



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

September 7, 2004

US Army Corps of Engineers  
Raleigh Field Office  
6508 Falls of Neuse Road, Suite 120  
Raleigh, NC 27615-6814

ATTENTION: Eric Alsmeyer  
NCDOT Coordinator, Division 5

Dear Sir:

Subject: **Supplemental Information to Application for Nationwide Permit 23 and 33 and Riparian Buffer Certification** for the replacement of Bridge No. 108 over Lower Barton's Creek on SR 1834, Wake County. Federal Aid Project No. BRZ-1834(2), State Project No. 8.2407901, T.I.P. No. B-3704: Division 5

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 108 over Lower Barton's Creek [DWQ Index # 27-16(1) and #27-16(2)], a Division of Water Quality Class "WS IV NSW" and "WS IV NSW CA" Waters of the State. Classification and index numbers change where it flows under SR 1834. The project involves replacing the current 102-foot bridge in its existing location, while using an off-site detour to maintain traffic during construction. The proposed bridge will be a 3-span, 150 foot cored slab bridge with a width of 36 feet. The approaches will be two, 12 ft lanes with 8-foot shoulders.

NCDOT submitted a Nationwide Permit 23 and 33 and Riparian Buffer Certification application dated May 20, 2004. Since the submittal of this application it was determined by NCDOT that the design of the temporary causeway in the May 20, 2004 application would not work. Changes have been made to the temporary causeway design. Revised permit drawings and revised PCN form are included in this supplemental application. No changes have been made to any other part of this project other than the temporary causeway.

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS  
1548 MAIL SERVICE CENTER  
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141  
FAX: 919-733-9794

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

**LOCATION:**  
TRANSPORTATION BUILDING  
1 SOUTH WILMINGTON STREET  
RALEIGH NC

## **IMPACTS TO WATERS OF THE UNITED STATES**

Bridge No. 108 over Lower Barton's Creek (Site 1) will be a 3-span, 150-foot cored slab bridge. This new bridge is 46 feet longer and 11 feet wider than the existing bridge. The construction of the bridge will require the use of a temporary work pad consisting of Class II and Class B riprap to provide access to the site for the construction equipment. The original design showed two causeways. The causeway on the west side of the bridge was removed from the design and now only shows one causeway on the east side. This causeway was moved further south of the existing bridge to allow for the construction of a temporary roadway causeway. The causeway is 15 feet wide with 1.5:1 slopes. The resulting temporary surface water fill will be 0.01 ac. This amount was reduced from the original application. Construction of the proposed temporary causeway is depicted in the attached drawings (Permit Drawing 3 &4).

At Site 2, a 36-inch reinforced concrete pipe (RCP) will be replaced with a new 36-inch RCP to accommodate the end bents and approaches being widened and will impact 108 ft of jurisdictional stream (UT to Lower Barton's Creek). The old pipe will be dug out and a new, but longer pipe, will be replaced in same location. This has not changed from the original application. Due to a change in the US Army Corps of Engineers interpretation that all jurisdictional mitigable stream impacts must be mitigated for, it was requested that the North Carolina Ecosystem Enhancement Program (EEP) provide mitigation for 108 feet of linear stream impact. Attached is the request letter to EEP. No jurisdictional wetlands are impacted due to this project.

Utilities: A fiber optic cable will be relocated within the right-of-way of the project due to the construction of the new bridge by directional boring under the streams. No impacts will result from the relocation of this cable.

### **BRIDGE DEMOLITION**

Existing Bridge No. 108 is approximately 102 ft long with six spans. The bridge superstructure consists of a reinforced concrete floor on timber joists. The substructure consists of timber caps and piles. There is the potential for 51.9 cubic yards to be temporarily placed into Waters of the United States, although 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 there are no special restrictions other than those outlined in Best Management Practices for the Protection of Surface Waters and Bridge Demolition and Removal.

### **RESTORATION PLAN**

The project schedule calls for a December 2004 let date. It is expected that the contractor will chose to start construction of the temporary work pad shortly after that date.

The materials used as temporary fill in the construction of the temporary work pad will be completely removed. The entire temporary work pad footprint shall be returned to the original contours and elevations after the purpose of the temporary work pad has been served.

After the temporary work pad is no longer needed, the contractor will use excavating equipment to remove all materials. The rip rap used in the temporary work pad may be placed as riprap slope protection. All temporary work pad material will become the property of the contractor. The contractor will be required to submit a reclamation plan for removal of and disposal of all materials off-site.

### **AVOIDANCE, MINIMIZATION, MITIGATION**

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

The following measure were taken to avoid and minimize impacts to jurisdictional areas:

- The bridge will be replaced on existing location
- No bents will be located within the stream channel
- The placement of pre-formed scour holes treat stormwater
- Minimum amount of rip rap in buffer areas
- Temporary causeway redesigned to reduce stream impacts

### **FEDERALLY-PROTECTED SPECIES**

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the United States Fish and Wildlife Service (USFWS) lists four federally protected species for Wake County. Table 1 lists the species, their status and biological conclusion.

**Table 1. Federally-Protected Species for Wake County**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Federal Status</b>	<b>Biological Conclusion</b>
dwarf wedgemussel	<i>Alasmidonta heteradon</i>	E	No Effect
bald eagle	<i>Haleaeetus leucephalus</i>	T	No Effect
red-cockaded woodpecker	<i>Picoides borealis</i>	E	No Effect
Michaux's sumac	<i>Rhus michauxii</i>	E	No Effect

“E” denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).

“T” denotes Threatened (a species that is likely to become an endangered species within the foreseeable future throughout all or significant portion of its range).

Biological conclusions of “No Effect” were given in the CE for the bald eagle, red-cockaded woodpecker, Michauxi’s sumac and dwarf wedgemussel. No habitat was present for all species except dwarf wedgemussel.

