

OFFICE ESTIMATE

1@ 40, 1@ 60, 1@ 40' Bridge

PREDESIGN-PRESURVEY REPORT

County SURRY (DIV. 11)

Project# _____

TIP# _____

Let Date _____

WBS# 17BP.11.R.71

Bridge# 850019

Road# SR 1307 (MOUNTAIN PARK RD)

Stream SOUTH FORK MITCHELL RIVER

Type Of Request: POC Force Account TIP NCMA

Date 7/01/13 Name MJY

Assigned To RLH

Checked By Wsh 7-17-13

Prior Survey Date 3e42 1/2 (attach copy of prior survey) BRN BK: 3e42 1/2 CD FILE NONE

Study By Scour Section YES - attached

Flood Zone AE Detail Study LIMITED Date 8/18/09 Panel# 4944

B.M. Info _____

Quad Map ELKIN NORTH Drainage Area 20.5 SQ. MI. From DASS (STA 211233600)

Q25 3300 cfs ✓ Q50 4000 cfs ✓ Q100 4700 cfs Method REG ERNS./REG1 ✓

EXISTING BRIDGE INFORMATION

Location 0.6 MI. S. JCT. SR1301 ✓

Average Daily Traffic 1300 6% TRK (2009) ✓

Length 128' Bed- To Crown 25' Water Depth 1'

Type Structure RL FLOOR ON I-BEAMS; RL CAPS/H-PILES; RL P. & BEAM

Type Spans 1@ 42'-9"; 1@ 42'-6"; 1@ 42'-9"

Upstream Structure 850280 ✓ (SR 1307 So. Fork MITCHELL RIVER)

Location 0.5 MI. S. JCT. SR1315 ✓

Bed- To Crown 12' (D=1') ✓ Prior Survey _____

Downstream Structure 850020 ✓

Location 0.4 MI. N. JCT. SR1305 ✓

Bed- To Crown 13' (D=1') ✓ Prior Survey _____

SCS Watershed _____

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 ✓

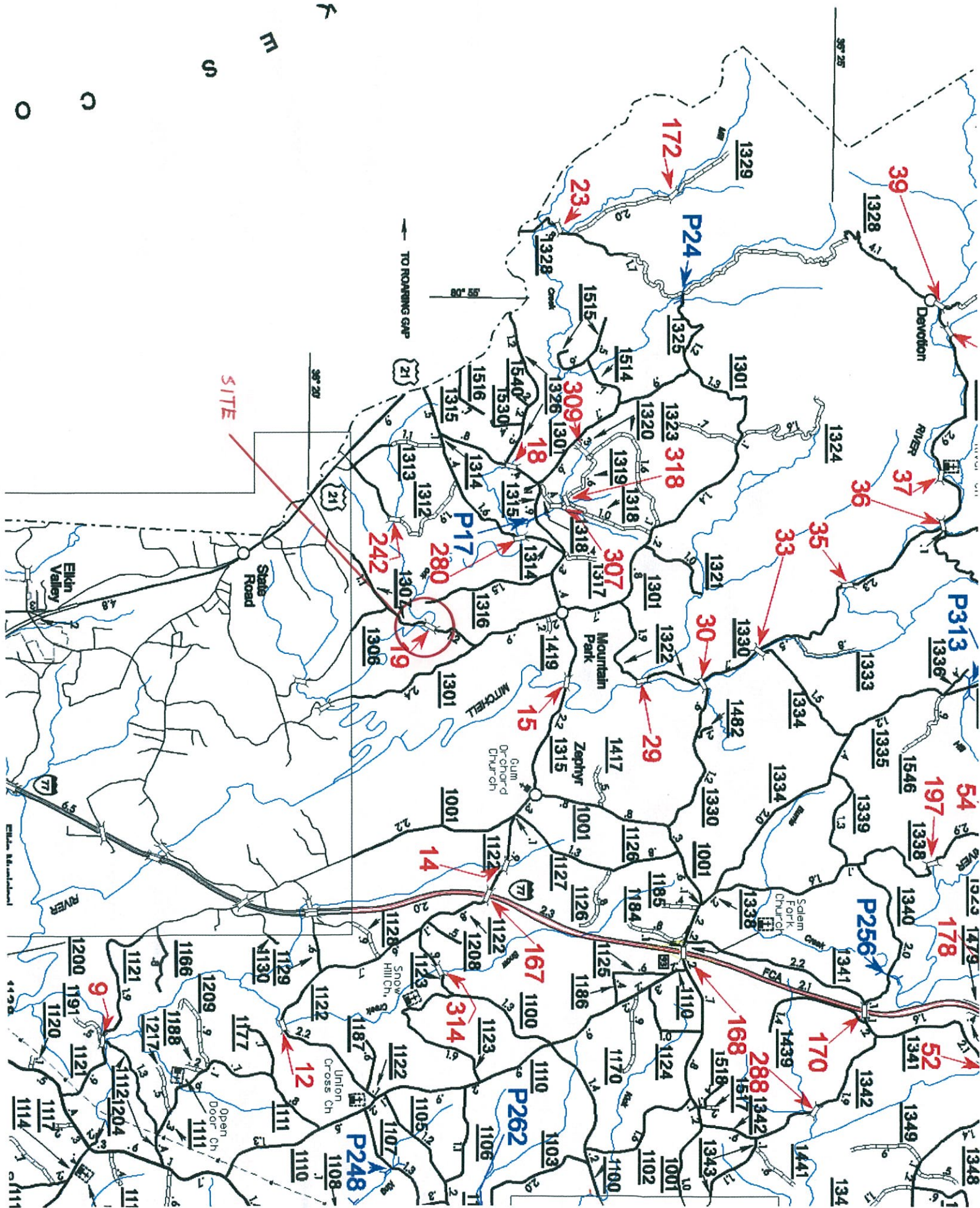
Stream Classification C ✓

12-62-13

DENR River Basin Info. YADKIN ✓

(FROM SOURCE TO
MITCHELL RIVER)

