIEW
SEE SHEET 4

840 830 820 810 800 790 780 770 760 750 740

17 18 19 20 21 22 23 24 25 26 27 28 29 30

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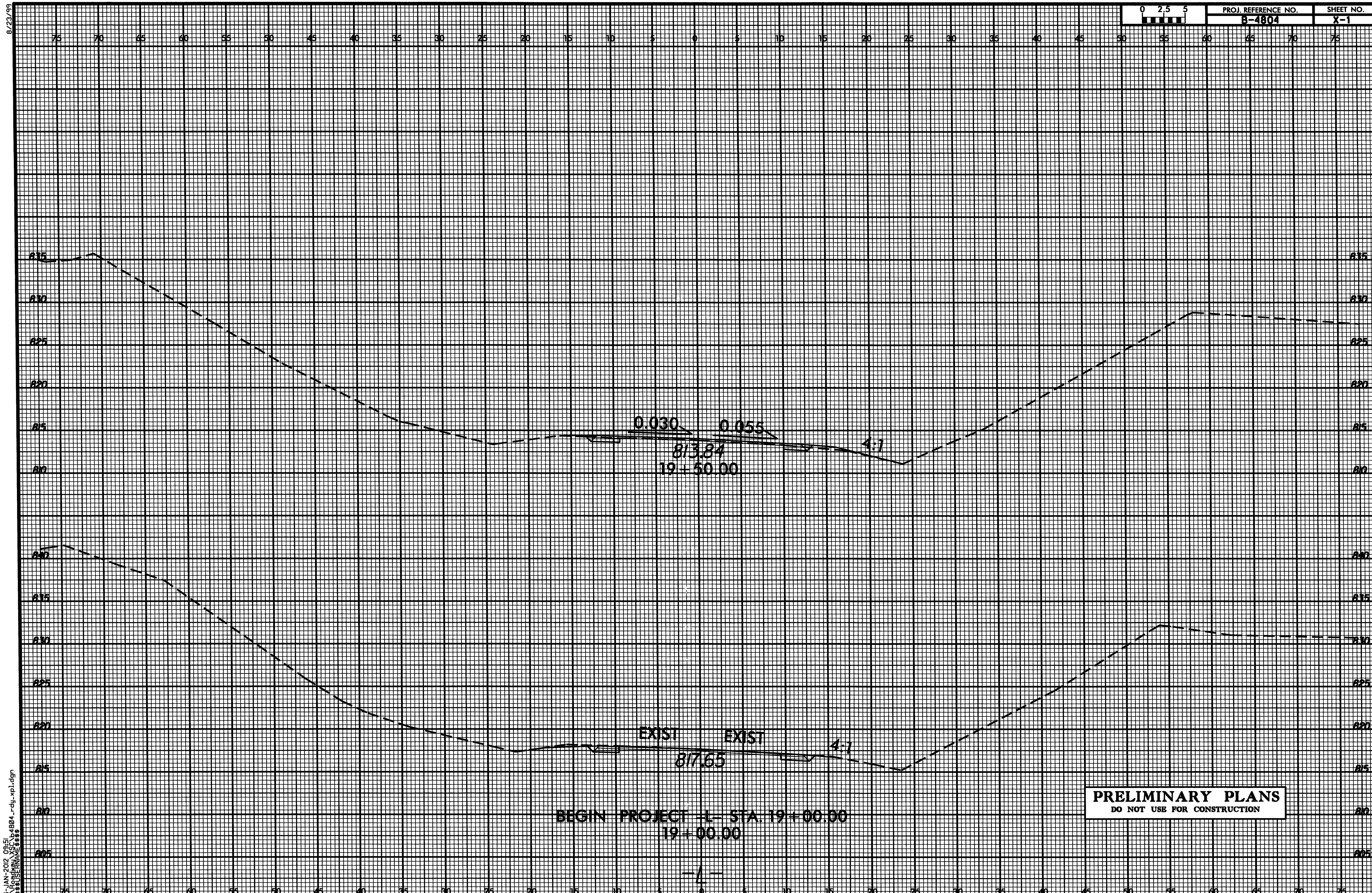
PROJ. REFERENCE NO.	SHEET NO.
B-4804	X-1