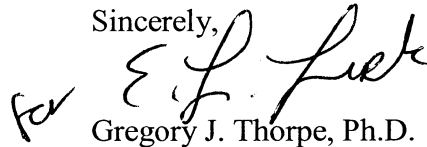
Surveys for the dwarf wedgemussel were conducted by NCDOT biologists on September 21, 2000 and by Alderman Environmental Services, Inc. on June 6, 2003. Habitat is present in the vicinity of the bridge but is somewhat degraded due to sediment loads, mostly due to development in the area. No dwarf wedge mussels were found and very few mussels overall were found during both surveys, mostly eastern elliptio mussels (*Elliptio* sp.). Given the survey results it is apparent that dwarf wedgemussel does not occur in the project footprint and therefore a Biological Conclusion of "No Effect" is given.

### SUMMARY

It is anticipated that the construction of the temporary work pad will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the temporary work pad. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002). We anticipate 401 General Water Quality Certifications (WQC) numbers 3361 and 3366 will apply to this project. All general conditions of these WQCs will be met, therefore, in accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

If you have any questions or need additional information, please call Rachelle Beauregard at 715-1383.

Sincerely,



Gregory J. Thorpe, Ph.D.

Environmental Management Director, PDEA

cc: w/attachment

- Mr. John Hennessy, NCDWQ (7 copies)
- Mr. Travis Wilson, NCWRC
- Mr. Gary Jordan, USFWS
- Mr. David Chang, P.E., Hydraulics
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Jon Nance, P.E, Division 5 Engineer
- Mr. Chris Murray, DEO Division 5

w/o attachment

- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Omar Sultan, Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Mr. Mark Staley, Roadside Environmental
- Mr. David Franklin, USACE, Wilmington
- Mr. John Conforti, PDEA Project Planning Engineer
- Ms. Beth Harmon, EEP

## NEUSE BUFFER ADDENDUM

**The purpose of this addendum is to provide the NCDWQ with the information needed to evaluate the impacts of the project on the Neuse Buffer areas. In addition, we are presenting material in this addendum to illustrate that the project has been designed to comply with the Riparian Buffer Mitigation Program (15A NCAC 2B .0242) and the Neuse River Basin Riparian Buffer Rules (15A NCAC 2B .0233). Therefore, we request that the DWQ issue an Authorization Certificate pursuant to 15A NCAC 2B .0233 for the proposed use.**

The North Carolina Department of Transportation proposes to replace Bridge No. 108 over Lower Barton’s Creek on SR 1834 at its existing location.

Neuse Buffer Impacts. Impacts to buffers include that of construction of the new bridge, including the temporary causeway (See permit drawing 5 and 6) and the installation of a reinforced concrete pipe. Impacts to buffers are shown in Table 2 below. The only changes to impacts to buffers are from the redesigned temporary causeway which increased by 678 sq ft from the May 20, 2004 application. Under the Neuse Buffer Rules, impacts to buffers from the construction of bridge and temporary work pad are allowable and impacts are allowable with mitigation for road crossings with impacts to riparian buffers greater than one-third of an acre.

Table 2. Neuse River Buffer Impacts (Square Feet)

	Road Crossing of Stream	Bridge Construction	Temporary Work Pad
Zone 1 Impact (sq ft)	10,307	3113	555
Zone 2 Impact (sq ft)	12,396	7117	555
<b>TOTAL IMPACTS</b>	<b>22,703</b>	<b>10,230</b>	<b>1110</b>
Mitigation requirements (exempt, allowable or allowable with mitigation)	allowable with mitigation	allowable	allowable
Mitigable Impacts (using 3:1 ratio) for Zone 1	30,921		
Mitigable Impacts (using 1.5:1 ratio) for Zone 2	18,594		
<b>TOTAL MITIGATION REQUIRED</b>	<b>49,515</b>		

This bridge has been determined to be structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations. Because this bridge needs to be replaced and the pipe replaced, impacts to the riparian buffers at Lower Barton’s Creek are unavoidable. Replacing the existing bridge at its existing location provides the least amount of impacts to riparian buffers. The road crossing over the stream is perpendicular and only extends an existing pipe.

NCDOT has developed measures in the design of the bridge to minimize impacts to buffers and water quality. The new bridge is 46 feet longer than the existing bridge and has three less spans. Performed scour holes have been placed, outside the buffer zones, to treat stormwater. A minimum amount of rip rap will be used in buffer areas.

Total mitigation required for mitigable impacts to buffers from the construction of this project are 49, 515 sq. ft. This have not changed since the May 20, 2004 applicaiton. We will provide buffer mitigation from the North Carolina Ecosystem Enhancement Program. The request letter was attached to the May 20, 2004 application. A concurrence letter will be sent to the USACE on their approval.



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

September 2, 2004

Mr. William D. Gilmore, P.E.  
EEP Transition Manager  
Ecosystem Enhancement Program  
1652 Mail Service Center  
Raleigh, NC 27699-1652

Dear Sir:

**Subject: Request for stream mitigation for the replacement of Bridge No. 108 over Lower Barton's Creek on SR 1834, Wake County. Federal Aid Project No. BRZ-1834(2), State Project No. 8.2407901, T.I.P. No. B-3704:**

Due to a change in the US Army Corps of Engineers interpretation that all jurisdictional stream impacts must be mitigated for, it is requested that the North Carolina Ecosystem Enhancement Program (EEP) provide mitigation for 108 feet of linear stream impact in accordance with the Memorandum of Agreement (MOA) signed July 22, 2003 by the USACE, the NCDENR and the NCDOT.

We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described in the permit application. The project is located in the Piedmont Physiographic Province in Wake County in the Neuse River basin in Hydrological Cataloguing Unit 03020201.

- The jurisdictional stream impacts of 108 linear feet will be to an unnamed tributary to Lower Barton's Creek. We propose to mitigate for the stream impacts by using the EEP.

**Table 1. Surface Water Impacts for B-3704 Requiring Mitigation**


Site	Stream Name	Hydrologic Unit	DWQ Classification	DWQ Index #	Linear Impacts (ft)
2	UT to Lower Barton's Creek	03020201	WS-IV NSW	27-16-1	108

Please send the letter of confirmation to Eric Alsmeyer (USACE Coordinator) at U. S. Army Corps of Engineers Raleigh Regulatory Field Office, 6508 Falls of Neuse Rd., Suite 120, Raleigh, NC 27615-6814). Mr. Alsmeyer's FAX number is 919-876-5823.

