

County: Madison	Stream: Ivy Creek (River)	Assigned to:	
Road #: NC 251 SBL	Road Name: French Broad Overview Rd	Prepared By: wsh/REL	
Division: 13	Location: 0.8 M S JCT US 25 /70	Hydro Mgr: PFF	Hydro Reviewer: MTS
Latitude: 35.77678	Longitude: -82.64735	Project Type:	
Decimal degrees, a min of 5 decimal points			

Existing Structure

Structure Type: Bridge	Yr Built: 1957			
Span Arrangement: <input +="" -"="" type="text" value="5 @ 47'8"/>	OAL (ft): 239.0	Skew: 90	Abutment Type: Vertical-Concrete	
Number of Barrels:	@ Span (ft):	x Rise (ft):		
Bed to Crown (ft): 30.0	Clear Roadway (ft): 14.7	Water Depth (ft): 4.0	Superstructure Depth:	
ADT: 720	Year ADT: 2012	Scour Code (item113): 8	Prior Survey Completed: ☐	Survey Date:
Drainage Area: 161.0	Sq. Mi.	Drainage Area Source: Sel.-Sites	Roadway Overtops at Q100: ☐	
Discharge Method: USGS Regression Equations	USGS Region: 2- Mountain	Stream Gage Number(if applicable): 345335112		
Q10 (cfs):	Q25 (cfs): 16,000	Q50 (cfs): 18,000	Q100 (cfs): 22,000	QBFE (cfs): 19,160
☐ Structure in Flood Hazard Zone Panel #: 9715 Panel Date: 06/09/2009 Type of FIS: LIMITED Date of FIS:				

Enviromental

Quad Map: MARSHALL, NC	River Basin: French Broad	Buffer Rule:			
Primary Stream Classification		Other Stream Classification			
☐ Class B	☒ Class C	☐ SA	☐ SB	☐ Anadromous Fish	☐ Area of Environmental Concern
☐ SC	☐ SWL	☐ WL	☐ WS I	☐ CAMA County	☐ Federal Wild & Scenic Rivers
☐ WS II	☐ WS III	☐ WS IV	☐ WS V	☐ HSB Required	☐ NC Natural & Scenic Rivers
Supplemental Stream Classification				☐ Impaired [303d]	☐ Primary Nursery Area
☐ FWS	☐ HQW	☐ NSW	☐ ORW	☐ TVA	☐ Designated Shellfish Harvesting Area
☐ Sw	☐ Tr	☐ UWL	☐ w/in 0.5mi. of CA	☐ Designated Public Mountain Trout Waters	

Up/Down Stream Features

Upstream Feature: Bridge	Structure Type: Bridge			
Location: 0.8 M S JCT US 25 70 INTERSECTION	Span Arrangement: <input (+="" -)"="" type="text" value="5@ 47' 8"/>	OAL (ft): 238.0		
Structure #: 560008	Route: US 251 SBL	Number of Barrels:	@ Span (ft):	x Rise (ft):
Latitude: 35.77684	Longitude: -82.64786	Bed to Crown (ft): 28.0	Year Built: 1939	
Prior Survey Completed: ☐	Survey Date:			
Downstream Feature: Confluence w/ Stream(s)	Structure Type: French Broad River			
Location: directly DS	Span Arrangement:	OAL (ft):		
Structure #:	Route:	Number of Barrels:	@ Span (ft):	x Rise (ft):
Latitude: 35.77684	Longitude: -82.64786	Bed to Crown (ft):	Year Built:	
Prior Survey Completed: ☐	Survey Date:			

Preliminary Structure Estimate [Office Estimate]

Structure Type:	Skew: 90
Dimensions/Spans:	

Notes

Stream Assigned #:6-96-(11.7)

PREDESIGN-PRESURVEY REPORT

Project# _____
TIP# _____
Let Date _____
WBS# _____

County MADISON (DIV. 13)

Bridge# 560009 (F-14)
Road# NC 251 SBL (FRENCH BROAD OVERVIEW ROAD)
Stream IVY CREEK

Type Of Request: POC Force Account TIP NCMA

Date 4/11/17 Name Wsh

Assigned To PFF/MTS

Checked By REL 4-12-17

BRN: NO CO FILE NONE

Prior Survey Date NONE (attach copy of prior survey)

BK: NO BSR: NONE

Study By Scour Section YES-ATTACHED SCOUR CODE: 8

Flood Zone _____ Detail Study LIMITED Date 6-9-09 Panel# 9715

B.M. Info N/A (ESM OA = 163.6M)

Quad Map MARSHALL Drainage Area 161 SQ. MI. From DASS STA: 345335.12

Q25 = 16,000 cfs Q50 = 18,000 cfs Q100 = 22,000 cfs Method REG EQU

LONG: -82.647753 FEMA = 19,160 cfs IA = 0.68% (REGION 2)
LAT: 35.776775 USGS - 87-4096

EXISTING BRIDGE INFORMATION

Location 0.8 M. S. Jct US 25/70 INTERSECTION BUILT: 1957 CLEAR RD. WAY 14.7'

Average Daily Traffic 720 (2012) 7% TRK.

Length 239' Bed-To Crown 30' Water Depth 3'

Type Structure REINFORCED CONC DECK ON GIRDER (ONE LANE CLOSED)

Type Spans 1e47'11", 1e47'5", 1e47'11", 1e47'10", 1e47'11" (VERT. CONC ABUT)