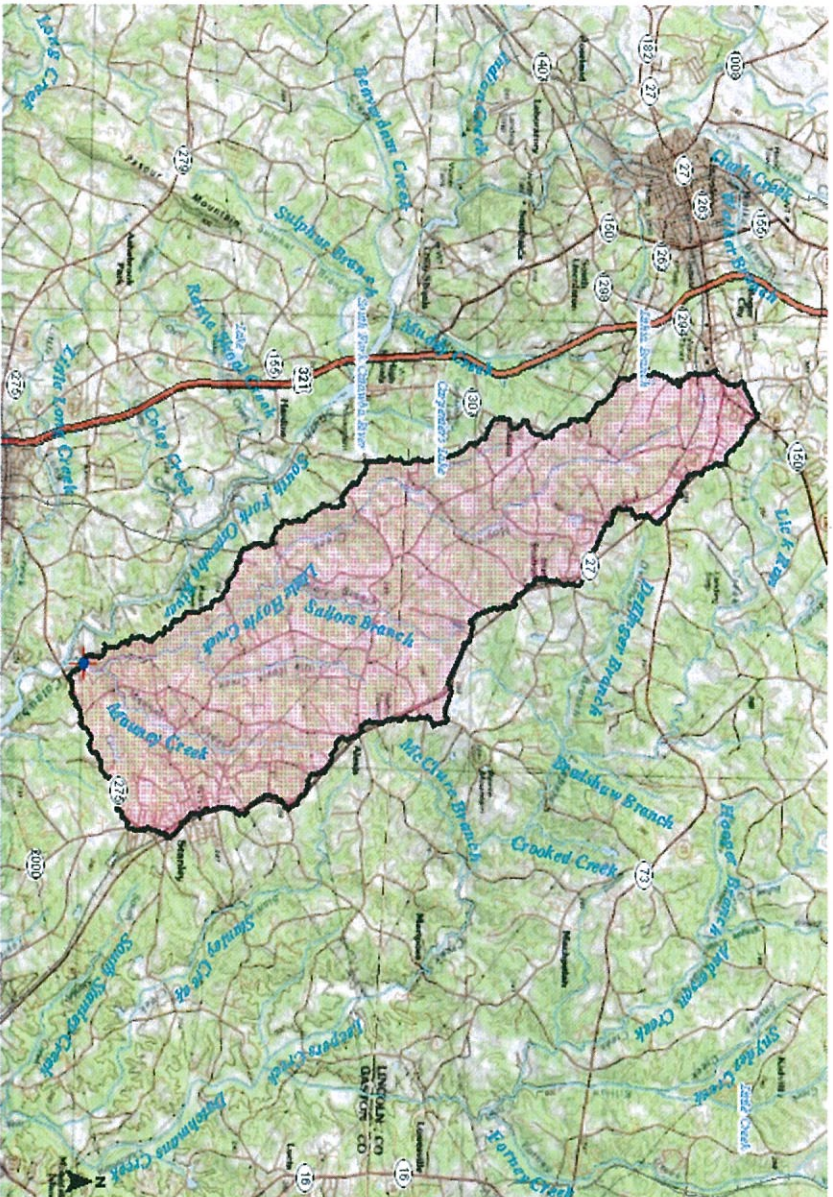
SECRET



850019



StreamStats Print Page



- Explanation**
- ★ Global Watershed Point
 - SRTMDEM Point
 - NCDOT Points
 - ▲ Local's ages
 - ▲ Gauging Station, Continuous Record
 - ▲ Low Flow, Partial Record
 - ▲ Peak Flow, Partial Record
 - ▲ Peak and Low Flow, Partial Record
 - ▲ Stage Only
 - ▲ Low Flow, Partial Record, Stage
 - ▲ Miscellaneous Record
 - ▲ Unknown
 - Local NHD2
 - Longest LowpathSD
 - Stream Grid
 - Global Watershed
 - Pilot Study Area
 - Impervious

7/1/2013 11:29:54 AM



North Carolina StreamStats

Streamstats Ungaged Site Report

Date: Mon Jul 1 2013 11:30:29 Mountain Daylight Time

Site Location: North_Carolina

NAD27 Latitude: 36.3533 (36 21 12)

NAD27 Longitude: -80.8517 (-80 51 06)

NAD83 Latitude: 36.3534 (36 21 12)

NAD83 Longitude: -80.8515 (-80 51 05)