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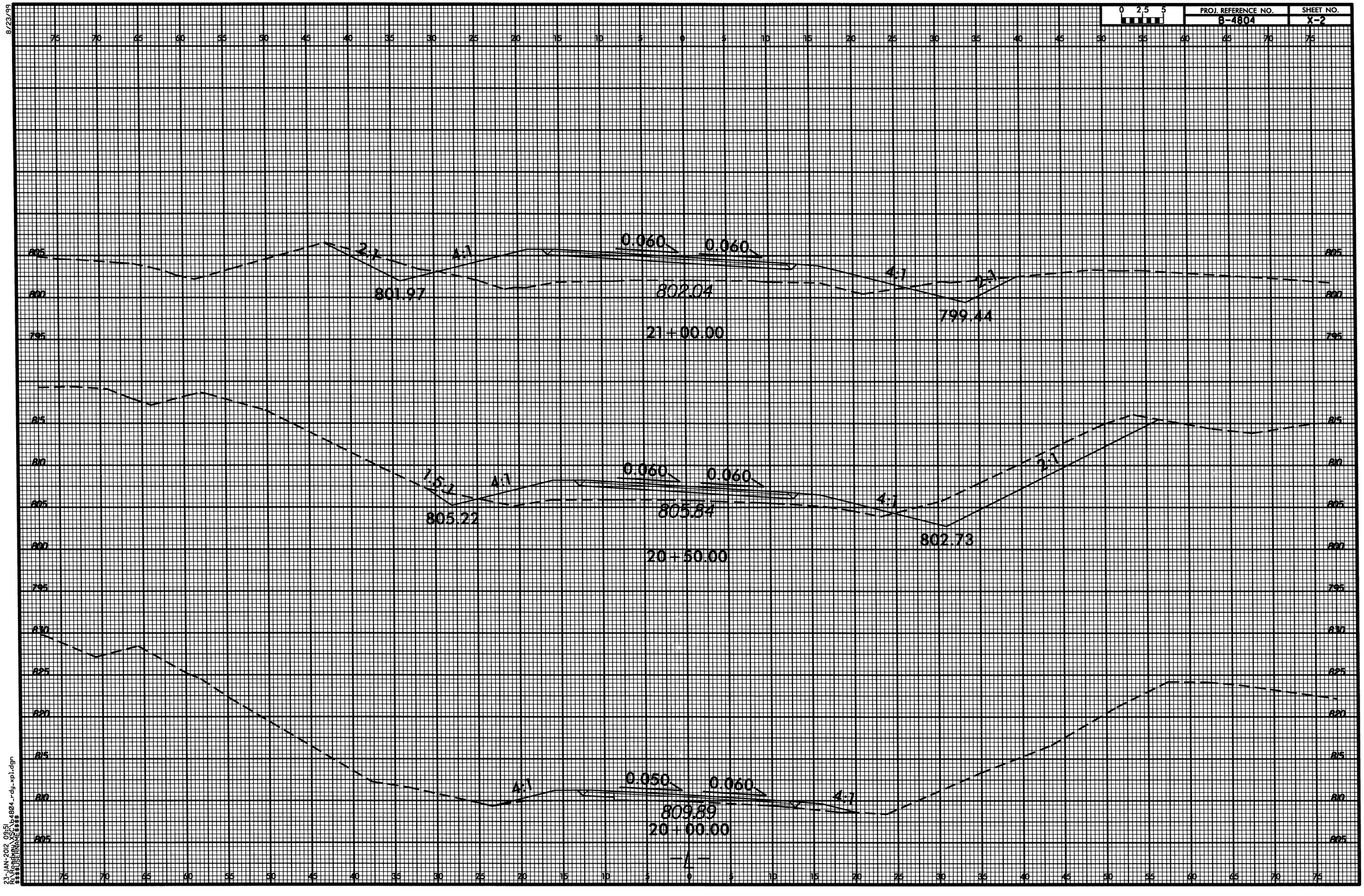
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4804	X-2