Upstream Structure 560008 (ON NC 251 NBL) BUILT: 1939

Location 0.8 M. So. Jct US 25/70 INTERSECTION LONG: -82.647388

Bed-To Crown 20' (4' DEEP) Prior Survey N/A LAT: 35.77661

Downstream Structure IS FRENCH BROAD RIVER

Location D/S

Bed-To Crown N/A Prior Survey N/A LONG: -82.647856

LAT: 35.776843

BUILT: N/A

ENVIRONMENTAL

TVA: NO

Trout Stream NO

Anadromous Fish NO Primary Nursery Area NO

High Quality Waters NO

Nutrient Sensitive Waters NO

Near Water Supply Intake NO

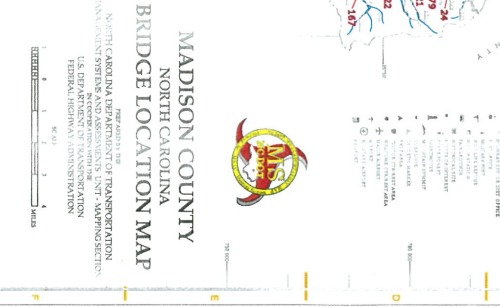
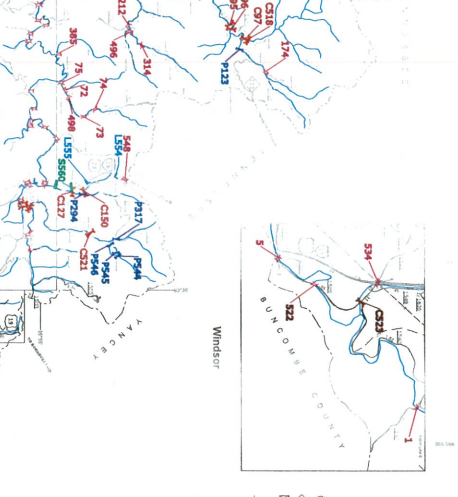
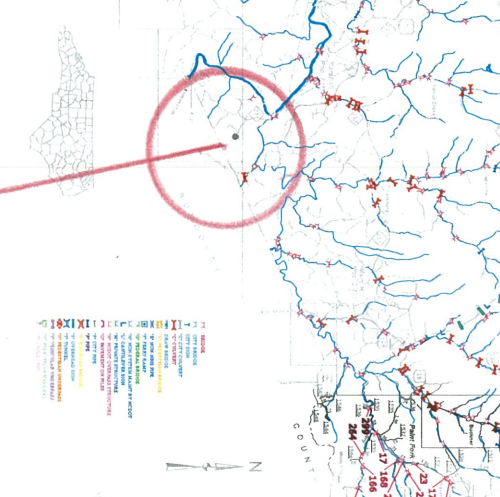
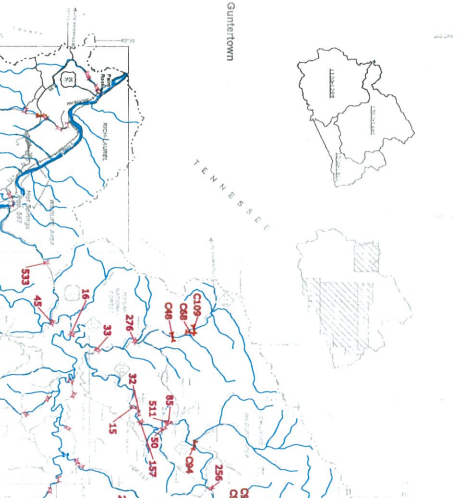
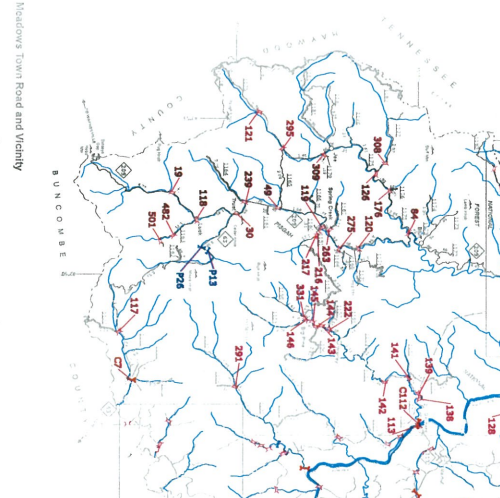
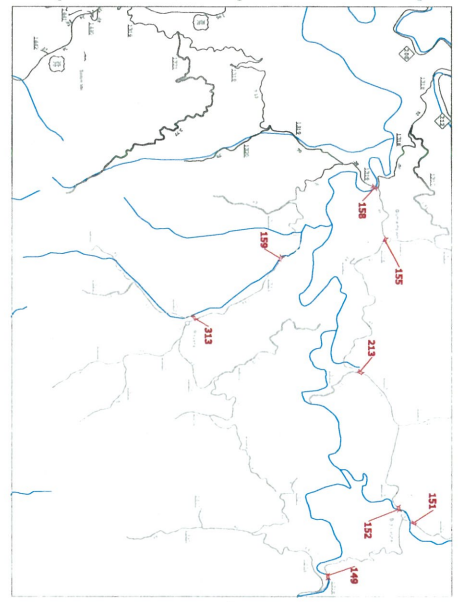
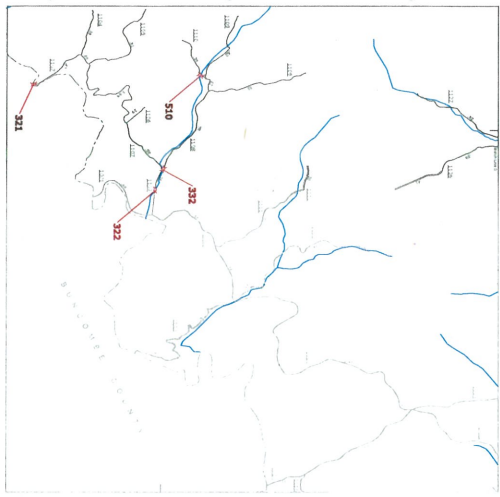
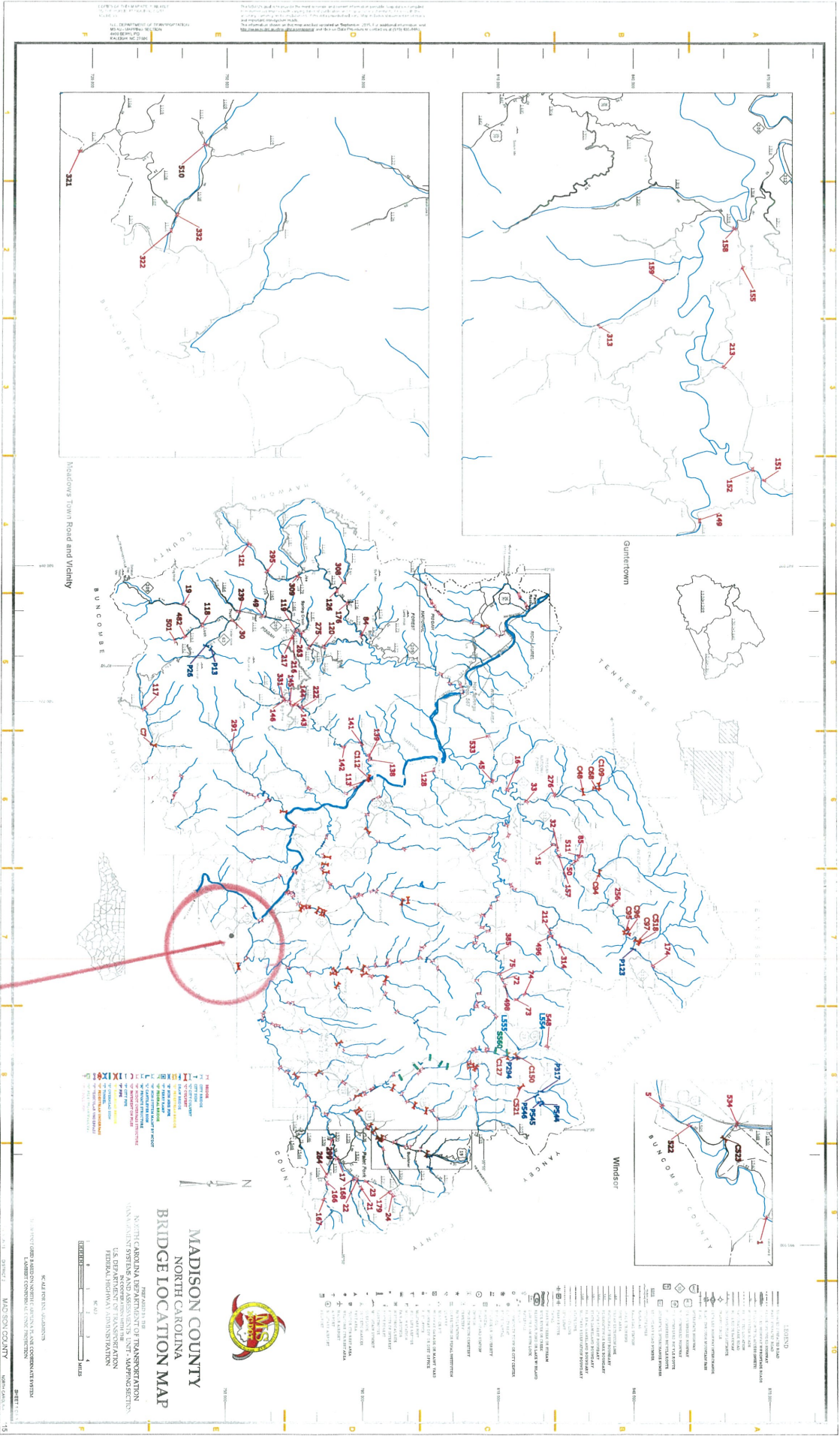
CAMA County NO

Stream Classification C

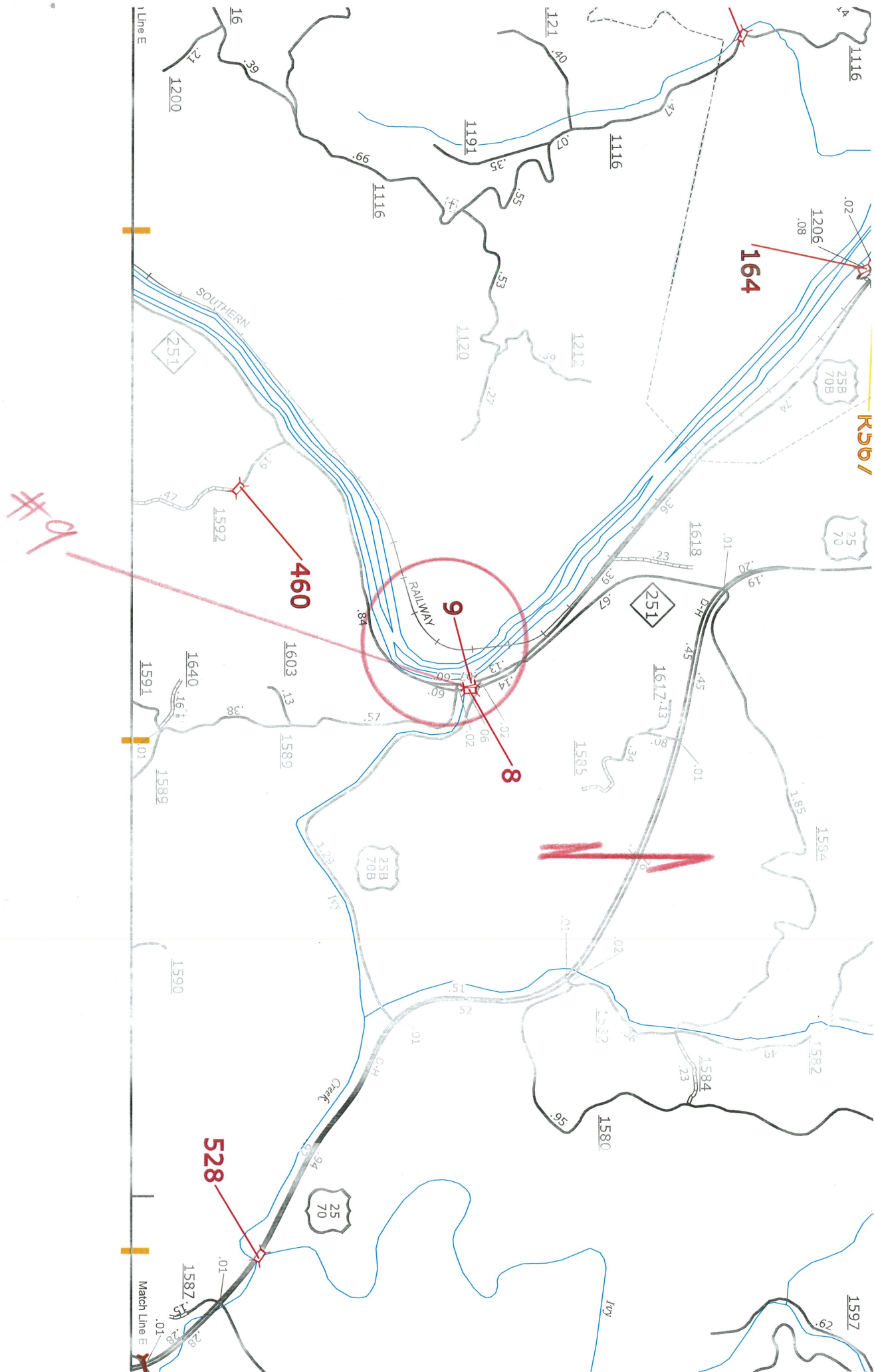
STREAM #: 6-96-(11.7)