Drainage Area: 20.9 mi²

Percent Urban: 6.4 %

Percent Impervious: 0.6 %

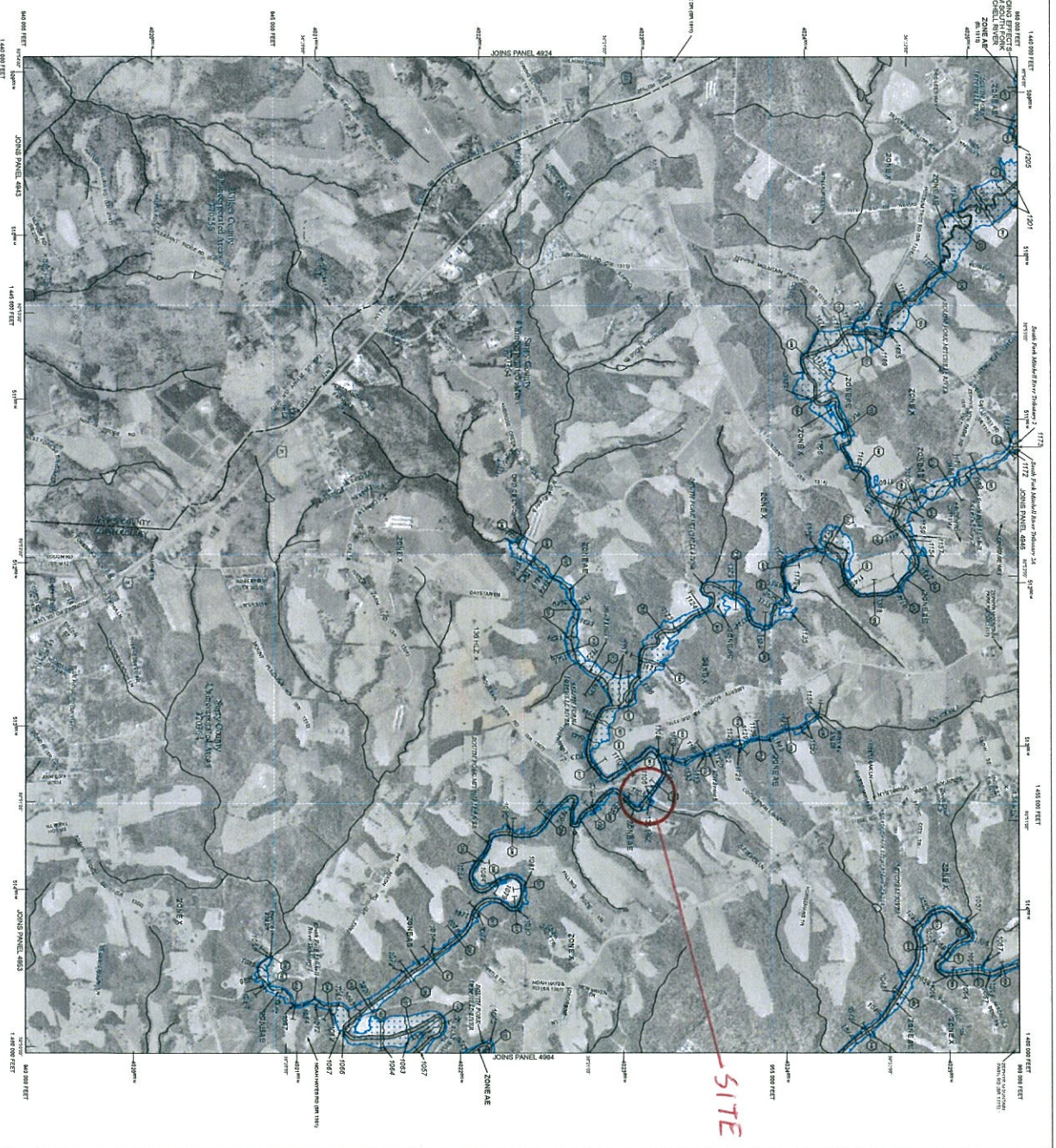
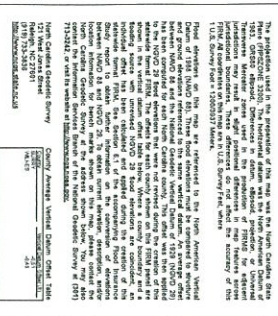
Peak Flows Region Grid Basin Characteristics			
100% Peak Southeast US 2009 5158 (20.9 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	20.9	1	9000
Percent Area in Region 1 (percent)	69.689	0	100
Percent Area in Region 2 (percent)	30.311	0	100
Percent Area 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			
100% Peak urban Blue Ridge-Piedmont FS007-00 (20.9 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	20.9	0.04	41
Area of Impervious Surfaces (percent)	0.59 (below min value 2)	2	54.6

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

Peak Flows Region Grid Streamflow Statistics					
Statistic	Flow (ft ³ /s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	1150	35		663	1990
PK5	2000	34		1160	3440
PK10	2630	35		1500	4600
PK25	3450	38		1900	6250
PK50	4140	40		2210	7740
PK100	4810	42		2490	9310
PK200	5450	44		2720	10900
PK500	6440	48		3060	13500

Urban Flows Region Grid Streamflow Statistics					
Statistic	Flow (ft ³ /s)	Standard Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2U	219				
PK5U	462				
PK10U	681				
PK25U	1160				
PK50U	1500				
PK100U	1880				



NOTES TO USERS

MAP REPOSITORY
Order by listing of Map Repositories on Map Index or visit <http://www.fishbase.org>
EFFECTIVE DATE OF FLOOD INSURANCE RATE MAP PANEL

AUGUST 18, 2009

Insurance history prior to statewide mapping (see the Community Map
study report for this jurisdiction).

Inventory Management www.cengage.com/cv/bookstore	1-800-818-7243 http://www.cengage.com
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This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources or seeps. The community map repository should be consulted for possible updates or additional

In often more detailed information in areas where Data Flood Elements (DfEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles, Floodway Data, Limited Flood Hazard Information.

Consider Flood Hazard Data, and/or Summary of Greater Chesapeake Tides combined with the Flood Inversion Study (FIS) report that accompanies this FIS. Users should be aware the FIS is shown as the flood segment rounded white-blue elevation. These FISs are intended for flood insurance, and purposes only, and should not be used as the sole source of flood elevation information.

Incidence of regulatory floodways shown on the FIRM for flooding sources studied by detailed floodplain mapping. Flood elevation data presented in the FIRM report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

methods were completed at cross sections and independently between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data for flooding sources studied by detailed analysis as well as non-instrumented widths for flooding sources studied by limited detailed analysis are shown in Table 1.

methods are provided in the Flood Insurance Study (FIS) report for this jurisdiction. The FIS report also provides instructions for determining a floodway using non-encroachment widths for flooding sources studied by limited detailed methods.

NOTES

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

Base map information and geospatial data used to develop this FRM were obtained from various organizations, including the participating local community-based water and federal agencies, and other sources. The primary base for this FRM is aerial imagery acquired by

The preferred source for development of the base map. See geospatial metadata for the Survey County at Wilkes County. The time period of collection for the Survey imagery is 2005. The time period of collection for the Wilkes imagery is 2003. Information and geospatial data supplied by the local community(ies) that met FEMA base map specifications were considered.

Base map features shown on this map, such as corporate limits, are based on the most up-to-date data available at the time of publication. Changes in the corporate limits may have occurred since the map was prepared.

occurred since a map was published. Map users should consult the appropriate community official or website to verify current condition of jurisdictional boundaries and base map features. This map may contain roads that were not considered in the hydraulic analysis of systems where the hydraulic model was created during the publication of this statewide flume FIRM.

USERS

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM have been adjusted to conform to these new stream channel configurations. Also, the Flood Protection Measure Data table in the Flood

streaming organizations. As a result, the Flood Plains and Recovery Unit lists in our Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel differences that differ from what is shown on this map.

