

413

Min brg = 95'

PREDESIGN-PRESURVEY REPORT

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

County Robeson

Bridge# 108
Road# SR 2269 (Bloomingdale Rd)
Stream Indian Swamp

Type Of Request: POC Force Account TIP NCMA

Date _____ Name E Akpuogu Assigned To _____

Checked By _____

Prior Survey Date _____ (attach copy of prior survey)

FIS Q100 = 797 cfs

Study By Scour Section _____

Flood Zone Yes Detail Study Limited Date Jan 19, 2005 Panel# 9284

B.M. Info _____

Quad Map Fairmont Drainage Area 11.8 sq mi From DASS

Q25 1100 Q50 1360 Q100 1646 Method USGS, Rural Coastal plain Region 4.

FIS Q100 = 797

EXISTING BRIDGE INFORMATION

Location 100 Ft E Jct SR 2264

Average Daily Traffic 50 (1991)

Length 61' Bed- To Crown 11' Water Depth 5'

Type Structure Prestressed Conc Channels

Type Spans 1 @ 30'7, 1 @ 30'9

Upstream Structure N/A

Location _____

Bed- To Crown _____ Prior Survey _____

Downstream Structure Brg # 115 (SR 2272)

Location 0.5 mi N Jct SR 2225

Bed- To Crown 9' Prior Survey _____

SCS Watershed _____

ENVIRONMENTAL

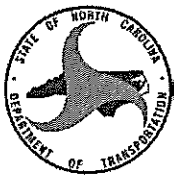
Trout Stream No Anadromous Fish No Primary Nursery Area No

High Quality Waters No Nutrient Sensitive Waters No

Near Water Supply Intake No CAMA County No

Stream Classification E, SW

DENR River Basin Info. Lumber



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY ROBESON BRIDGE NUMBER 770108 INSPECTION CYCLE 2 YRS
ROUTE SR2269 ACROSS INDIAN SWAMP M.P. 0

LOCATION 100 FT.E.JCT.SR2264

SUPERSTRUCTURE PRESTRESSED CONCRETE CHANNELS

SUBSTRUCTURE END BTS&INT.BTS:PRESTR.CONC.CAPS/TIMBER PILES@VAR.CTS.

SPANS 1@30'7,1@30'9

LONGITUDE 79° 2' 17.8"

LATITUDE 34° 26' 13.5"