DENR River Basin Info. FRENCH BROAD

1,75,83,120
W/S 65



#9





560009 MADISON CO US 25 SBL
DASS DA= 161.0 SQ MILES
IA= 0.68 % IVY CREEK

StreamStats Version 3.0 : N

USGS StreamStats Version 3.0

Date: Tues Apr 11, 2017 10:16:47 AM GMT-4
Study Area: North Carolina
NAD 1983 Latitude: 35.7766 (35 46 36)
NAD 1983 Longitude: -82.6472 (-82 38 50)
Drainage Area: 161 mi2

Peak Flows Region Grid Basin Characteristics

100% Peak Southeast US over 1 sqmi 2009 5158 (161 mi2)				
Parameter	Value	Regression Equation	Valid Range	
Drainage Area (square miles)	161		Min	Max
Percent Area in Region 1 (percent)	0.000		0	9000
Percent Area in Region 2 (percent)	100.000		0	100
Percent Area in Region 3 (percent)	0.000		0	100
Percent Area in Region 4 (percent)	0.000		0	100
Percent Area in Region 5 (percent)	0.000		0	100

Urban Flows Region Grid Basin Characteristics

Area in square miles=161				
Percent Imperviousness of basin area 2006 NLCD-0.66				
Percentage of impervious area determined from NLCD 2011 Impervious dataset=0.68				
100% Region 2 Urban Blue Ridge F5007-00 (161 mi2)				
Parameter	Value	Regression Equation	Valid Range	
Drainage Area (square miles)	161 (above max value 41)		Min	Max
Percent Impervious NLCD2011 (percent)	0.68 (below min value 2)		0.04	41

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Peak Flows Region Grid Statistics

Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	Min	Max
PK2	5740	ft3/s	35	3310	9980		
PK5	9400	ft3/s	34	5440	16200		
PK10	12100	ft3/s	35	6920	21300		
PK25	15800	ft3/s	38	8670	28700		
PK50	18400	ft3/s	40	9790	34500		
PK100	21600	ft3/s	42	11100	41900		

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NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: **PRIORITY MAINTENANCE ISSUED, TEMPORARY REPAIRS**

Structure Safety Report

Routine Element Inspection - Contract

COUNTY: MADISON STRUCTURE NUMBER: 560009 FREQUENCY: 24 MONTHS

FACILITY CARRIED: NC251 SBL MILE POST:

LOCATION: .01 MI.S.JCT.US25,70

FEATURE INTERSECTED: IVY CREEK

LATITUDE: 35° 46' 36.13" LONGITUDE: 82° 38' 51.99"

SUPERSTRUCTURE: RCDG(14.667' BRG.RDWAY OPEN TO TRAFFIC, OTHER PORTION RDWAY. CLOSED)

SUBSTRUCTURE: E.BTS:RC CAPS/H-PIPES;INT.BTS:RC POST&BEAM

1 @ 47'-11"; 1 @ 47'-5"; 1 @ 47'-11"; 1 @ 47'-10"; 1 @ 47'-11"

SPANS: 1 @ 47'-11"; 1 @ 47'-5"; 1 @ 47'-11"; 1 @ 47'-10"; 1 @ 47'-11"

☐ FRACTURE CRITICAL ☒ TEMPORARY SHORING ☐ SCOUR CRITICAL ☐ SCOUR PLAN OF ACTION

PRESENT CONDITION: Good INSPECTION DATE: 06/03/2016

POSTED SV: Not Posted POSTED TTST: Not Posted

OTHER SIGNS PRESENT: 2 DELINEATORS



LOOKING NORTH

Sign noticed issued for		Number Required
<u>NO</u>	<u>WEIGHT LIMIT</u>	<u>0</u>
<u>NO</u>	<u>DELINEATORS</u>	<u>0</u>
<u>NO</u>	<u>NARROW BRIDGE</u>	<u>0</u>
<u>NO</u>	<u>ONE LANE BRIDGE</u>	<u>0</u>
<u>NO</u>	<u>LOW CLEARANCE</u>	<u>0</u>

INSPECTED BY KENNETH WING	SIGNATURE <i>Kenneth Wing</i>	ASSISTED BY WESLEY SKINNER
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Structure: 560009

County: MADISON

Date: 06/03/2016

Structure Photos



UPSTREAM, LOOKING EAST



SOUTH APPROACH LOOKING SOUTH

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BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 08/30/2016

COUNTY : MADISON DIVISION : 13 DISTRICT : 2 STRUCTURE NUMBER : 560009 LENGTH : 239 FEET

ROUTE CARRIED : NC251 SBL FEATURE INTERSECTED : IVY CREEK

LOCATED : .01 MI.S.JCT.US25,70 BRIDGE NAME : CITY :

FUNC. CLASS : 07 SYST.ON : FA SYST.UNDER : NFA ADT & YR : 720 2012 RAIL TYPE : LT 111 RT 111

BUILT : 1957 BY : SHPWC PROJ : 9723 FED.AID PROJ : DESIGN LOAD : HS 20 + MOD

REHAB : BY : BMU PROJ : 5.8641 ALIGNMENT : LT. SKEW : 120 LANES : ON 1 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 30 FT WATER DEPTH : 3 FT

SUPERSTRUCTURE : RCDG(14.667' BRG.RDWAY OPEN TO TRAFFIC, OTHER PORTION RDWAY. CLOSED)

SUBSTRUCTURE : E.BTS:RC CAPS/H-PIPES;INT.BTS:RC POST&BEAM

SPANS : 1 @ 47'-11;1 @ 47'-5;1 @ 47'-11;1 @ 47'-10;1 @ 47'-11

BEAMS OR GIRDERS : 4 LINES REINFORCED CONCRETE GIRDERS @ 8' CENTERS

FLOOR : 7 RC/4 AWS ENCROACHMENT : DECK (OUT TO OUT) : 31.5 FT

CLEAR ROADWAY : 14.667 FT BETWEEN RAILS : 16.25 FT SIDEWALK OR CURB : LT 1.6 FT RT 1.6 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-17 OPE.RTG. : HS-28 CONTR.MEMBER : ExtGirder1 POSTED : SV TTST DATE

SYSTEM : Primary N.C. Route GREEN LINE ROUTE : Y

UNDER ROUTES AND CLEARANCES

REMARKS :