These refer to a separately printed Map Index for an overview map of the County showing the layout of map panels, community map (postal) addresses, and a Listing of Communities table containing National Flood Insurance Program data for each community as well as a listing of the parcels on which each community is located.

If you have questions about this map, or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-325-6237) or visit the FEMA website at fema.gov/fema2006.

An accompanying Flood Insurance Study report, (Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA)) reading portions of this permit, and digital versions of this FIRM may be available. Visit the North Carolina Floodplain Mapping Program website at www.ncfloodplanning.com

<http://www.eisdata.com>, or contact the FEMA Map Service Center at 1-800-358-6161 for information on all related products associated with the FRML. The FEMA Map Service Center may also be reached by Fax at 1-800-358-6120 and its website at <http://www.fema.gov>.

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MAP REPOSITORY
 Refer to listing of Map Repositories on Map Index or visit <http://www.maphistory.com>.
EFFECTIVE DATE OF E-BOOK NUBRANCE DATE MAP INDEX

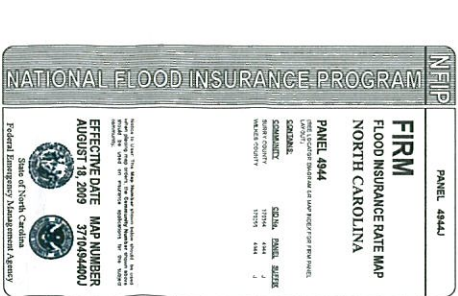
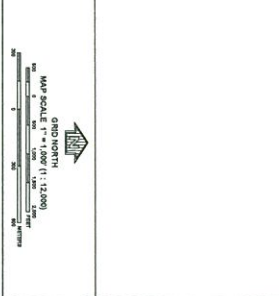
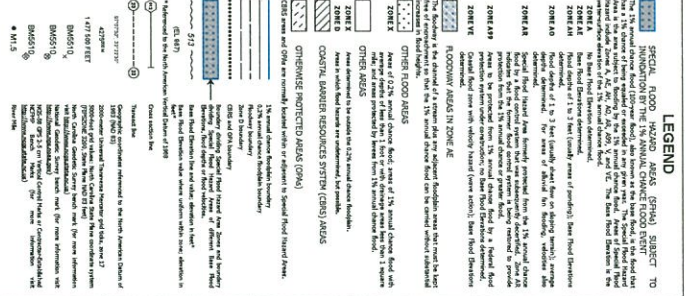
AUGUST 18, 2008

For community map readers, history goes in clockwise mapping order in the Community Map. History tables located in the Flood Insurance Study report by this jurisdiction.

web site: www.amsi.org.au

NO Division of Emergency Management
(616) 716-8000 info@emergencydivision.nsw.gov.au

National Flood Insurance Program
1-800-833-8333 <http://www.floodinsuranceservice.com>