In order to satisfy regulatory assurances that mitigation will be performed; the NCDWQ requires a formal letter from EEP indicating their willingness and ability to provide the mitigation work requested by NCDOT. The NCDOT requests such a letter of confirmation be addressed to Mr. John Hennessy of NCDWQ, with copies submitted to NCDOT.

If you have any questions or need additional information please call Rachelle Beauregard at 715-1383.

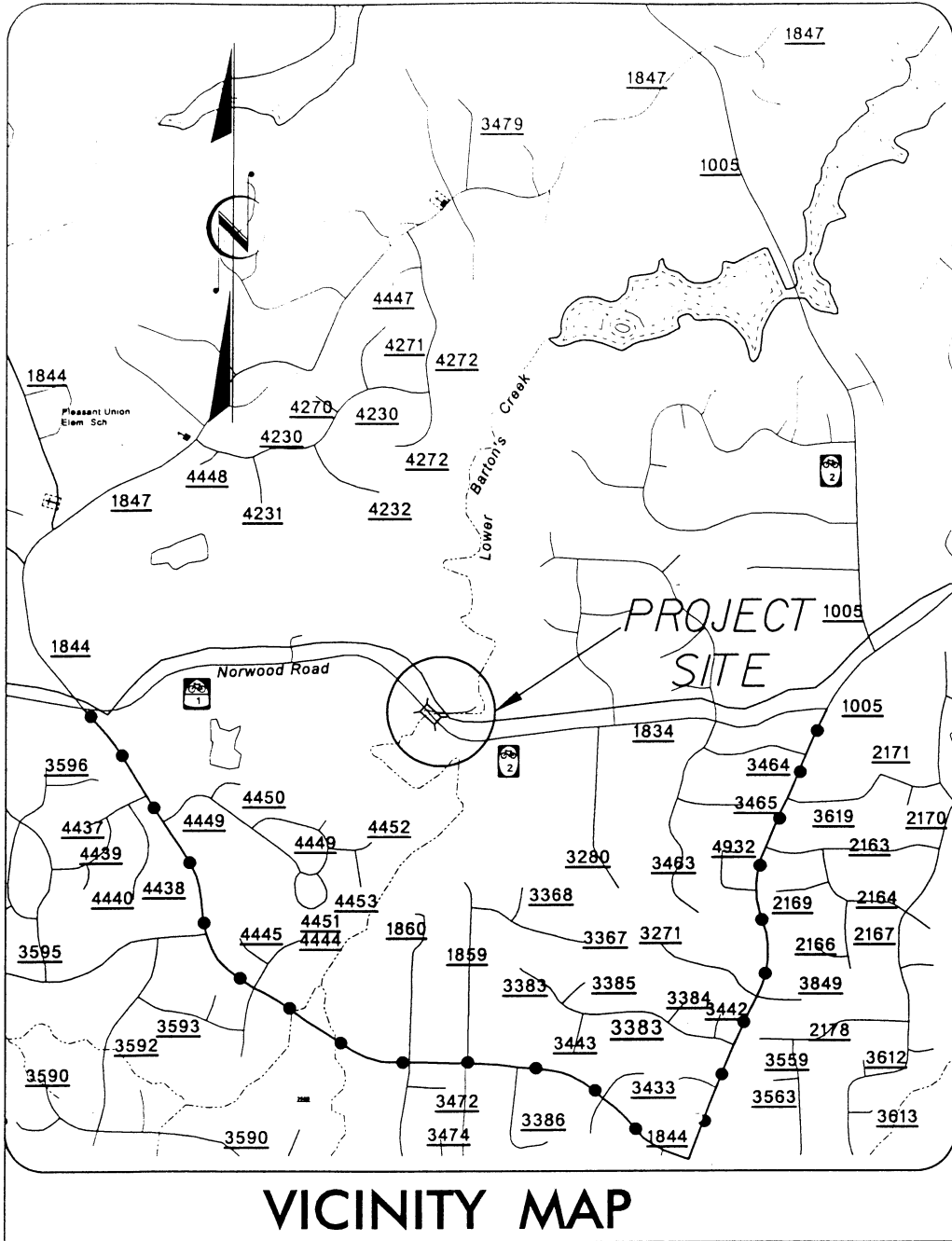
Sincerely,

*for* 

Gregory J. Thorpe, Ph.D., Manager

Project Development and Environmental Analysis Branch

cc: Mr. Eric Alsmeyer, USACE  
Mr. John Hennessy, DWQ (2 copies)  
Mr. Travis Wilson, NCWRC  
Mr. Gary Jordan, USFWS  
Mr. Omar Sultan, Assistant Manager, Project Management/Scheduling Unit  
Ms. Laurie P. Smith, CPA, Manager, Funds Administration