009

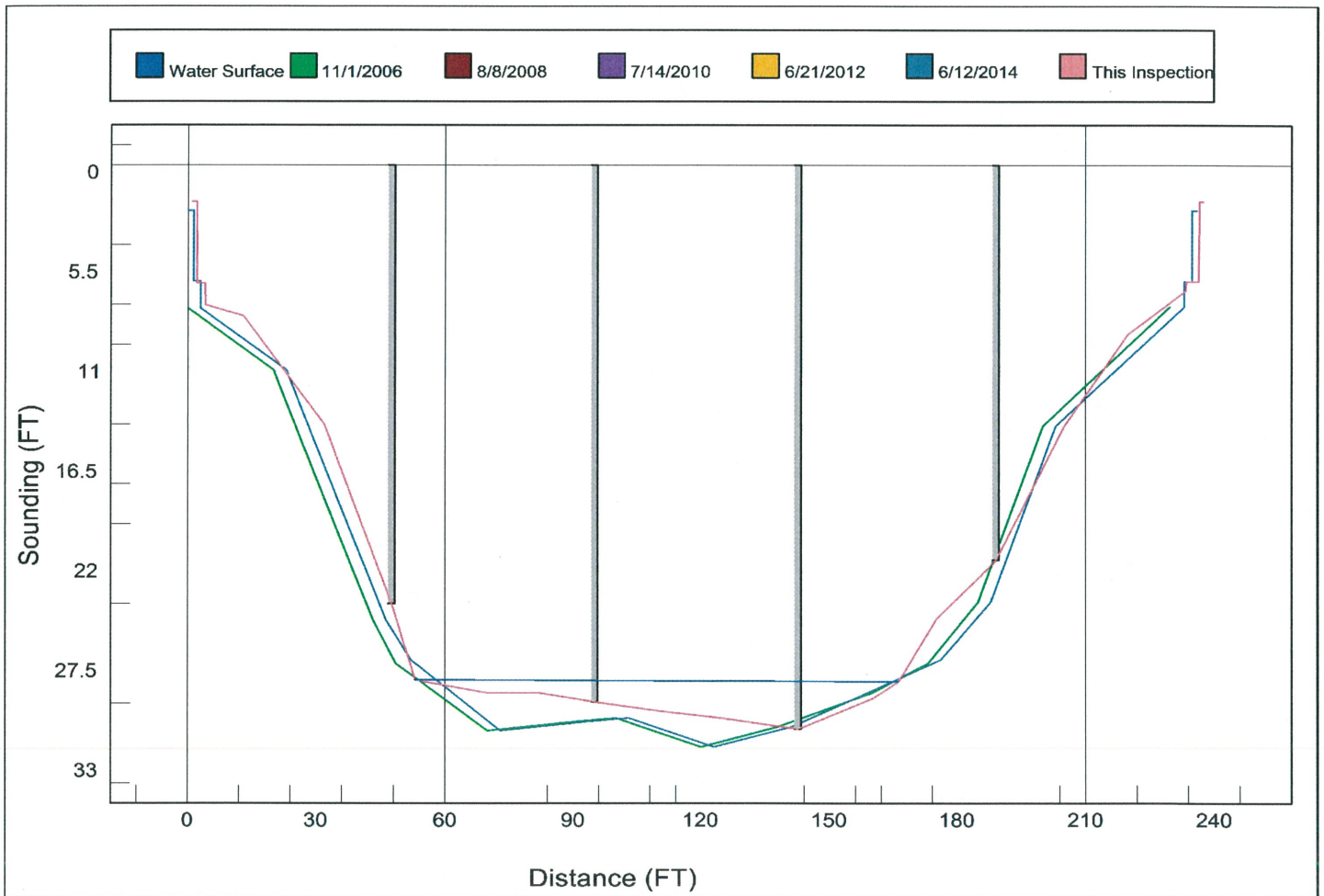
Bridge: 560009

County MADISON

Date:

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



NCDOT UNITS:
 BRIDGE MAINTENANCE UNIT
 HYDRAULIC DESIGN UNIT
 GEOTECHNICAL UNIT
 STRUCTURE DESIGN UNIT
 SOILS AND FOUNDATION SECTION

BRIDGE SCOUR REPORT

COUNTY: MADISON BRIDGE: 9 ROUTE: NC 251 STREAM CROSSED: INY RIVER

ASSESSMENT ☒ EVALUATION ☐ BY: MEN DATE 4/9/97

FHWA STRUCTURE INVENTORY & APPRAISAL CODES:

SUBSTRUCTURE CONDITION (ITEM 60) _____
 CHANNEL AND CHANNEL PROTECTION (ITEM 61) _____
 WATERWAY ADEQUACY (ITEM 71) _____
 SCOUR CRITICAL BRIDGES ((ITEM 113) 8

FULL SCOUR REPORT AVAILABLE

MONITORING:

IN HYDRAULICS FILES

PLAN REQUIRED? YES _____ NO ☒

FLOOD MONITORING EVENT : (UPSTREAM FACE, FROM TOP OF RAIL):

REQUIRED ACTION: _____

CRITICAL MONITORING DEPTH (UPSTREAM FACE, FROM TOP OF RAIL):

REQUIRED ACTION: _____

CRITICAL HIGH WATER DEPTH (UPSTREAM FACE, FROM TOP OF RAIL):

REQUIRED ACTION: _____

SCOUR CRITICAL DEPTHS(UPSTREAM FACE, FROM TOP OF RAIL):

REQUIRED ACTION: _____

INCREASE UNDERWATER INSPECTION CYCLE? YES _____ NO ☒ FREQUENCY _____

COUNTERMEASURES:

PLAN REQUIRED? YES _____ NO ☒
 SUMMARY OF PLAN:

CONSTRUCTION COMPLETED DATE _____

FINAL CODING AFTER WORK IS COMPLETED (ITEM 113) _____ DATE _____

BRIDGE MAINTENANCE COMMENTS:

BRIDGE SCOUR EVALUATION ASSESSMENT



AND DATA SUMMARY REPORT

ASSESSED 11-6-96
BY: MOFFATT + NICHOL
CODE 8
CLASSIFIED Low Risk
w/ GEOTECH CONCURRENT

SITE IDENTIFICATION:

COUNTY MADISON CITY/TOWN _____ BRIDGE NO. 9
ROUTE NC 251 STREAM IVY RIVER ROAD MILE _____
DUAL BRIDGE NO. _____ IS US/DS
ORIG. PROJECT NO. 9723 YEAR BUILT 1957
REHAB. PROJECT NO. 5.8641 YEAR REHAB. _____
CURRENT ADT 250 YEAR 1995 FUTURE ADT 500 YEAR 2010

INFORMATION RESOURCES AVAILABLE:

HYDRAULIC STUDY REPORT (DATE) NONE
AS-BUILT CONSTRUCTION PLANS (DATE) MAY 1957
FOUNDATION REPORT (DATE) NONE
OTHER AGENCY STUDIES (DATE) _____
(FEMA, CORPS, T.V.A., SCS) _____
QUAD MAPS (NAME & DATE) _____
AERIAL PHOTOGRAPHY (DATE) _____
GAGE DATA (TYPE, NO., DRAINAGE AREA) _____
DISTANCE TO SITE (UP/DN STREAM) _____
BRIDGE INSPECTION REPORT (DATE) 6-26-96
UNDERWATER INSPECTION (DATE, CYCLE) NONE 12/92 NOT IN COLDER
STRUCTURE DATA FILE (DATE) 6-26-96

HYDRAULIC DATA:

DRAINAGE AREA _____ SQ. MI. SOURCE _____
100 YR. WATERWAY OPENING (NORMAL TO FLOW) _____ SQ. FT.

HISTORICAL FLOODS

DATE	ELEV. (FT.)	APPROX. FREQ. (YRS.)	APPROX. DISCH.	ADJUSTED TO SITE

SOURCE _____

FLOOD FREQUENCY (YRS.)

ELEVATION (FT.)

DISCHARGE (CFS)

AVG. VELOCITY (Q/A)

SOURCE: _____

Q _____	Q _____	Q _____	Q _____

COMMENTS: _____

STRUCTURE DATA:

BRIDGE LENGTH 237 FT
SUFFICIENCY RATING 82.1 EST. REMAINING LIFE (YRS.) 51.5 DATE: 6-26-96
NO. OF SPANS 5 SPAN LENGTHS 3 @ 47' 11" ; 1 @ 47' 10" ; 1 @ 47' 5" SIMPLE OR CONTINUOUS ?
UNDERCLEARANCE (BED TO LOW BEAM) 30 FT

TOP OF RAIL ELEV. 1690.9 THALWEG ELEV. 1658.8

BENT NO. (W-E), (S-N)

TYPE

SKF

FTG.// FOUNDATION TYPE

COLUMN WIDTH

COLUMN//BENT SHAPE

FOOTING THICKNESS

TOP FTG. ELEV.

LT.

CTR.

RT.

BOTTOM FTG. ELEV.

LT.

CTR.

RT.

LT.

CTR.

RT.

LT.

CTR.

RT.

CONC.//RIP RAP PROTECTION

PILE TYPE

PILE LENGTHS (AVERAGE)

PILE TIP ELEV. (AVERAGE)

PILE EMBEDMENT

MIN. BEARING CAPACITY

SPREAD FOOTING EMBED.

EMBEDMENT REFERENCE *

COMMENTS: TOP OF RAIL = $1689.37 - 0.98 + 2.5 = 1690.89$

***THALWEG OR NATURAL GROUND**

ASSESSMENT

- 1) PIER AND/OR ABUTMENT SPREAD FOOTINGS WITHIN POTENTIAL CHANNEL SCOUR AREA ARE INDICATED ON THE PLANS TO BE ON SCOUR RESISTANT MATERIAL. THIS FINDING HAS BEEN REVIEWED AND CONCURRED WITH BY _____ YES
(GEOTECHNICAL UNIT)
- 2) DO THE PILE BENTS OR PILE FOOTINGS (IN THE PIEDMONT AND MOUNTAIN PROVINCE) WITHIN THE POTENTIAL CHANNEL SCOUR AREA, HAVE PILES THAT PENETRATE 20 OR MORE FEET BELOW THE STREAM BED ? N/A
- 3) DO THE PILE BENTS OR PILE FOOTINGS (IN THE COASTAL PLAIN) WITHIN THE POTENTIAL CHANNEL SCOUR AREA, HAVE PILES THAT PENETRRTATE 30 OR MORE FEET BELOW THE STREAM BED ? N/A
- 4) ARE ALL PIERS AND ABUTMENTS OUTSIDE THE NORMAL CHANNEL SECTION ? No
- 5) HAS THE CROSSING EXPERIENCED A FLOOD OF 50 OR MORE YEARS ESTIMATED MAGNITUDE WITH NO REPORTED OR INDICATED SCOUR PROBLEM ? _____
- 6) ARE THE BOTTOMS OF THE CHANNEL PIER SPREAD FOOTINGS MORE THAN 7 FEET BELOW BED ? No
- 7) IS THE AVERAGE VELOCITY IN BRIDGE OPENING (SIMPLE ANALYSIS $V=Q/A$) FOR THE ESTIMATED 100 YR. EVENT LESS THAN 4 FT./SEC ? _____
- 8) IS THE APPROACH ROADWAY OR BRIDGE OVERTOPPED DURING MINOR FLOODS (≤ 10 YR.) REQUIRING CLOSURE AND INSPECTION BEFORE REOPENING ? _____