Section 5.0 – Engineering Methods

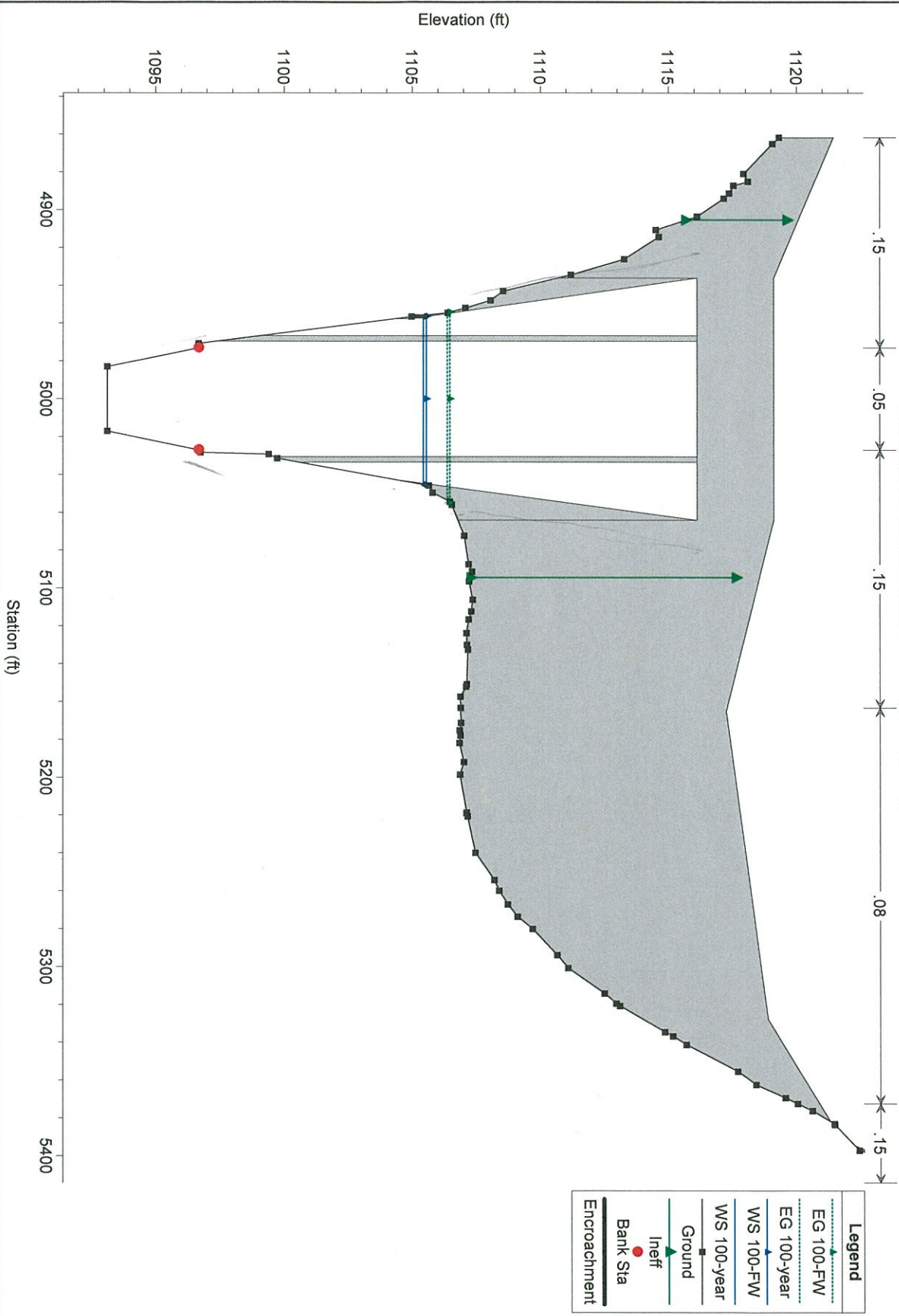
Table 11—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SOUTH FORK MITCHELL RIVER				
163	16,262	5,551	1,064.0	100 / 50
178	17,764	5,131	1,069.8	45 / 45
183	18,321	5,131	1,071.4	35 / 35
188	18,807	5,131	1,072.2	28 / 35
194	19,371	5,116	1,073.9	33 / 24
200	20,022	5,116	1,075.9	35 / 25
206	20,571	5,116	1,076.7	25 / 22
207	20,732	5,116	1,078.2	28 / 40
211	21,143	5,116	1,078.8	34 / 40
216	21,637	5,116	1,079.5	31 / 31
221	22,109	5,116	1,080.9	26 / 32
228	22,800	5,116	1,083.9	31 / 22
232	23,234	5,116	1,085.9	24 / 34
239	23,931	5,116	1,088.2	29 / 22
243	24,342	5,116	1,089.9	26 / 26
249	24,900	5,046	1,092.0	28 / 40
253	25,303	5,046	1,092.5	31 / 32
258	25,759	5,046	1,093.7	31 / 47
261	26,082	5,046	1,094.6	29 / 33
265	26,495	5,046	1,095.9	26 / 40
270	26,954	5,046	1,096.9	28 / 29
275	27,548	5,046	1,098.9	29 / 29
280	28,011	5,046	1,100.7	27 / 23
285	28,490	5,046	1,103.0	23 / 50
294	29,420	5,046	1,106.2	31 / 29
301	30,058	4,812	1,107.9	32 / 32
308	30,826	4,812	1,109.7	40 / 24
313	31,320	4,812	1,111.6	34 / 36
317	31,716	4,812	1,112.5	28 / 33
323	32,280	4,812	1,113.6	40 / 25
327	32,682	4,812	1,115.9	60 / 29
331	33,147	4,812	1,116.8	60 / 40
337	33,699	4,444	1,117.4	60 / 40
341	34,073	4,444	1,117.5	60 / 35
345	34,482	4,444	1,121.2	53 / 27
349	34,938	4,444	1,122.1	33 / 31
353	35,301	4,444	1,122.5	33 / 33
357	35,665	4,444	1,123.1	34 / 34
363	36,271	4,444	1,124.2	27 / 27
374	37,419	4,404	1,128.2	28 / 28
378	37,800	4,404	1,129.2	20 / 31
383	38,343	4,404	1,131.8	31 / 31
388	38,776	4,404	1,132.4	45 / 34
393	39,325	4,404	1,134.8	50 / 27
396	39,600	4,404	1,135.1	46 / 40
400	39,960	4,404	1,136.0	30 / 37
404	40,370	4,326	1,138.5	30 / 24
409	40,927	4,326	1,141.0	33 / 26

TR. STA.
29150
3R U

RIVER STA: 29150 BR U

South Fork Limited Detail Study Plan: Floodway Run 8/20/2009
Mountain Park Rd TOR Structure ID: LDS_SFMR_02A Approximate Surve





NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION

TEMPORARY REPAIRS... (BEAMS)

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY SURRY BRIDGE NUMBER 850019 INSPECTION CYCLE 2 YRSROUTE SR1307 ACROSS S.FORK MITCHELL RIVER M.P. 0LOCATION .6 MI.S.JCT.SR1301

SUPERSTRUCTURE REINFORCED CONCRETE FLOOR ON I-BEAMS

SUBSTRUCTURE E.BTS:RC CAPS/H-PILES;INT.BTS:RCP&BEAMSPANS 1 @ 42'-9"; 1 @ 42'-6"; 1 @ 42'-9"LONGITUDE 80° 51' 23.7"LATITUDE 36° 21' 8.7"PRESENT CONDITION FAIR