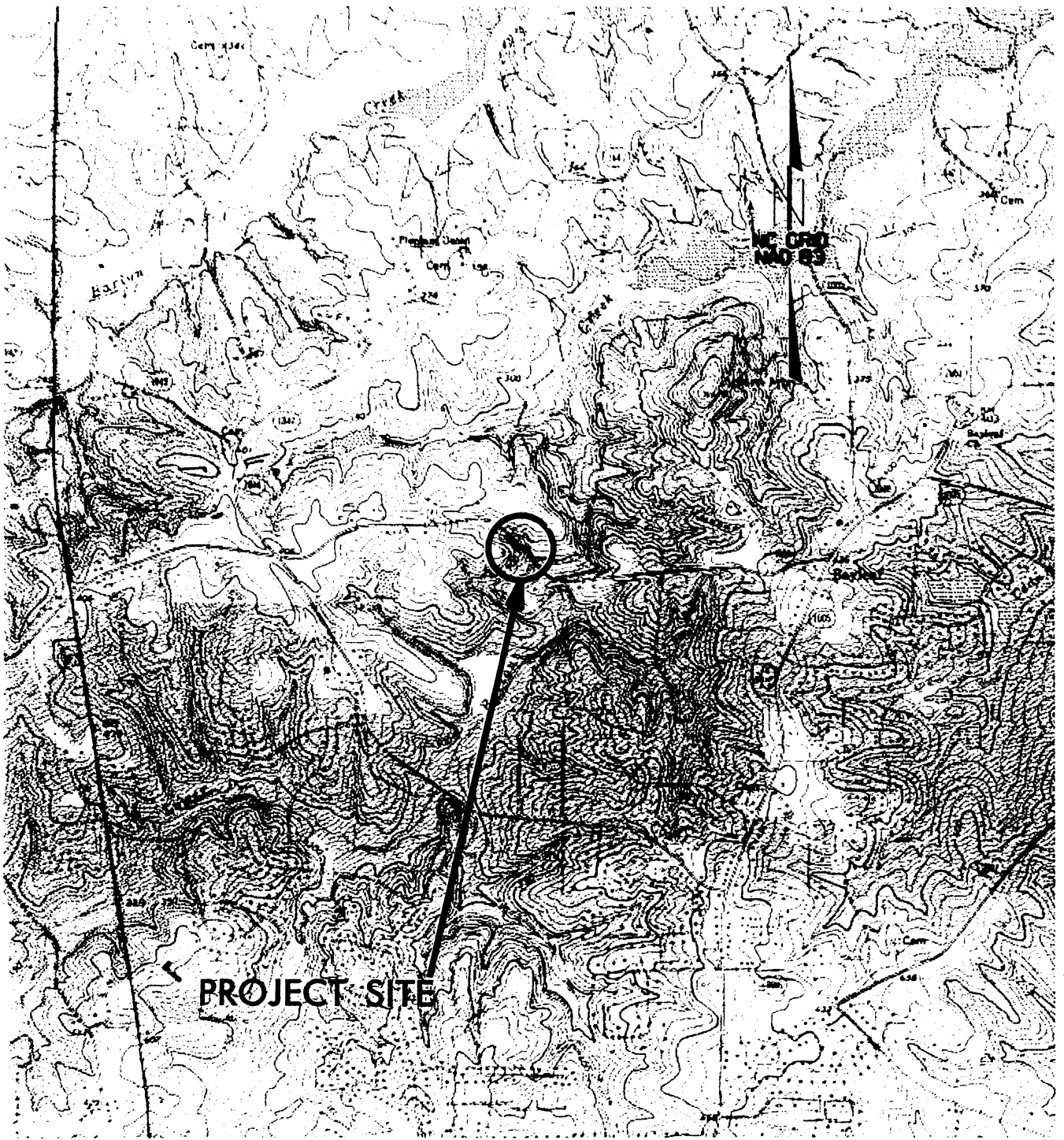
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# VICINITY MAP

**N.C.D.O.T.**  
**DIVISION OF HIGHWAYS**  
 WAKE  
 COUNTY  
 BRIDGE NO. 108 ON SR 1834  
 OVER LOWER BARTON'S CREEK

STATE PROJECT B-3704  
 SHEET 1 OF 9





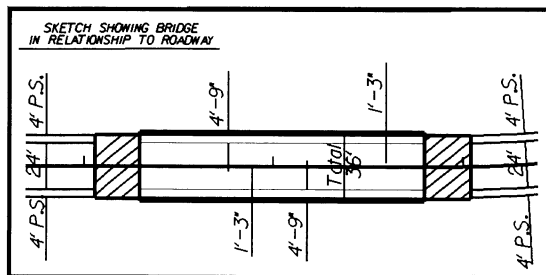
**PROJECT SITE**

# **SITE MAP**

**N.C.D.O.T.**  
**DIVISION OF HIGHWAYS**  
WAKE  
COUNTY  
**BRIDGE NO. 108 ON SR 1834**  
**OVER LOWER BARTON'S CREEK**

STATE PROJECT B-3704  
SHEET 2 OF 9

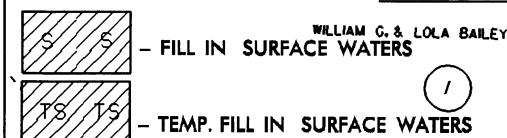
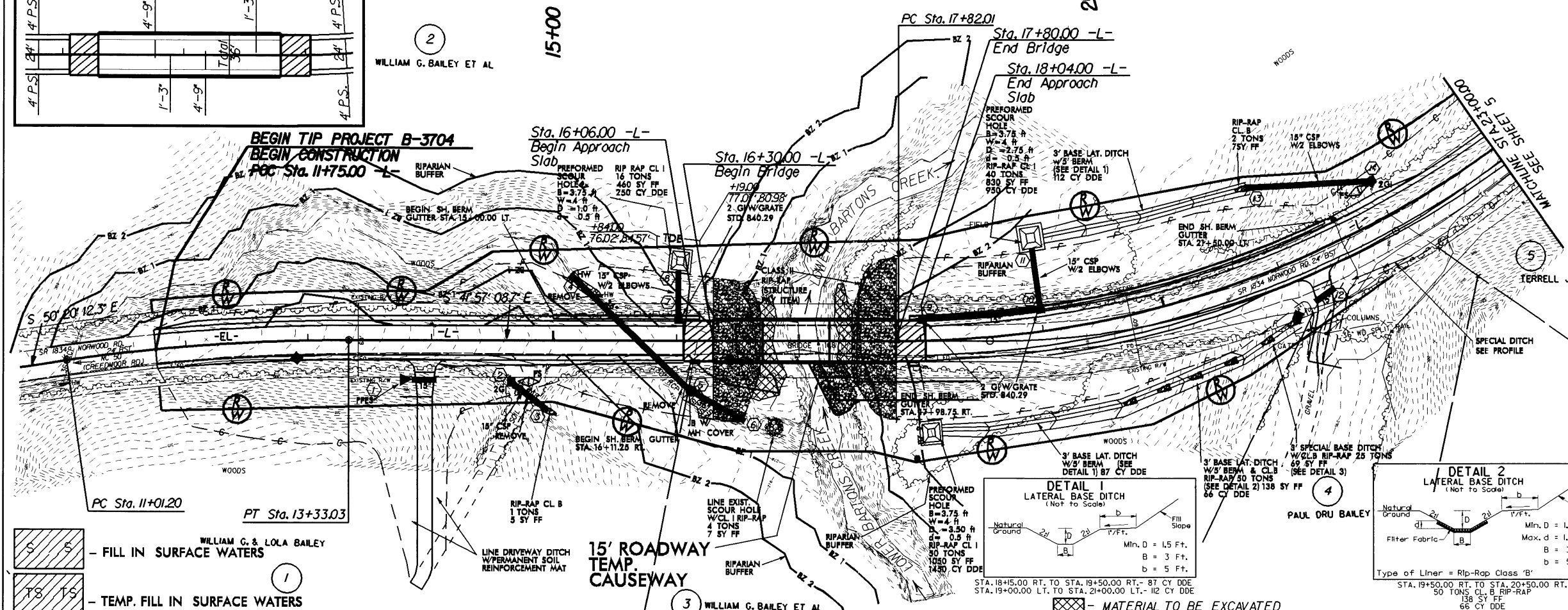
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# WETLAND/STREAM IMPACTS