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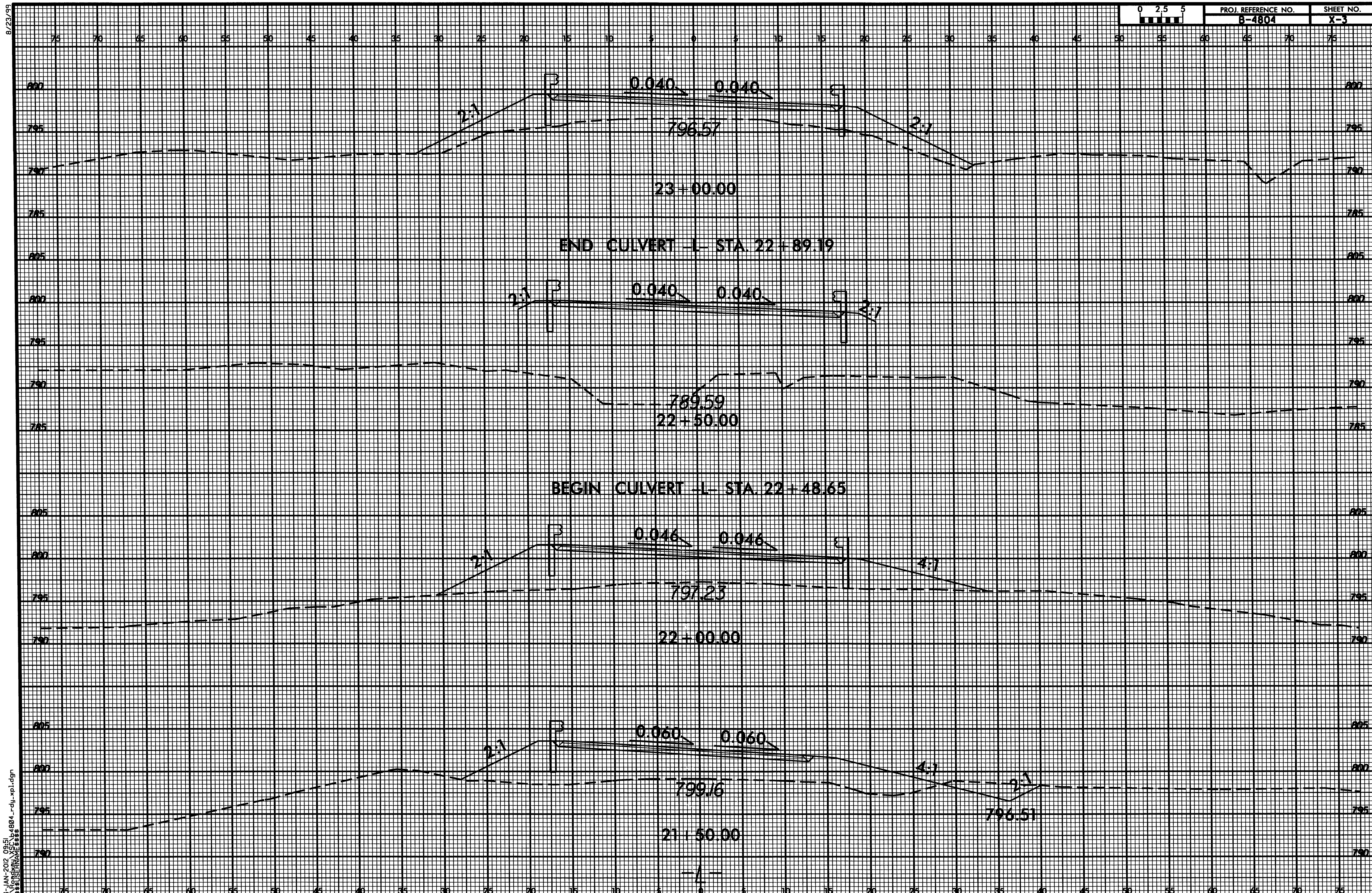