THIS STRUCTURE MEETS CRITERIA DESCRIBED IN WHICH OF THE ABOVE LISTED ITEMS FOR CLASSIFICATION AS A LOW RISK STRUCTURE? 1

BASED ON AN EVALUATION OF THE AVAILABLE DATA AND REPORTS THE CLASSIFICATION OF THIS STRUCTURE AS LOW RISK FOR THE REASON(S) LISTED ABOVE APPEARS REASONABLE AND PRUDENT. YES

COMMENTS: _____

DECISION:

CLASSIFIED AS: SCOUR CRITICAL
UNKNOWN FOUNDATION
LOW RISK

_____ ✓

RECOMMENDED SCOUR CODE B w/ GEOTECH CONCURRENCE

ASSESSMENT COMMENTS: PLANS SHOW FOOTING FOR BENTS 1-4 AT
LEAST 6" IN ROCK LINE. (AS-BUILT)

SCHEDULE FOR DETAILED STUDY

SCHEDULE FOR FURTHER IN-HOUSE STUDY

ASSESSED BY: BRYAN FOX
FIRM: MOFFATT + NICHOL
DATE: 6 NOVEMBER 1996

APPROVED BY: P. FISHER
DATE: 4/9/97

CHECKED BY: BYRD
FIRM: KHA
DATE: 2/13/97

FINAL COMMENTS :

4/9/97: GEOTECH CONSIDERS THESE FOOTINGS TO BE LOW RISK.

ATTENTION: 009

UNDERWATER BRIDGE INSPECTION REPORT

TYPE INSPECTION ROUTINE

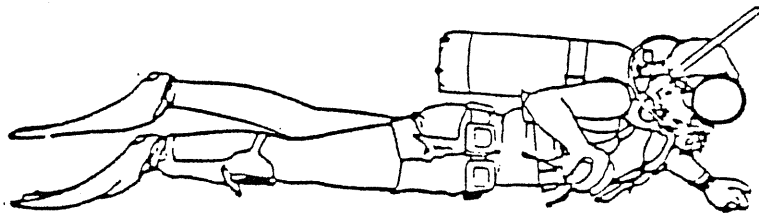
COUNTY MADISON BRIDGE NO. 9 ROUTE NC 251

INSP. DATE 11-6-96 INSP. CYCLE 4YR ACROSS IVY RIVER

INSP. BY M.S. CALLIS REVIEWED BY E. Williams

TYPE WORK PERFORMED _____

MH _____ (FOR SPEC. WORK ONLY)



EQUIPMENT USED: ☐ SCUBA ☒ DRY SUIT ☐ BOAT ☐ COMMUNICATION ☐ LIGHTS ☒ ROPE
☐ UNDERWATER PHOTOGRAPHS TAKEN ☐ WETSUIT ☐ SYSTEM ☐ CONSTRUCTION EQUIP.

[illegible]

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
& HIGHWAY SAFETY

BRIDGE MAINTENANCE UNIT
BRIDGE INSPECTION SECT.

FIELD INSPECTION REPORT

BRIDGE INSPECTION & ANALYSIS

BRIDGE No. 9

ROUTE NC. 251

COUNTY MADISON

Team Leader: M.S. CALLIS

Date 11-6-96

Assisted By: J.P. BOGUE, T.A. TOLLEY, J.C. HOUSTON

Item No.

36B CONCRETE COLUMNS (6) - 1/8" LOSS OF SURFACE MORTAR W/ COARSE
AGG. EXPOSED. 1/4" POPOUTS PRESENT THROUGHOUT
REPAIR IN GOOD CONDITION

36E CONCRETE FOOTINGS (6) - 1/8" LOSS OF SURFACE MORTAR W/ COARSE
AGG. EXPOSED. VERTICAL EXPOSURES PRESENT. (SEE V.E. SHEET)

41 DRIFT (6) - DRIFT PRESENT THROUGHOUT CHANNEL

45A WATERWAY (7) - FLOW SLIGHTLY RESTRICTED BY DRIFT

45B ALINGMENT (8) - GOOD CONDITION

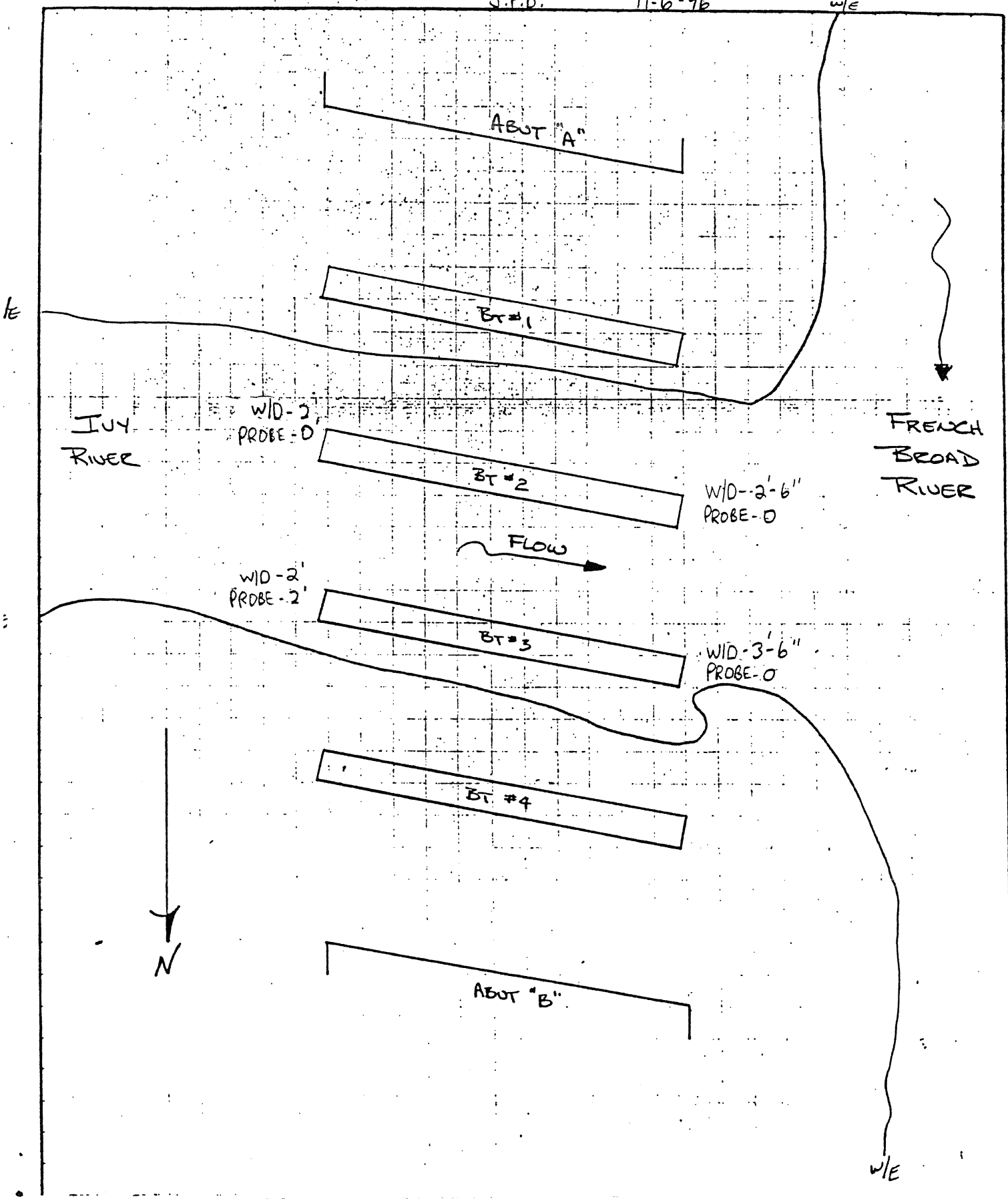
45C SCOUR (6) - LOCAL SCOUR @ BT2 & BT3 2' BELOW NATURAL
CHANNEL BOTTOM.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY BUILDING
P. O. BOX 25201
RALEIGH, NORTH CAROLINA 27611