PROJECT REFERENCE NO. <b>B-3704</b>	SHEET NO. <b>3 of 9</b>
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<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Rev 8/17/04



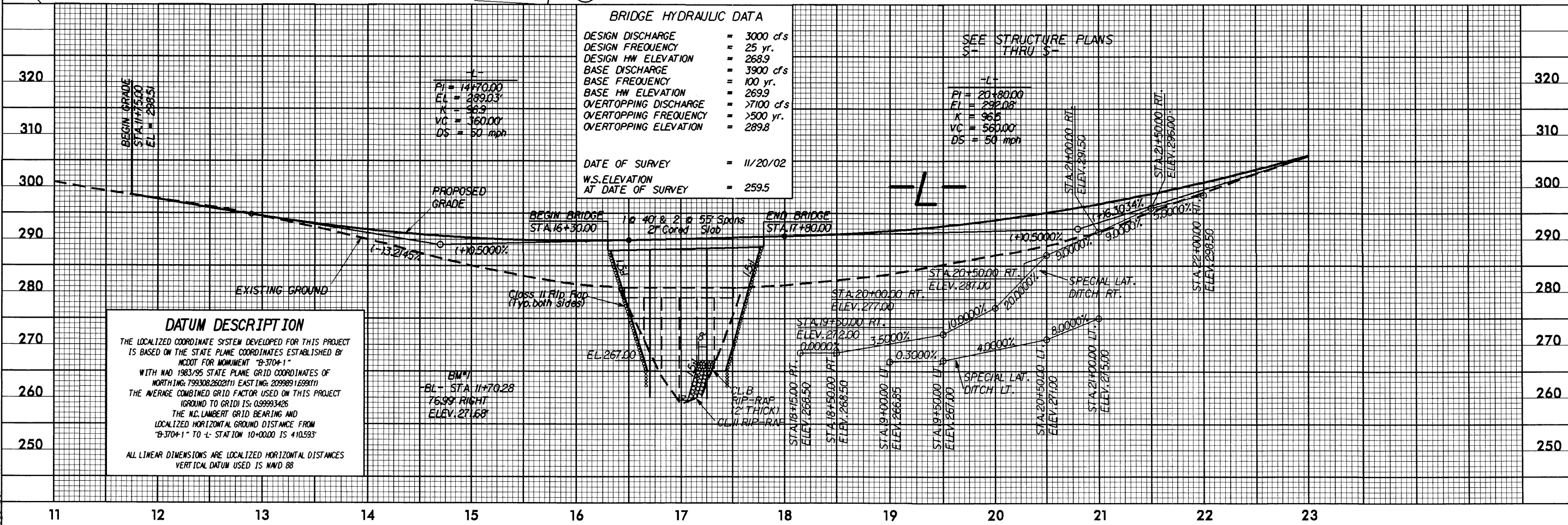
**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 3000 cfs
DESIGN FREQUENCY	= 25 yr.
DESIGN HW ELEVATION	= 268.9
BASE DISCHARGE	= 3900 cfs
BASE FREQUENCY	= 100 yr.
BASE HW ELEVATION	= 269.9
OVERTOPPING DISCHARGE	= >7100 cfs
OVERTOPPING FREQUENCY	= >500 yr.
OVERTOPPING ELEVATION	= 289.8

DATE OF SURVEY = 11/20/02  
W.S. ELEVATION AT DATE OF SURVEY = 259.5

**SEE STRUCTURE PLANS S- THRU S-**

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EL = 292.08'
K = 96.5
VC = 560.00'
DS = 50 mph

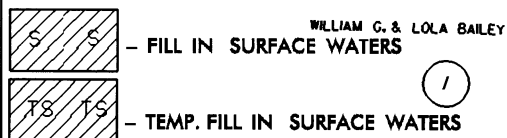
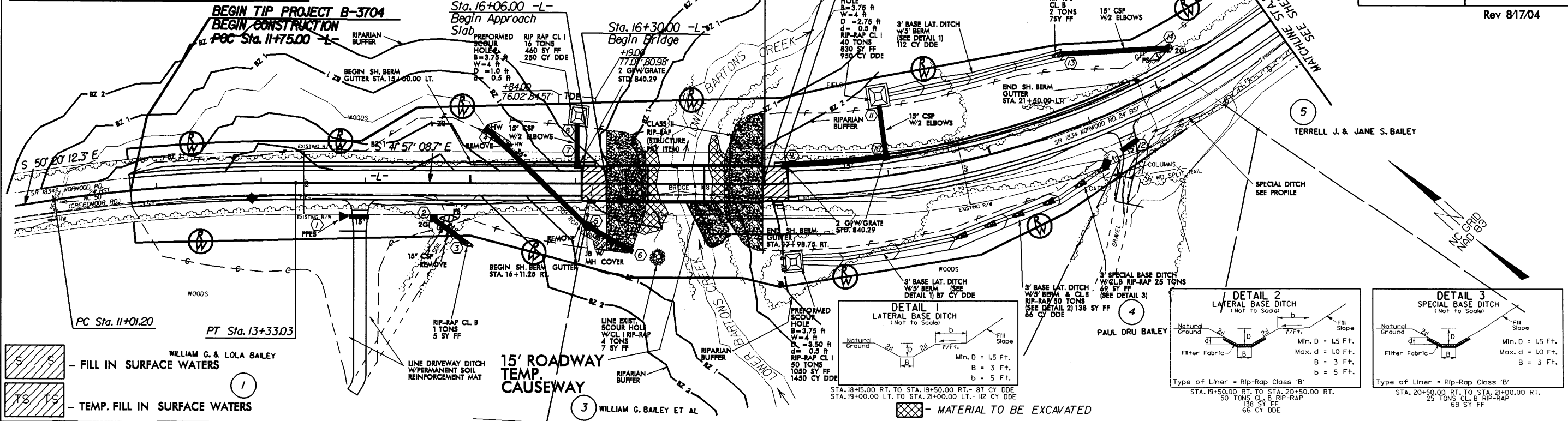
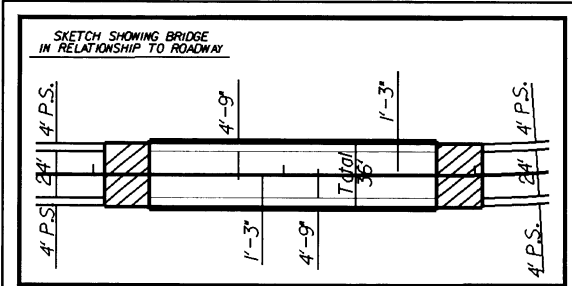