PRESENT CONDITION FAIR

INVENTORY RATING

INSPECTION DATE 06/10/2010

OPERATING RATING

PRESENT POSTING SV 24 TTST 27

PROPOSED POSTING

COMPUTER UPDATE

ANALYSIS DATE

POSTING LETTER DATE

SUFFICIENCY RATING

OTHER SIGNS PRESENT 4 DELINEATORS



LOOKING EAST

SIGN NOTICE
ISSUED FOR

NUMBERED
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>

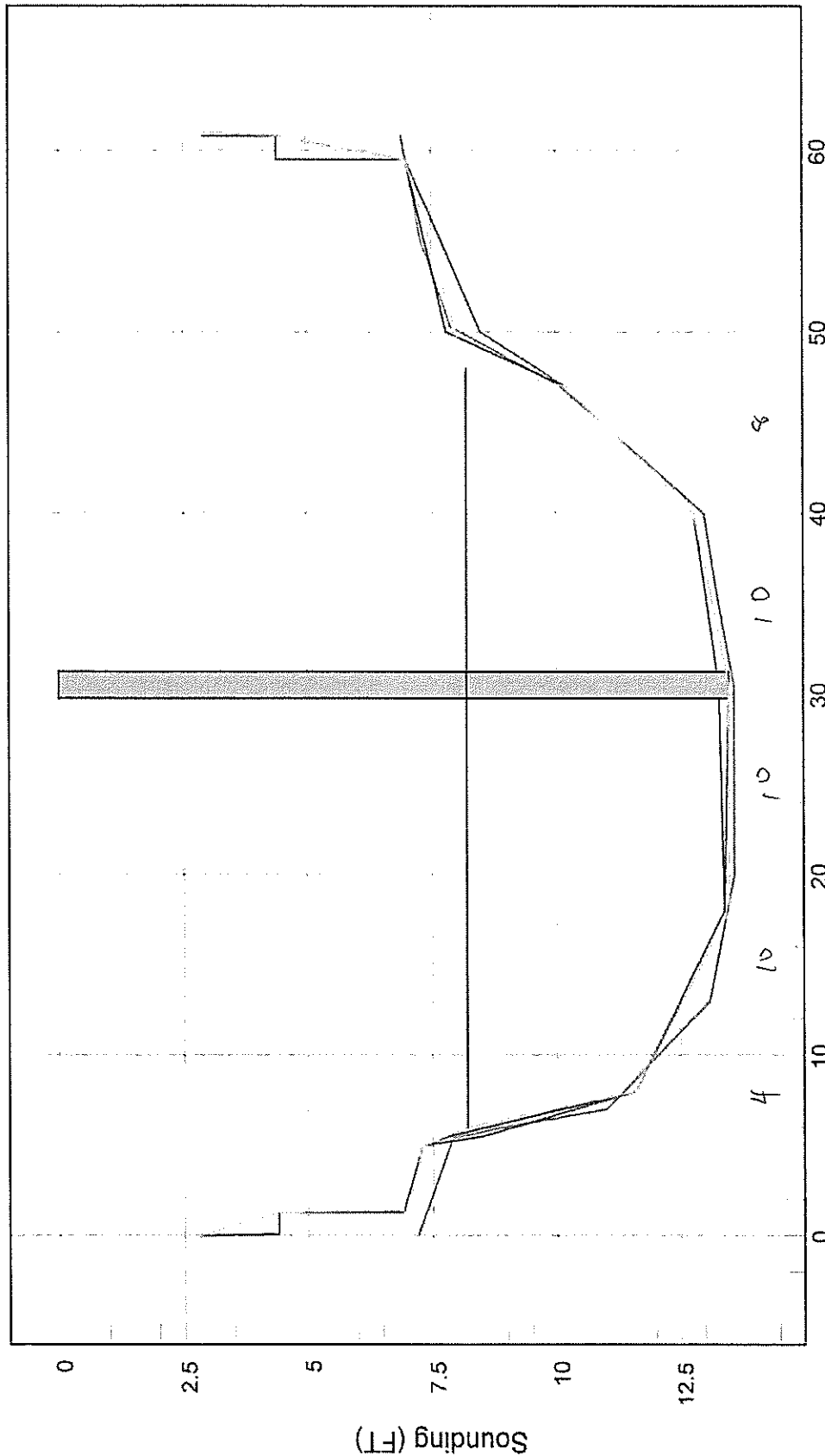
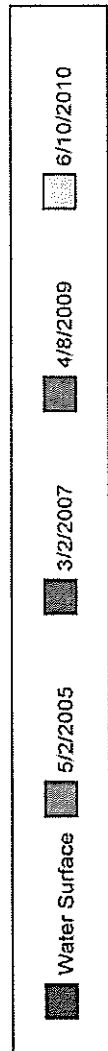
Bridge: 770108

County ROBESON

Date: 06/10/2010

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



$$11 \times 1.5 = 17.25 \times 2 = 34.5 + 20 + 42 = 96.5'$$

Distance (FT)

BRIDGE MANAGEMENT UNIT
DATA ON EXISTING STRUCTURE

Run Date: 07/27/2010

COUNTY : ROBESON		DIV : 6		DIST : 1		STRUCTURE NUMBER : 770108		LENGTH : 61 FEET	
ROUTE CARRIED : SR2269				FEATURE INTERSECTED : INDIAN SWAMP					
LOCATED : 100 FT.E.JCT.SR2264				BRIDGE NAME :				CITY :	
FUNC. CLASS : 09		SYST.ON : NFA		SYST.UNDER : NFA		ADT & YR : 50 1991		RAIL TYPE : LT 233 RT 233	