SUBJECT PLAN VIEW

PROJECT BR #9
MADISON COUNTY

PREPARED BY CBC DATE 7-27-88 STATION N.C. 251
TAT 2-14-92
CHECKED BY J.P.B. DATE 11-6-96 STR NO. SHEET OF



009

(4)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SUBJECT PROFILE

PROJECT BR #9

DIVISION OF HIGHWAYS
HIGHWAY BUILDING

TYPICAL BT #2

MADISON

COUNTY

P. O. BOX 25201

PREPARED BY MSC

DATE 7-27-88

STATION N.C. 251

RALEIGH, NORTH CAROLINA 27611

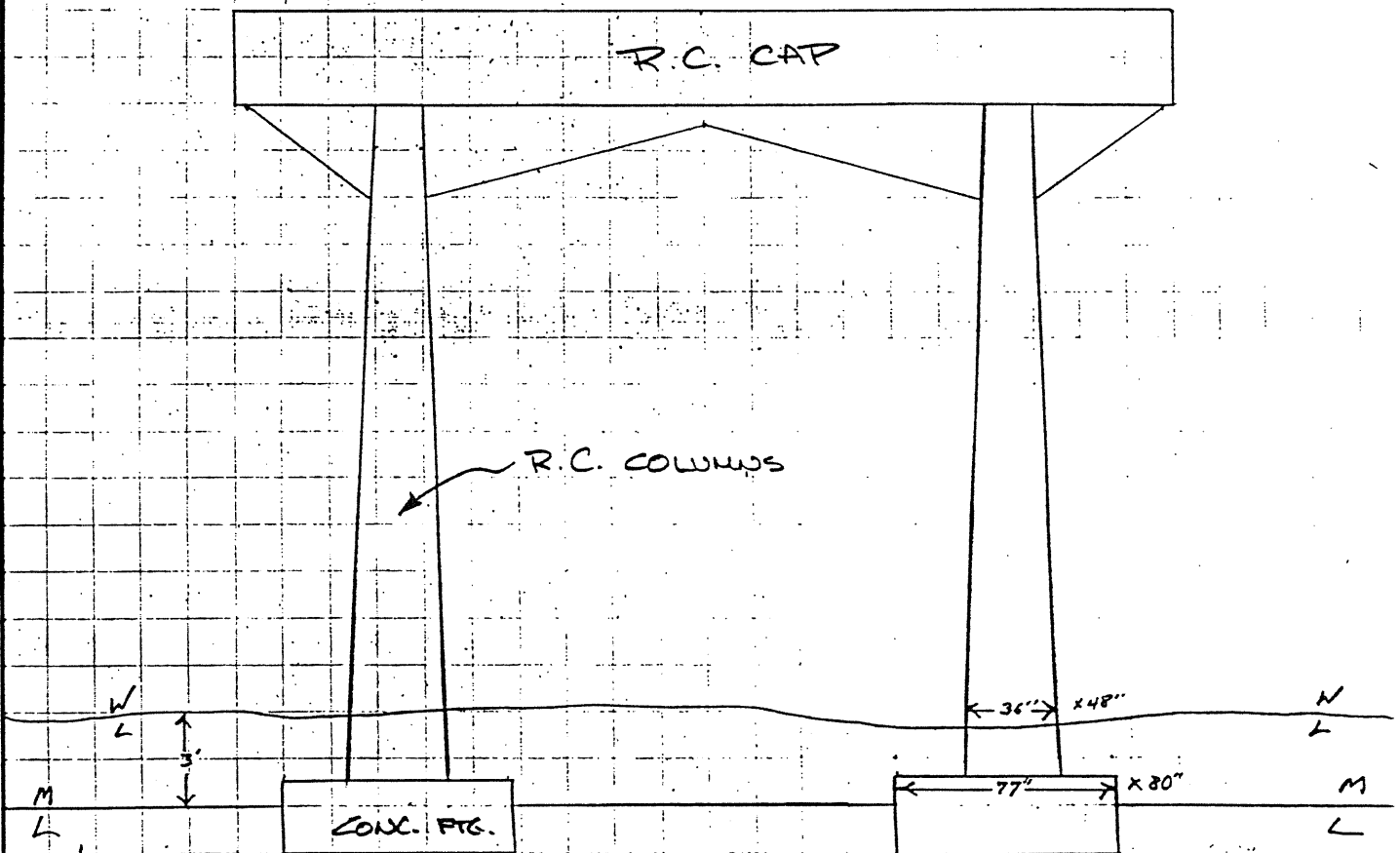
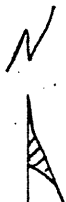
CHECKED BY TAT

DATE 12-14-92

STR NO _____ SHEET _____ OF _____

J.P.B

11-6-96

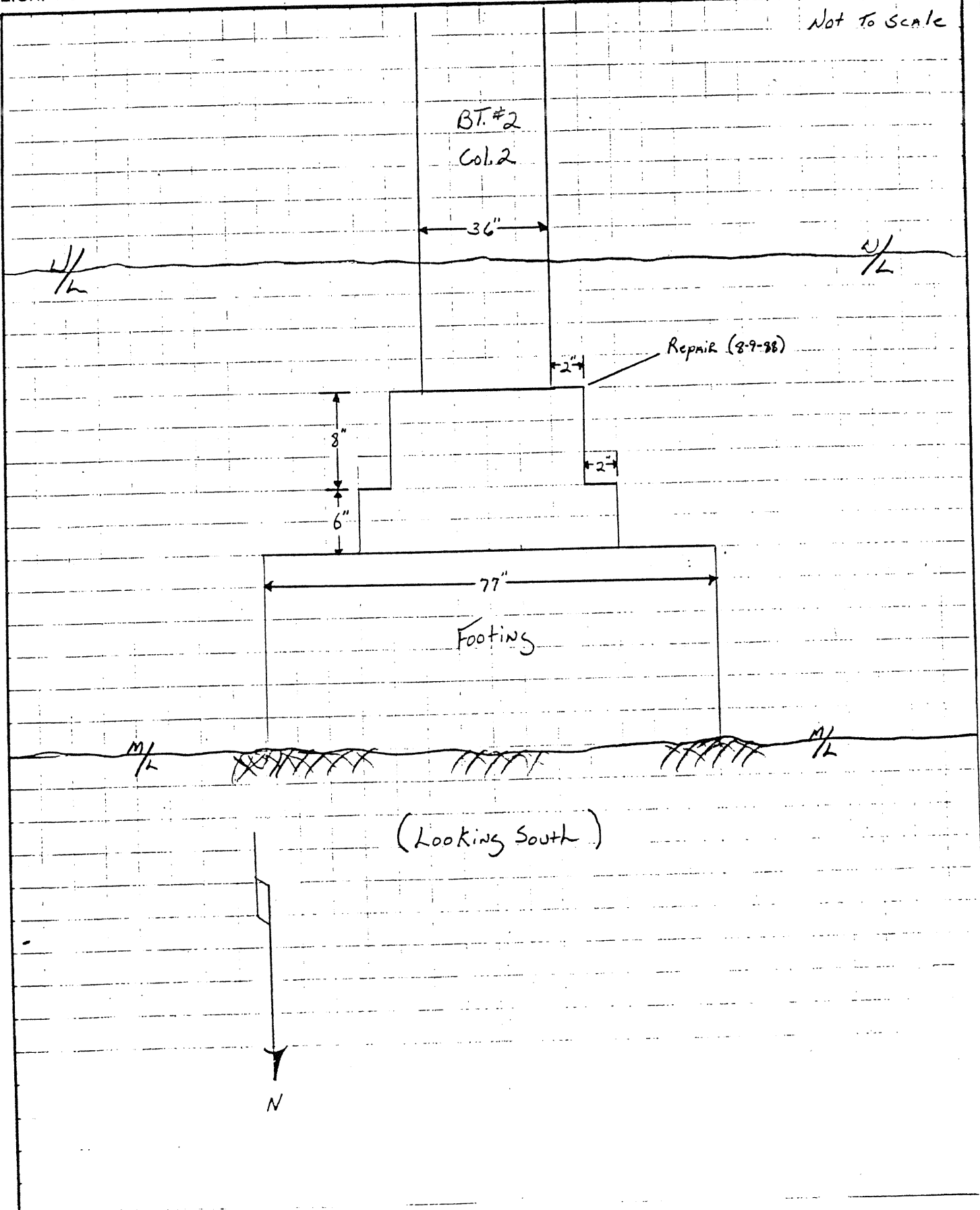


BOTTOM: ROCKY SAND

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY BUILDING
P. O. BOX 25201
RALEIGH, NORTH CAROLINA 27611

SUBJECT Repair Col. 1+2 BT.#2 PROJECT 9 009
MADISON COUNTY
PREPARED BY TAT DATE 12-14-92 STATION NC 251
CHECKED BY J.P.B. DATE 11-6-96 STR NO. _____ SHEET _____ OF _____