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# WETLAND/STREAM IMPACTS

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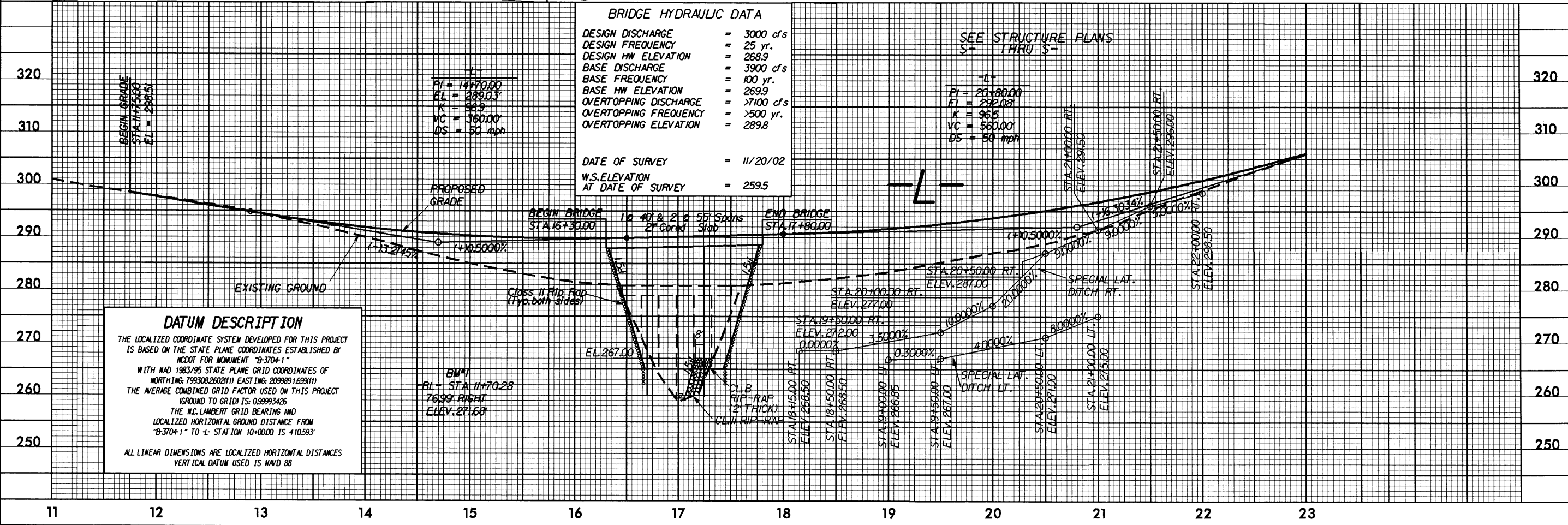
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SEE STRUCTURE PLANS S-1 THRU S-5