BUILT : 1967		BY : BMU		PROJ :		FED.AID PROJ :		DESIGN LOAD : H 15	
REHAB :		BY :		PROJ :		ALIGNMENT : TAN 90		LANES : ON 2 UNDER	
NAVIGATION : VC 0.0 FT HC 0.0 FT				HT. CRN. TO BED : 11 FT				WATER DEPTH : 5 FT	
SUPERSTRUCTURE : PRESTRESSED CONCRETE CHANNELS									
SUBSTRUCTURE : END BTS&INT.BTS:PRESTR.CONC.CAPS/TIMBER PILES@VAR.CTS.									
SPANS : 1@30'7,1@30'9									
BEAMS OR GIRDERS : 12 LINES PRESTR.CONC.CHANNELS@2'6.5 CENTERS									
FLOOR : PPC.CH/2.5 AWS		ENCROACHMENT :		DECK (OUT TO OUT) : 30.5 FT					
CLEAR ROADWAY : 29.0 FT		BETWEEN RAILS : 30.0 FT		SIDEWALK OR CURB : LT 0.5 FT RT 0.5 FT					
VERT.CL.OVER : 99 FT 99 IN		VERT.CL.UNDER : 00 FT 00 IN		HOR.CL.UNDER : 0.0 FT					
INV.RTG. : HS-6		OPE.RTG. : HS-16		CONTR.MEMBER : PILE, TIM.		POSTED : SV 24 TTST 27		DATE 08/25/2006	
SYSTEM : Secondary S.R. Route				GREEN LINE ROUTE : N					
2ND OPENING :		3RD OPENING :		4TH OPENING :		5TH OPENING :			
REMARKS :									