INVENTORY RATING

INSPECTION DATE 12/08/2011

OPERATING RATING

PRESENT POSTING SV 24 TTST 30 SV 24 TTST 30

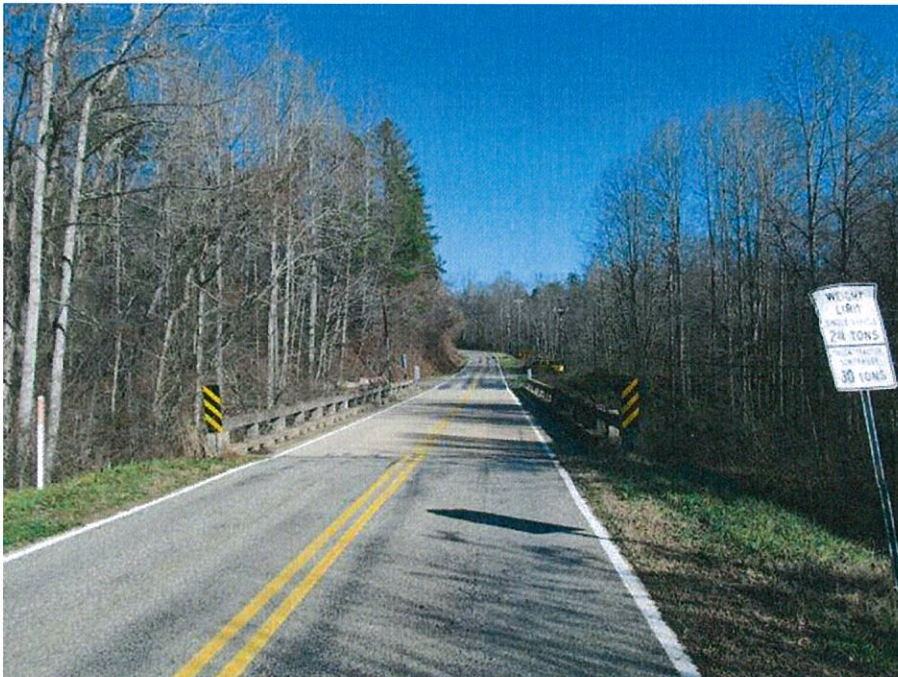
PROPOSED POSTING

COMPUTER UPDATE

ANALYSIS DATE

POSTING LETTER DATE

SUFFICIENCY RATING

OTHER SIGNS PRESENT 4 DELINEATORS

SOUTH TO NORTH

SIGN NOTICE
ISSUED FORNUMBERED
REQUIRED

<u>No</u>	WEIGHT LIMIT	<u> </u>
<u>No</u>	DELINEATORS	<u> </u>
<u>No</u>	NARROW BRIDGE	<u> </u>
<u>No</u>	ONE LANE BRIDGE	<u> </u>
<u>No</u>	LOW CLEARANCE	<u> </u>

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BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 01/26/2012

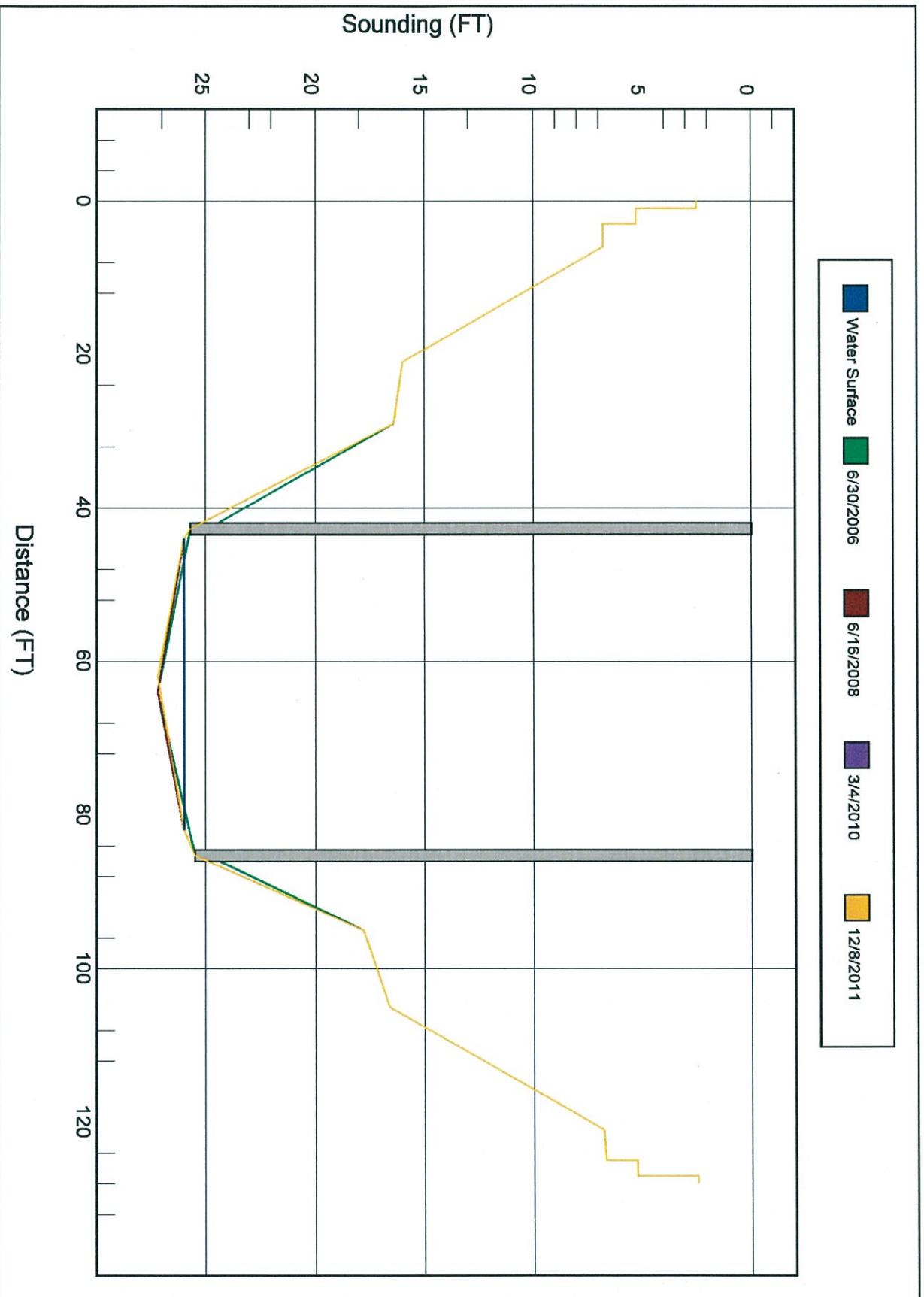
COUNTY : SURRY	DIVISION : 11	DISTRICT : 1	STRUCTURE NUMBER : 850019	LENGTH : 128 FEET
ROUTE CARRIED : SR1307		FEATURE INTERSECTED : S.FORK MITCHELL RIVER		
LOCATED : .6 MI.S.JCT.SR1301		BRIDGE NAME :		CITY :
FUNC. CLASS : 08	SYST.ON : NFA	SYST.UNDER : NFA	ADT & YR : 1300 2009	RAIL TYPE : LT 181 RT 181
BUILT : 1947	BY : SHPWC	PROJ : 8-7-73-16	FED.AID PROJ :	DESIGN LOAD : H 15
REHAB :	BY :	PROJ :	ALIGNMENT : TAN	SKEW : 90
			LANES : ON 2	UNDER
NAVIGATION : VC 0 FT	HC 0 FT	HT. CRN. TO BED : 25 FT	WATER DEPTH : 1 FT	
SUPERSTRUCTURE : REINFORCED CONCRETE FLOOR ON I-BEAMS				
SUBSTRUCTURE : E.BTS:RC CAPS/H-PILES;INT.BTS:RC POST&BEAM				
SPANS : 1 @ 42'-9; 1 @ 42'-6; 1 @ 42'-9				
BEAMS OR GIRDERS : 4 LINES 27 I-BEAMS @ 6'-9 CENTERS				
FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) : 25.3 FT		
CLEAR ROADWAY : 24 FT	BETWEEN RAILS : 26 FT	SIDEWALK OR CURB : LT 1 FT RT 1 FT		
VERT.CLOVER : 999.9 FT				
INV.RTG. : HS-1	OPE.RTG. : HS-1	CONTR.MEMBER : int bm	POSTED : SV 24	TTST 30 DATE 10/27/2008
SYSTEM : Secondary S.R. Route		GREEN LINE ROUTE : N		