**DATUM DESCRIPTION**

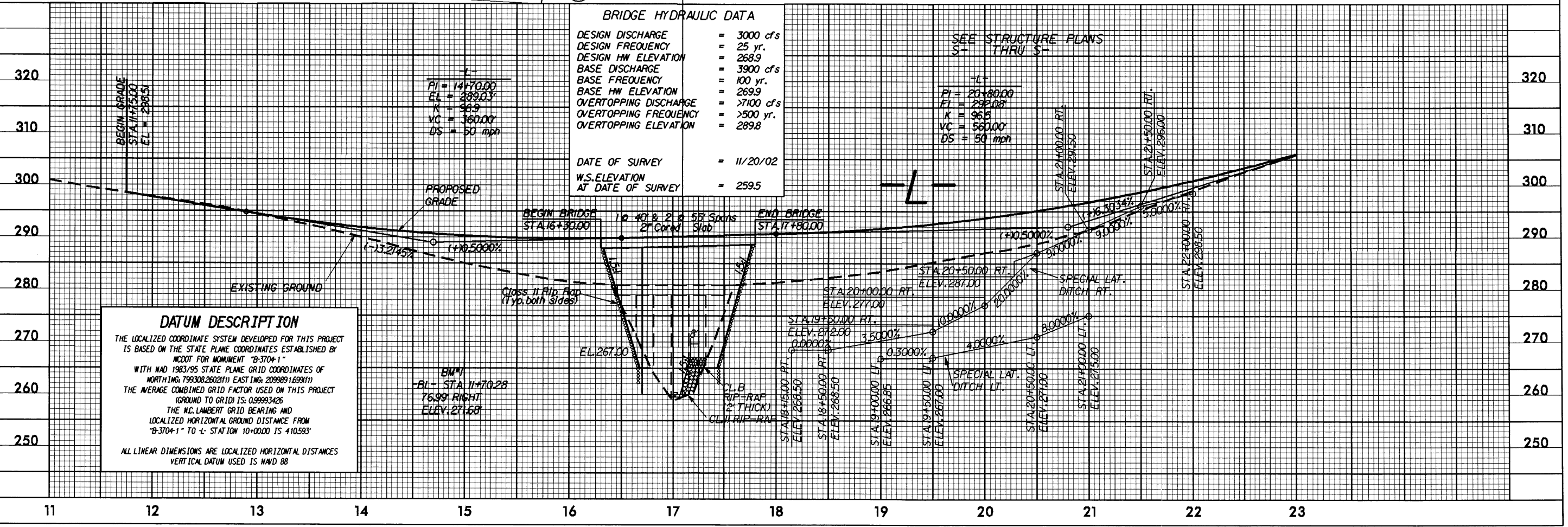
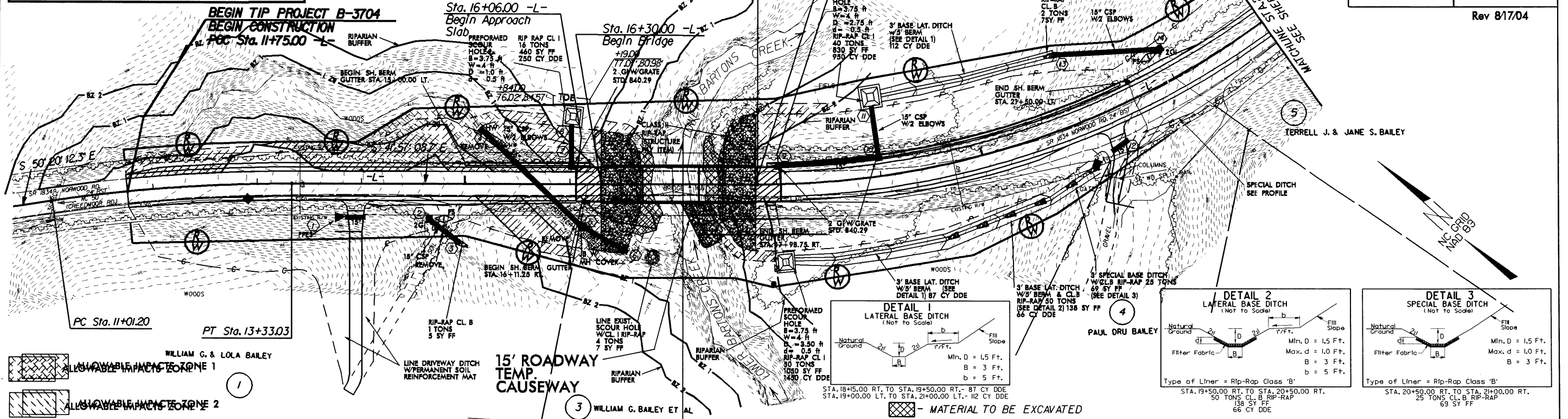
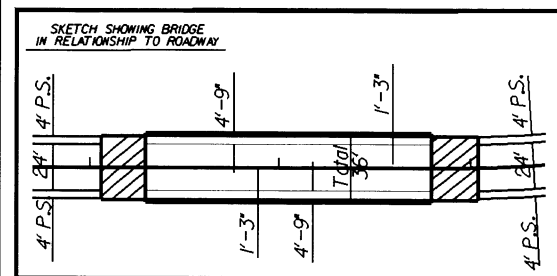
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PROJECT REFERENCE NO. <b>B-3704</b>	SHEET NO. <b>6 of 9</b>
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# BUFFER IMPACTS



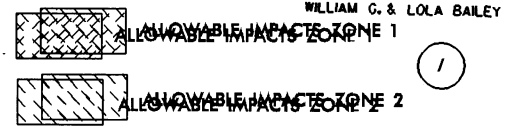
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WILLIAM G. BAILEY ET AL

TERRELL J. & JANE S. BAILEY

WILLIAM G. BAILEY ET AL

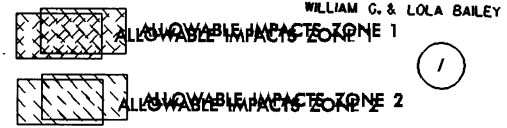
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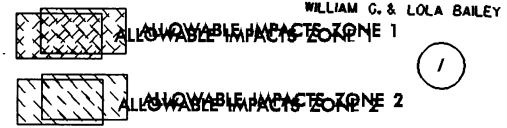
MATERIAL TO BE EXCAVATED

15' ROADWAY TEMP. CAUSEWAY

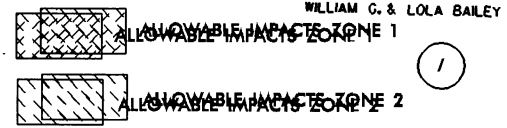
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 ALLOWABLE IMPACT ZONE 2



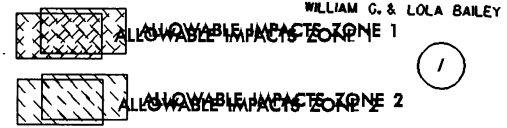
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 ALLOWABLE IMPACT ZONE 2



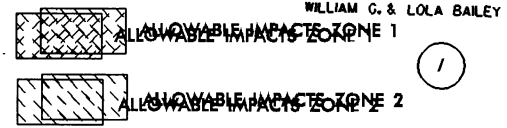
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 ALLOWABLE IMPACT ZONE 2