Section 5.0 – Engineering Methods

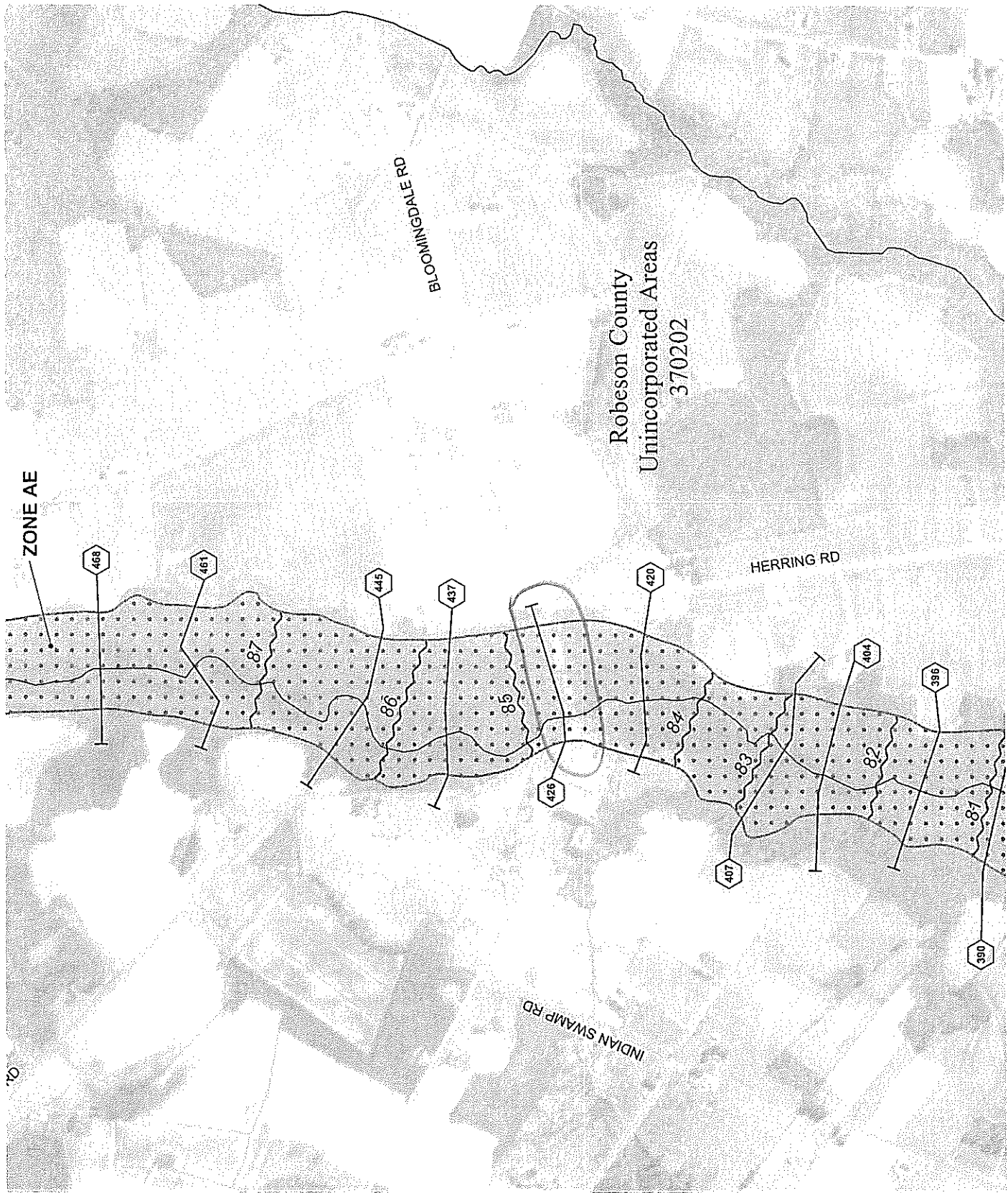
Table 7—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Humphrey Branch	At the confluence with Raft Swamp	2.28	*	*	259	*
Indian Swamp	At mouth	29.3	*	*	1,501	*
	At the confluence of Little Indian Swamp	9.52	*	*	693	*
	At the confluence of Bay Branch	6.13	*	*	512	*
Ivey Branch	At Railroad	3.5	1,620	2,180	2,430	3,630
Jackson Swamp	At the confluence with Big Swamp	12.92	*	*	855	*
	Approximately 2,500 feet upstream of Mercer Mill Road	6.23	*	*	518	*
Jacob Diversion	At the confluence with Little Jacob Swamp	2.8	274	466	551	763
	At Contempora Drive	2.3	243	415	490	680
	Approximately 2,800 feet downstream of US Hwy 74	1.8	200	345	409	568
	At US Hwy 74	1.3	142	253	304	427
	At Emery Road	1.0	101	189	230	328
Jacob Swamp	At the confluence with Lumber River	18.4	1,036	1,646	1,919	2,598
	At the confluence of Jacob Branch	17.3	1,011	1,604	1,867	2,525
	At the confluence of Panther Branch	16.1	979	1,548	1,801	2,432
	At SR 2305	15.5	965	1,524	1,772	2,393
	At Alamac Road	15.2	948	1,500	1,744	2,357
	At the confluence of Collection Canal	9.9	576	968	1,146	1,556
	At the confluence of Little Jacob Swamp	9.1	553	927	1,097	1,516
	At Lowett Road	8.5	536	899	1,062	1,467
	At NC 41	6.9	474	795	940	1,299
	Approximately 3,000 feet downstream of Kenny Biggs Road	0.7	106	188	224	314