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B-4804	X-4

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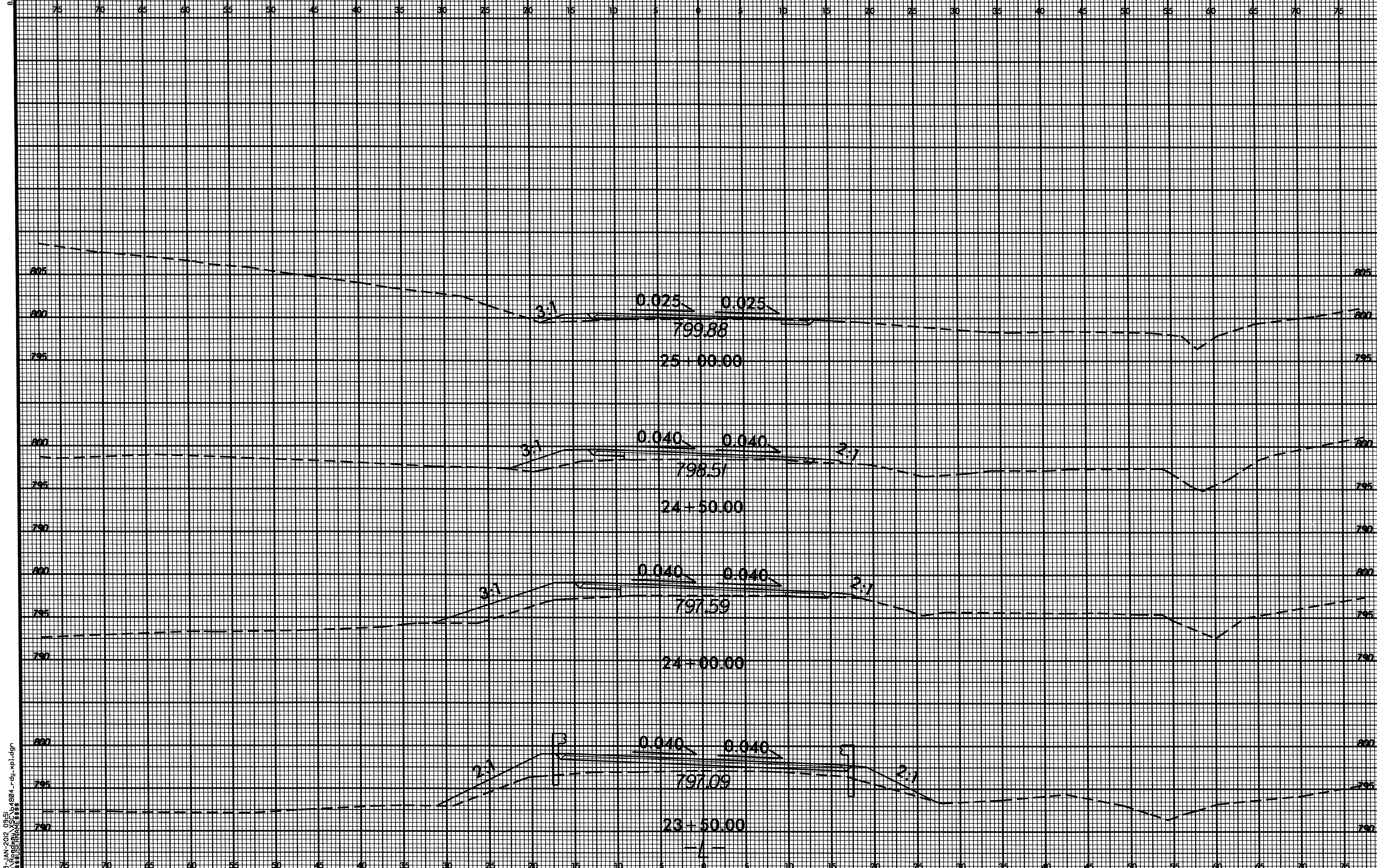

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4804	X-5

END PROJECT -L- STA. 26+00.00

EXIST 803.40

EXIST 803.40

2:1

26+00.00

0.005

0.010

2:1

2:1

803.60

25+50.00

-L-

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