Not To Scale



DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

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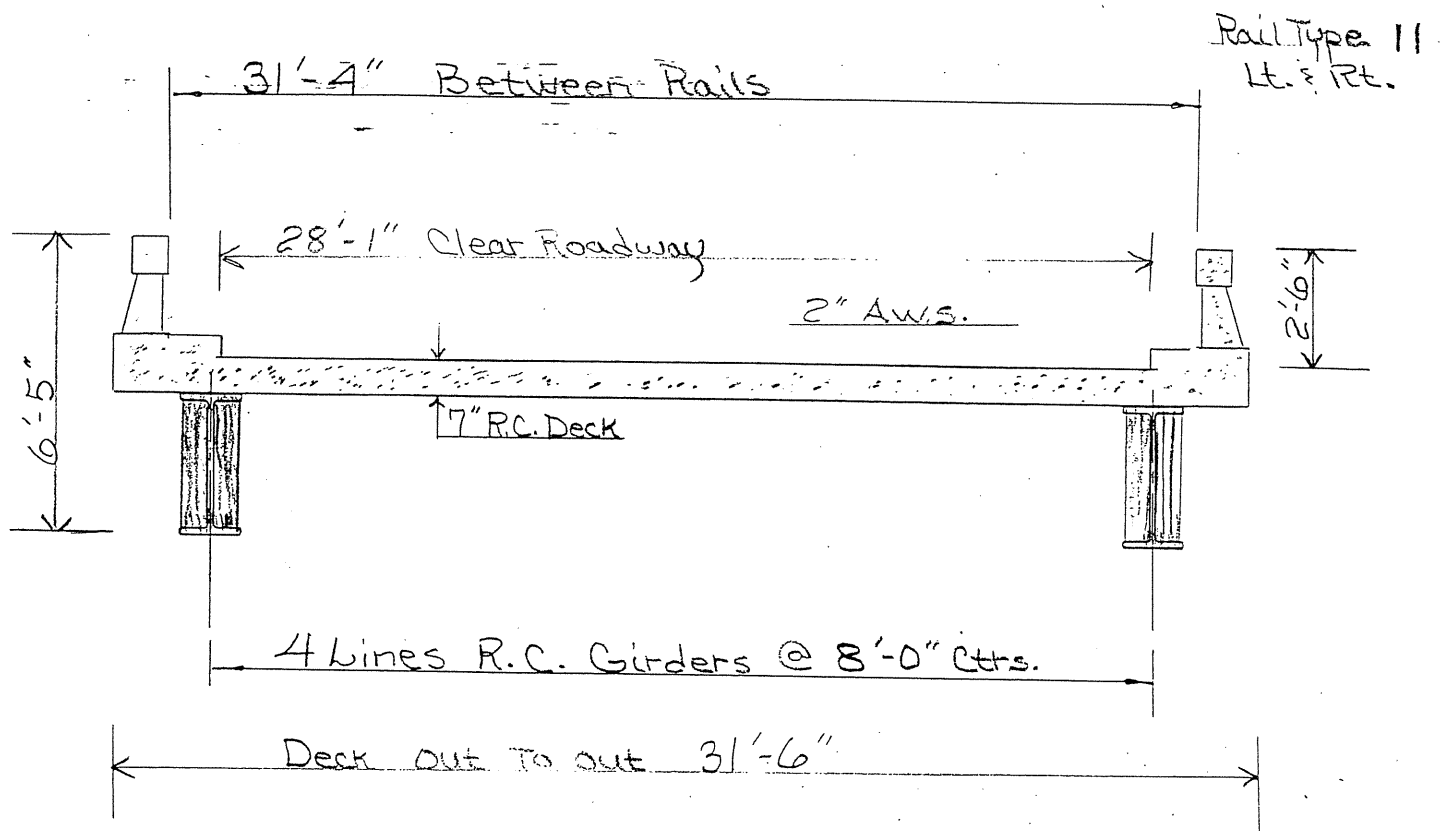
ROUTE NC 251

CRITICAL EXPOSURE OF FOOTINGS

DATE 11-6-96

COUNTY MADISON

[illegible]



RECORD SOUNDINGS FROM TOP OF RAIL. OTHER LOCATION IF NEEDED: _____

NOTE: DRAFT A STREAM BED PROFILE SKETCH AND RECORD SOUNDINGS AT THE STREAM FACE OF ABUTMENTS, C/L OF PIERS, WE, & WS, AND MAJOR CONTOUR CHANGES ON THE DOWNSTREAM SIDE. RECORD SOUNDINGS AT THE STREAM FACE OF ABUTMENTS AND C/L OF PIERS ON THE UPSTREAM SIDE.

UPSTREAM

DOWNSTREAM			UPSTREAM		
STATION	SOUNDING	DESCRIPTION	STATION	SOUNDING	DESCRIPTION
0+00	7.9'	Str. Face E.B. #1	0+00	5.4'	Str. Face E.B. #1
0+20	11.3'				
0+43 ²⁰	25.1'	E. Int. Bt. #1	0+46 ³⁰	26.4'	E. Int. Bt. #1
0+48 ⁵⁰	27.5'	W.E.			
0+70	31.2'				
0+90 ³⁰	30.7'	E. Int. Bt. #2	0+94 ²⁰	31.6'	E. Int. Bt. #2
1+00	30.5'				
1+20	32.1'				
1+37 ¹⁰	31.0'	E. Int. Bt. #3	1+92 ⁵⁰	31.3'	E. Int. Bt. #3
1+60	29.1'				
1+73	27.5'	W.E.			
1+84 ²⁰	24.1'	E. Int. Bt. #4	1+90 ⁵⁰	18.1'	E. Int. Bt. #4
2+00	14.4'				
2+29 ²⁰	7.8'	Str. Face E.B. #2	2+34 ²⁰	8.0'	Str. Face E.B. #2

RECORD SOUNDINGS FROM TOP OF RAIL. OTHER LOCATION IF NEEDED: _____

NOTE: DRAFT A STREAM BED PROFILE SKETCH AND RECORD SOUNDINGS AT THE STREAM FACE OF ABUTMENTS, CYL OF PIERS, WE, & WE, AND MAJOR CONTOUR CHANGES ON THE DOWNSTREAM SIDE. RECORD SOUNDINGS AT THE STREAM FACE OF ABUTMENTS AND CYL OF PIERS ON THE UPSTREAM SIDE.

DOWNSTREAM			UPSTREAM		
STATION	SOUNDING	DESCRIPTION	STATION	SOUNDING	DESCRIPTION
0+00	7.9'	Str. Face E.B. #1	0+00	5.4'	Str. Face E.B. #1
0+20	11.3'				
0+43 ²⁰	25.1'	E. Int. Bt. #1	0+46 ³⁰	26.4'	E. Int. Bt. #1
0+48 ⁵⁰	27.5'	W.E.			
0+70	31.2'				
0+90 ³⁰	30.7'	E. Int. Bt. #2	0+94 ²⁰	31.6'	E. Int. Bt. #2
1+00	30.5'				
1+20	32.1'				
1+37 ¹⁰	31.0'	E. Int. Bt. #3	1+42 ⁵⁰	31.3'	E. Int. Bt. #3
1+60	29.1'				
1+73	27.5'	W.E.			
1+84 ²⁰	24.1'	E. Int. Bt. #4	1+90 ⁵⁰	18.1'	E. Int. Bt. #4
2+00	14.4'				
2+29 ²⁰	7.8'	Str. Face E.B. #2	2+34 ²⁰	8.0'	Str. Face E.B. #2

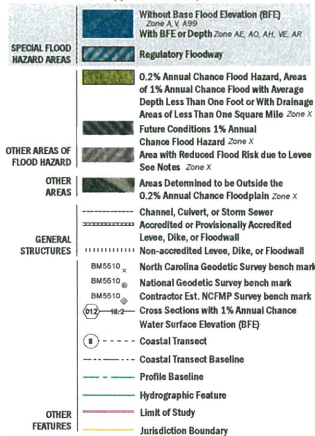
009



This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a map revision process to facilitate management to determine the data associated with the map. It is recommended that the State's commitment to map flood risk and areas at the local level. As a part of this effort, the State of North Carolina has agreed to a Cooperative Mapping Agreement with FEMA to produce and maintain this digital FIRM.

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING
DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTP://FRIS.NC.GOV/FRIS](http://FRIS.NC.GOV/FRIS)



NOTES TO USERS

For information and questions about this map, available products, associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-436-6667 (1-877-236-2327) or visit the FEMA Map Service Center website at <http://www.fema.gov>. An accompanying Flood Insurance Study report, Letter of Map Revision (LOR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the North Carolina Floodplain Mapping Program website at <http://www.ncfloodplainmapping.com> or contact the FEMA Map Service Center.

Communities receiving land use adjacent FIRM panels may obtain a current copy of the adjacent panel as well as the current FIRM panel. These may be ordered directly from the Map Service Center at the number listed above.

For community and out-of-state map data refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-436-6620.

Base map information shown on this FIRM was provided in digital format by the North Carolina Floodplain Mapping Program (NCFMP). The source of this information can be determined from the metadata available in the digital FIRM database and in the National Support Data Repository (NSDR).

ACCREDITED LEVEE NOTES TO USERS: If an accredited levee appears on the panel along with your local community to obtain more information, such as its estimated level of protection provided (which may exceed the 1 percent annual-chance level) and Emergency Action Plan, on the levee system(s) shown in providing protection. To migrate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA website at <http://www.fema.gov/buyersguide/floodinsur>.

PROVISIONALLY ACCREDITED LEVEE NOTES TO USERS: If a Provisionally Accredited Levee (PAL) note appears on this panel, check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1 percent annual-chance level) and Emergency Action Plan, on the levee system(s) shown in providing protection. To migrate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA website at <http://www.fema.gov/buyersguide/floodinsur>.

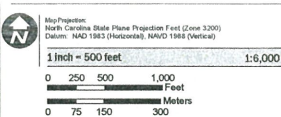
LIMIT OF MODERATE WAVE ACTION NOTES TO USERS: For some coastal flooding zones the AE Zone indicates the area protected by a Limit of Moderate Wave Action (LMWA). The LMWA represents the approximate landward limit of the 1-5 foot breaking wave. The effects of wave hazards between the VE Zone and the LMWA, or between the LMWA and the LMWA for areas where VE Zones are not identified, are similar to, but less severe than those in the VE Zone.