ALLOWABLE IMPACT ZONE 1  
 ALLOWABLE IMPACT ZONE 2



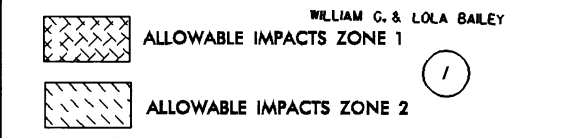
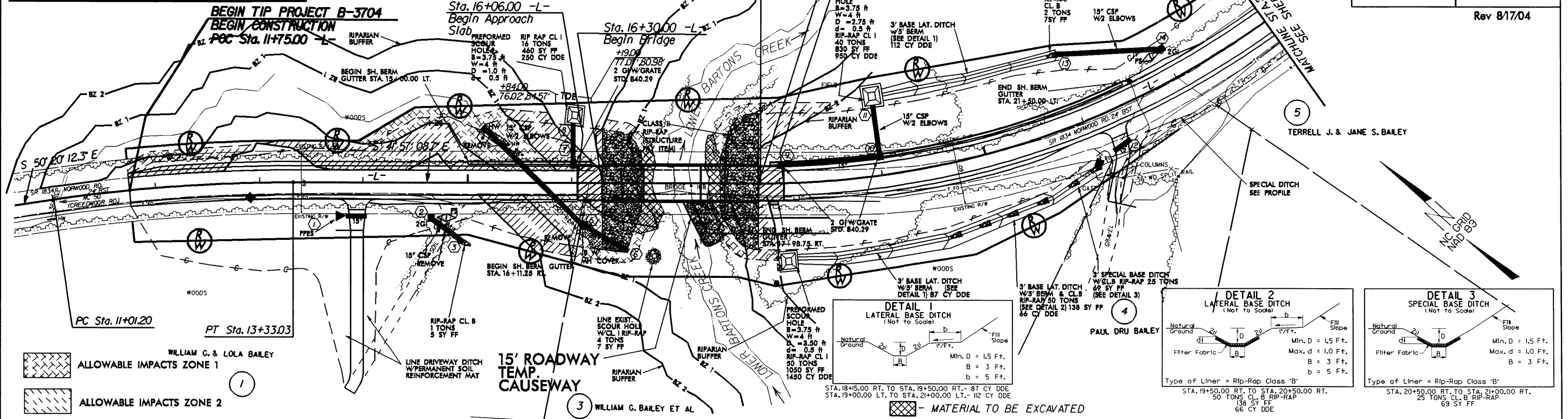
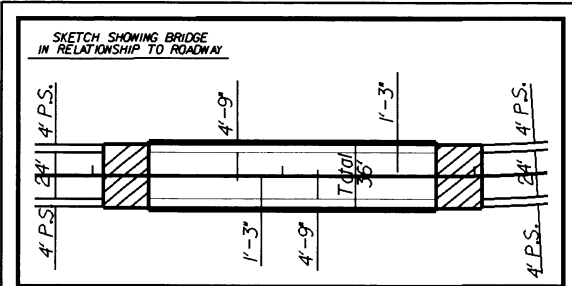
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 ALLOWABLE IMPACT ZONE 2



ALLOWABLE IMPACT ZONE 1  
 ALLOWABLE IMPACT ZONE 2

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# BUFFER IMPACTS

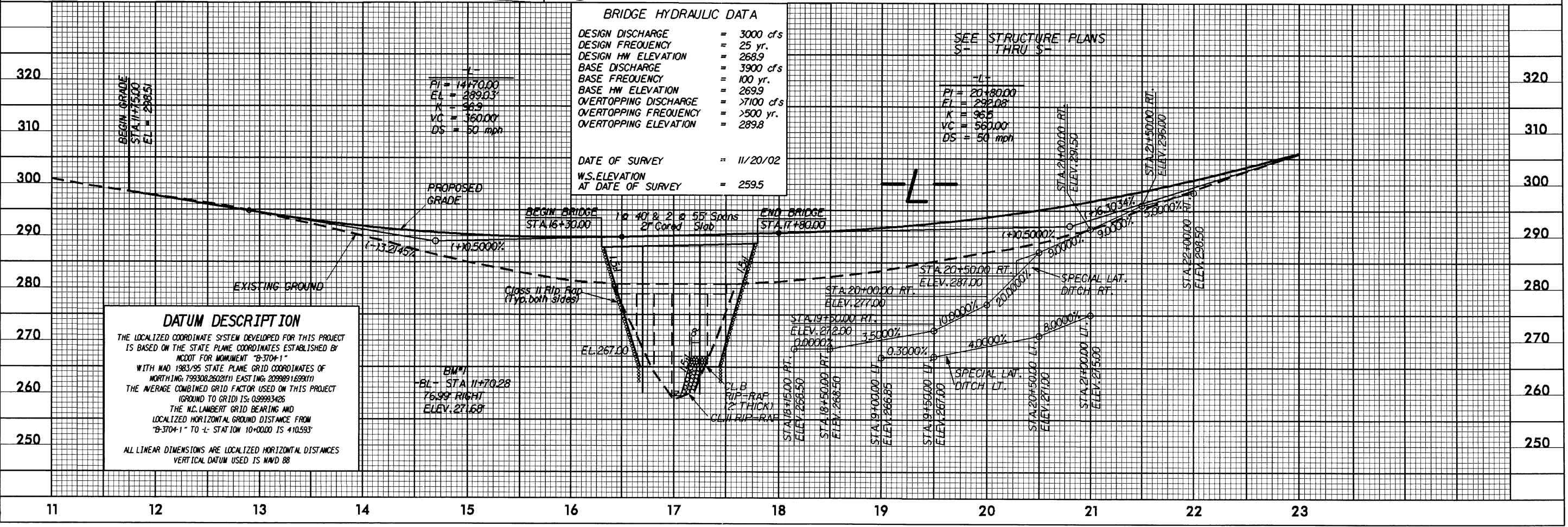


**BRIDGE HYDRAULIC DATA**

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SEE STRUCTURE PLANS S-1 THRU S-5



**DATUM DESCRIPTION**

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WILLIAM G. BAILEY ET AL

WILLIAM G. & LOLA BAILEY

WILLIAM G. BAILEY ET AL

TERRELL J. & JANE S. BAILEY

PAUL ORU BAILEY

WETLAND PERMIT IMPACT SUMMARY														
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS						
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)			
2	15+70.00	36" RCP					0.01						108	
3	16+74.00 to 17+34.00	Temporary Causeway										0.01		62
TOTALS:			0	0	0	0	0.01	0	0	0	0.01	0	170	

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# BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT						BUFFER REPLACEMENT					
			TYPE		ALLOWABLE		MITIGABLE		ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )				
			ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )	TOTAL (ft <sup>2</sup> )	ZONE 1 (ft <sup>2</sup> )			ZONE 2 (ft <sup>2</sup> )			
1	3 @ 50' SPANS BRIDGE	17+05.00	X		3,113.0	7,117.0	10,230.0							
2	36" RCP	15+70	X					10307.0	12396.0	22703.0				
3	TEMPORARY CAUSEWAY	16+74 TO 17+34	X		555.0		555.0							
<b>TOTAL:</b>					3,668.0	7,117.0	10,785.0	10307.0	12396.0	22703.0				

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