UNDER ROUTES AND CLEARANCES

REMARKS :

Top of Rail = 0 FT (Sounding)

STREAMBED PROFILE (Downstream)





WEST PROFILE

850019

c:\scour\forms\brscript.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



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

THIS IS A PARTIAL
 COPY OF FILE
 LOCATED IN HYDRO
 FILES

BRIDGE SCOUR REPORT

COUNTY: Surry BRIDGE: 19 ROUTE: SR 1307 STREAM CROSSED: S. FORK MITCHELL RIVER

ASSESSMENT ☒ EVALUATION ☐ BY: HSmm DATE 7/24/97

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

MONITORING:

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 - 12 - 96
BY:	HSM
CODE	8 - Geo
CLASSIFIED	Low Risk

SITE IDENTIFICATION:

COUNTY SURRY CITY/TOWN _____ BRIDGE NO. 19
 ROUTE SR 1307 STREAM S. FORK MITCHELL R ROAD MILE _____
 DUAL BRIDGE NO. _____ IS US/DS _____
 ORIG. PROJECT NO. 8-7-73-116 YEAR BUILT 1947
 REHAB. PROJECT NO. _____ YEAR REHAB. _____
 CURRENT ADT _____ YEAR _____ FUTURE ADT _____ YEAR _____

INFORMATION RESOURCES AVAILABLE:

HYDRAULIC STUDY REPORT (DATE)	—
AS-BUILT CONSTRUCTION PLANS (DATE)	AUG 1946, NOT INDICATED TO BE AS-BUILT
FOUNDATION REPORT (DATE)	—
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)	12/11/95
UNDERWATER INSPECTION (DATE, CYCLE)	—
STRUCTURE DATA FILE (DATE)	12/11/95

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: _____

BRIDGE IS ON A $+1.2\%$ GRADE
HT FROM PGL TO TOR $-\frac{1}{12}$

$$\frac{2}{2} + .75 + \frac{20.5}{12} = 2.33$$

BEGIN BK1DGE 1
END BK1DGE 9

$$58.30 + 64(0.12) + 2.33 = 961.4$$

EST. REMAINING LIFE (YRS)	20
1 @ 42'-9"	1 @ 42'-9"
1 @ 42'-6"	1 @ 42'-9"

DATE: 12/95
SIMPLE OR CONTINUOUS ?

959,9 EEL
959,9 + 62(1012) - 27,1

TOP OF RAIL ELEV. 961.4 END THALWEG ELEV. 933.5

EB-1	B-1	B-2	EB-2			
5/20/11	5/20/11	5/20/11	5/20/11			

21162	1000	21162	1000
THRU	THRU	THRU	THRU
900	900	900	900

Rules	3.3	3.3	Rules				
3.3	3.3	3.3	Rules				

[illegible][illegible]

	931.00	932.18							
	929.00	930.18							

[illegible][illegible]

CLASS I	CLASS II
Stone	Stone
8H36	8H36

[illegible]

12.1.5	12.1.5				
26.1	21.1				

22 TON'S	3.25 T5F	3.25 T5F	22 TON'S	1.20
4.5 / 7'	3.3 / 3.4			

N6	THAL/N6	THAL/N6	N6
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COMMENTS: * BASED ON TOTAL PILE LENGTH FOR BOTH END BENTS 155.58/6 = 25.9

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REV. 05/95

850019⁵

GEOMORPHIC DATA: (LOOKING DOWNSTREAM)

CHANNEL (NORMAL TO FLOW):

AVG. BASE WIDTH _____ AVG. TOP WIDTH _____ AVG. DEPTH _____

AT CROSSING: STRAIGHT _____ MILD CURVE _____ SHARP BEND _____

FLOW ANGLE OF APPROACH: LOW _____ MILD _____ HIGH _____
(0°-5°) (5°-20°) (20°+)

CROSSING WIDTH COMPARED TO:

UPSTREAM: WIDER _____ SAME _____ NARROWER _____
DOWNSTREAM: WIDER _____ SAME _____ NARROWER _____

BASED ON COMPARISON OF SECTIONS TAKEN AT DATES _____

CHANNEL HAS: WIDENED _____ FT. SAME _____ NARROWED _____ FT.
AGGRADATED _____ FT. SAME _____ DEGRADATED _____ FT.
SHIFTED LT. _____ FT. SAME _____ SHIFTED RT. _____ FT.
THALWEG HAS: SHIFTED LT. _____ FT. SAME _____ SHIFTED RT. _____ FT.