— Limit of Moderate Wave Action (LMWA)

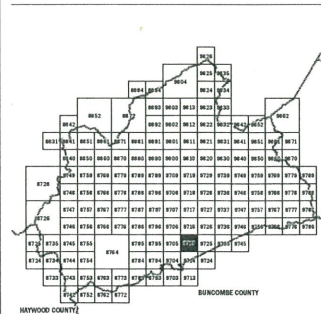
COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE
This map may indicate approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see <http://www.fema.gov/floodinsurance/faq>, Section 101, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-6842.

CBRS Area Otherwise Protected Area

SCALE



PANEL LOCATOR



National Flood Insurance Program

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
NORTH CAROLINA
Panel 9715

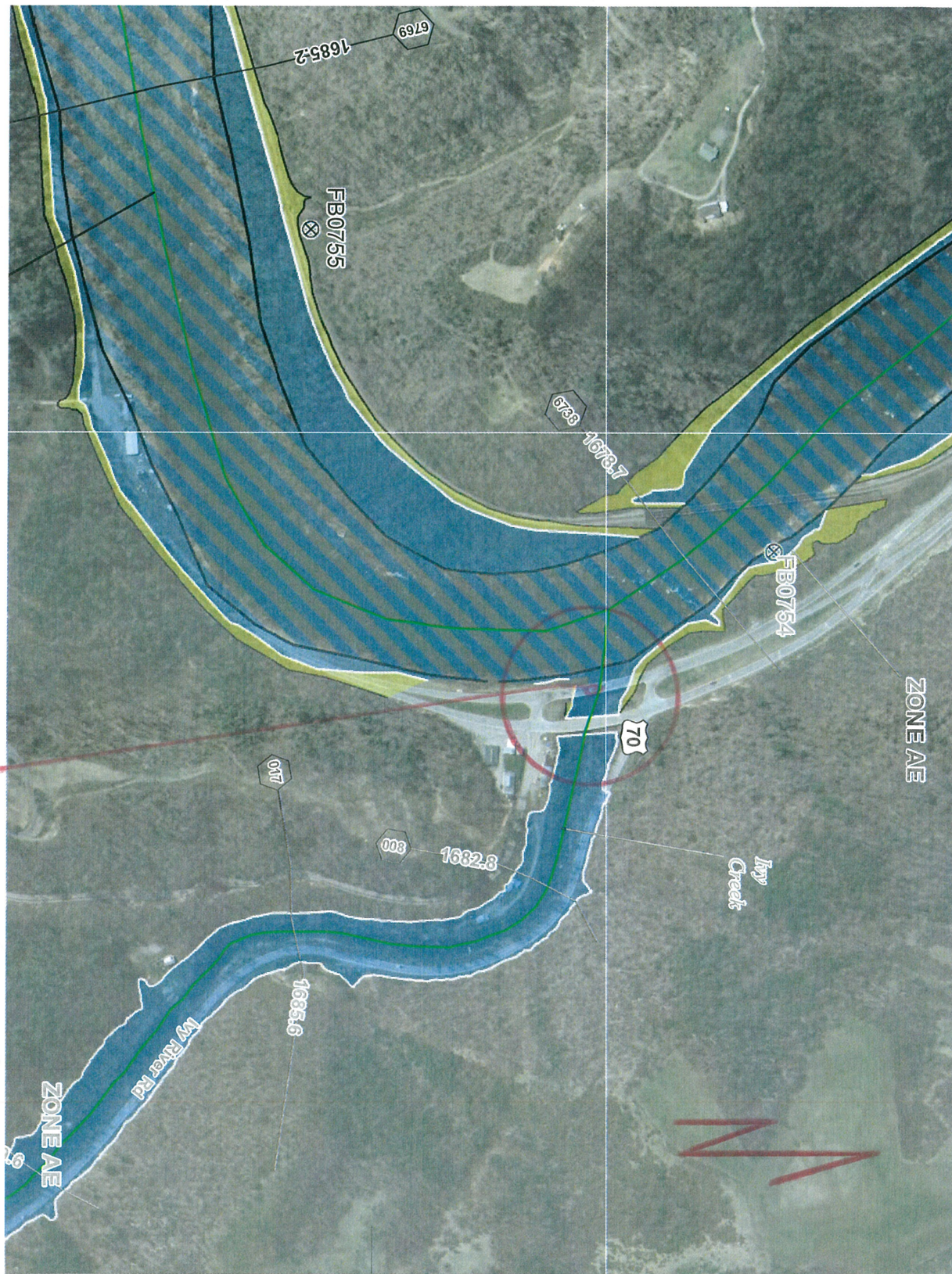
Panel Contains:

COMMUNITY	CID	PANEL SUFFIX
MADISON COUNTY	370152	9715 J
MARSHALL TOWN OF	370154	9715 J

6/2/09

MAP NUMBER
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MAP REVISED
6/2/2009

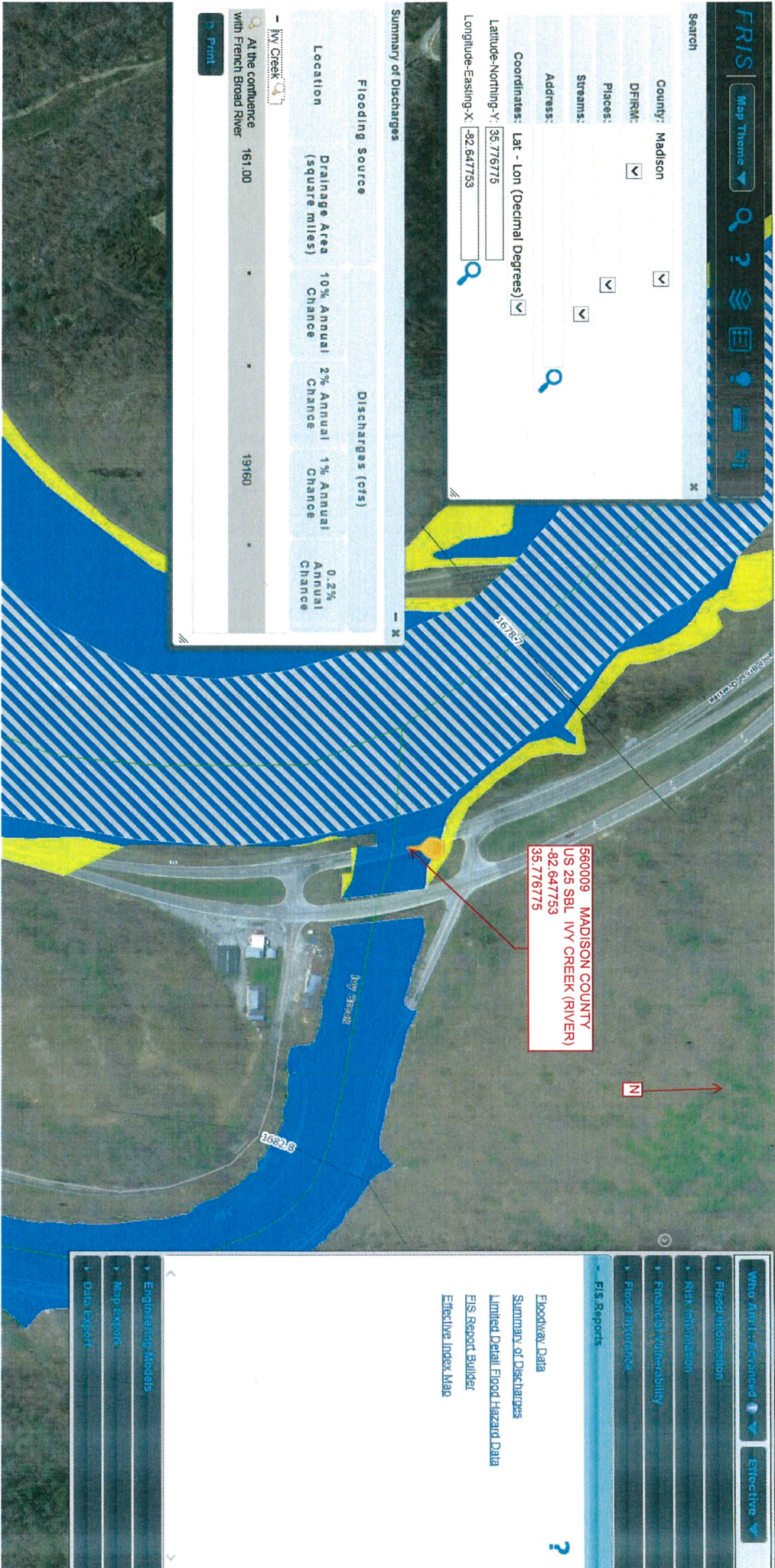
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35°46'30"N

#9

560009



Ivy Creek Limited Detail Study Plan: Floodway Run 9/21/2007
RS = 240 BR lds_ivy_ckt90.0 Structure ID: Bridge A Approximate Survey Struct