REPORTED SITE SCOUR PROBLEM:

	MINOR	MODERATE	SEVERE	UNKNOWN
LT. BANK				
RT. BANK				
LT. SPILL SLOPE				
RT. SPILL SLOPE				
PIER (S)				
DEBRIS				
CHANNEL BED				
OTHER _____				

IS REPORTED PROBLEM CHANNEL FLOW ASSOCIATED? _____

BASED ON THE AVAILABLE GEOMORPHIC DATA, THE CHANNEL STABILITY
POTENTIAL OVER THE LIFETIME OF THE EXISTING STRUCTURE CAN
BEST BE DESCRIBED AS:

- 1) RELATIVELY STABLE WITH LITTLE EXPECTED CHANGE. _____
- 2) POTENTIAL FOR SLOW CHANGE OVER TIME. NOT PRONE
TO A MAJOR ONE-EVENT CHANGE. _____
- 3) UNSTABLE. SUBJECT TO RAPID EVOLUTIONARY CHANGE. _____

ASSESSMENT

4

- 1) PIER AND/OR ABUTMENT SPREAD FOOTINGS WITHIN POTENTIAL CHANNEL SCOUR AREA ARE INDICATED ON THE plan TO BE ON SCOUR RESISTANT MATERIAL. THIS FINDING HAS BEEN REVIEWED AND CONCURRED WITH BY [Signature] 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 ? _____
- 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 ? _____
- 4) ARE ALL PIERS AND ABUTMENTS OUTSIDE THE NORMAL CHANNEL SECTION ? _____
- 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 ? _____
- 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 8

ASSESSMENT COMMENTS: THIS BRIDGE IS CLASSIFIED AS LOW RISK
BECAUSE THE SPREAD FOOTINGS WERE TO BE CARRIED 6"
INTO ROCK. THE PLANS ARE NOT MARKED AS AS-BUILT'S,
THE CHANNEL HAS WIDENED SIGNIFICANTLY (30' @ TOP) AND
AGGRADED 2' SINCE CONSTRUCTION IN 1946. RECOMMEND
PROBES BE DRIVEN AT BENTS 1 AND 2 TO CONFIRM
FOOTING ELEVATIONS AND FOUNDATION MATERIAL.

SCHEDULE FOR DETAILED STUDY

SCHEDULE FOR FURTHER IN-HOUSE STUDY

ASSESSED BY: HRL
FIRM: HSMN
DATE: 11/12/96

APPROVED BY: P. FISHER
DATE: 7/24/97

CHECKED BY: C. Bush
FIRM: D+D
DATE: 1-3-97

FINAL COMMENTS :

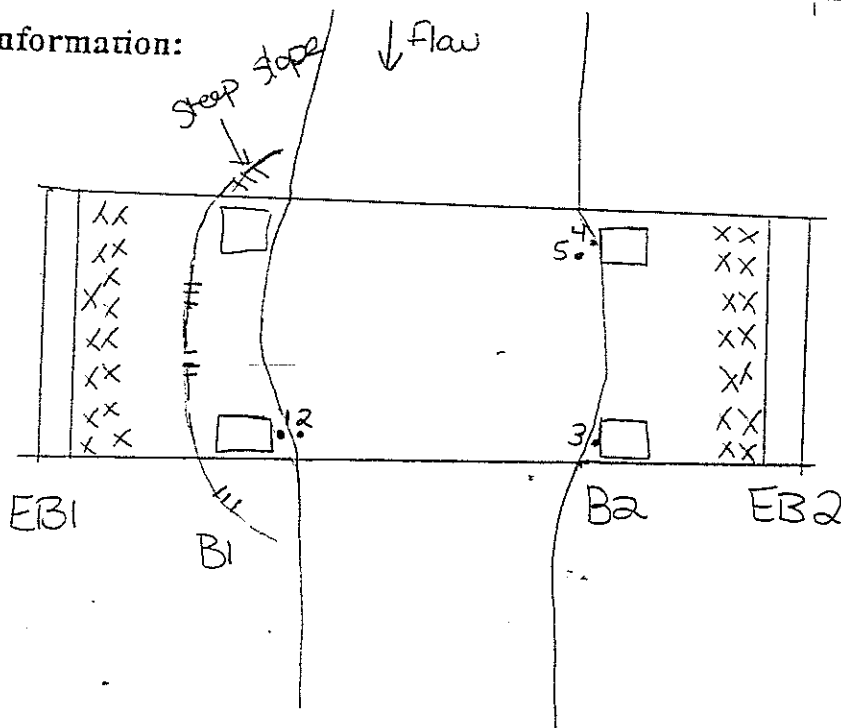
Geotech should confirm that the footings are founded
on scour resistant material.

850019

Scour Evaluation Studies : Geotechnical Field Investigation

County: Surry Route No.: SR1307 Stream: South Fork Mitchell River
 Bridge No.: 19 Date: 6-19-97 By: Colin Meller Sue Gore

Sketch Information:



959.9 BEG
 T.O.R. = 961.4 END H₂O elev. = 934.55

Bridge Data:

End Bent Protection Type: Class II Stone
 Bent Type: Post & Beam
 High Water Mark: N/A
 Channel Bed Material: Silt, gravel thalweg
 Noted Scour: Contraction Scour around Bent 1
 Resident Interview: N/A

Recommendation(s): Bill M to sign. Although plans
are not as-built, road driver indicate "toothings on
rock.

Scour Evaluation Studies
Geotechnical Field Investigation

County: Surry Rt. #: SR 1307
 Bridge No.: 19 Date: 6-19-97

Stream: South Fork Mitchell River
 By: Colin Mellor, Sue Eure

Drive Information:

Drive #: 2 Elev: 934.05
 Bent #: 1 (ds) TOF/BOF: 929.85/927.85
 Pile Tip Elevation:

BPF	Initial	To Depth	Elevation
tapped	0	7.2	927.35
167	7.2	7.5	927.05
333	7.5	7.65	926.9
500+	7.65	7.67	926.88
refusal			926.88

Drive #: 5 Elev: 933.55
 Bent #: 2 (us) TOF/BOF: 932.1/930.1
 Pile Tip Elevation:

BPF	Initial	To Depth	Elevation
tapped	0	3.8	930.75
48	3.8	4.85	929.7
500+	4.85	4.93	929.62
500+	4.93	5	929.55
refusal			929.55

Drive #: 5 Elev: 933.55
 Bent #: 2 (ds) TOF/BOF: 930.25/928.25
 Pile Tip Elevation:

BPF	Initial	To Depth	Elevation
tapped	0	3.8	930.75
48	3.8	4.85	929.7
500+	4.85	4.93	929.62
500+	4.93	5	929.55
refusal			929.55