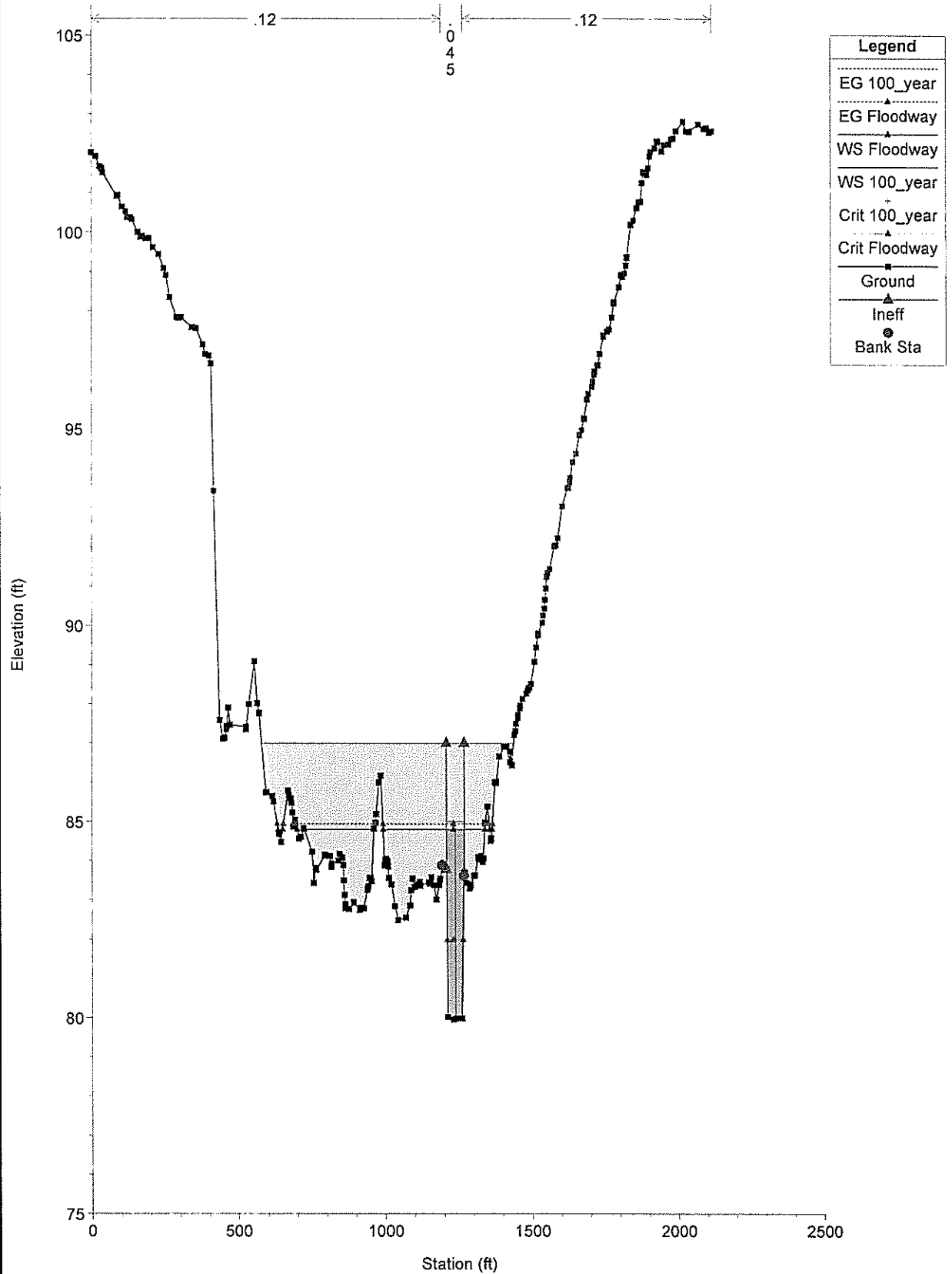
Section 5.0 – Engineering Methods

Table 10—Limited Detailed Flood Hazard Data

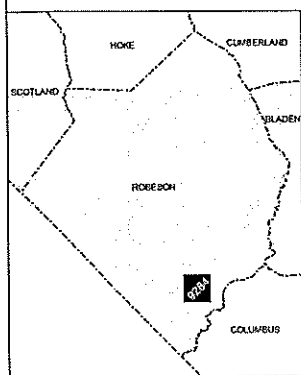
Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
INDIAN SWAMP (continued)				
396	39,609	886	81.6	5
404	40,406	797	82.5	5
407	40,732	797	82.9	5
414	41,352	797	83.8	5
420	41,996	797	84.5	5
425	42,476	797	84.7	5
426	42,621	797	84.8	5
437	43,656	797	85.4	5
445	44,518	797	86.5	5
455	45,498	797	87.0	5
461	46,096	797	87.2	5
468	46,829	797	87.4	5
474	47,369	797	87.7	5
477	47,660	797	88.0	5
487	48,685	797	88.5	5
493	49,327	797	88.7	5
498	49,823	797	89.1	5
505	50,467	797	89.6	5
509	50,891	693	89.8	5
516	51,582	693	90.7	5
519	51,905	597	90.9	5
520	51,989	597	90.6	5
521	52,137	597	93.0	5
528	52,776	597	93.5	5
533	53,276	597	93.6	5
537	53,692	512	93.6	5
542	54,219	512	93.7	5
548	54,751	512	93.9	5
552	55,198	415	94.0	12 / 12
553	55,338	415	94.7	7 / 6
563	56,303	415	95.6	16 / 79
569	56,947	415	96.0	47 / 47
575	57,468	415	96.1	31 / 31
581	58,085	415	96.5	56 / 11
586	58,648	415	98.3	36 / 52
594	59,425	415	99.1	24 / 24
603	60,325	312	100.2	44 / 8
607	60,740	312	101.1	9 / 60
610	60,958	312	101.2	23 / 23
610	61,025	312	101.3	21 / 18
615	61,470	312	101.4	10 / 10
628	62,768	312	103.2	29 / 26
633	63,333	312	103.7	25 / 25



Indian_Swamp Plan: Limited_Detailed 9/9/2002
DOUBLE SPAN BRIDGE ON SR2269



STATE OF NORTH CAROLINA FIRM PANEL LOCATOR DIAGRAM



DATUM INFORMATION

The projection used in the preparation of this map was the North Carolina State Plane (NAD83/2011). The horizontal datum was the North American Datum of 1983 (NAD83). Differences in datum, ellipsoid, projection, or Universal Transverse Mercator zones used in the production of FIRM for adjacent jurisdictions may result in slight positional differences in map features across jurisdictional boundaries. These differences do not affect the accuracy of this FIRM. All coordinates on this map are in U.S. Survey Feet, where 1 U.S. Survey Foot = 1200/3937 Meters.

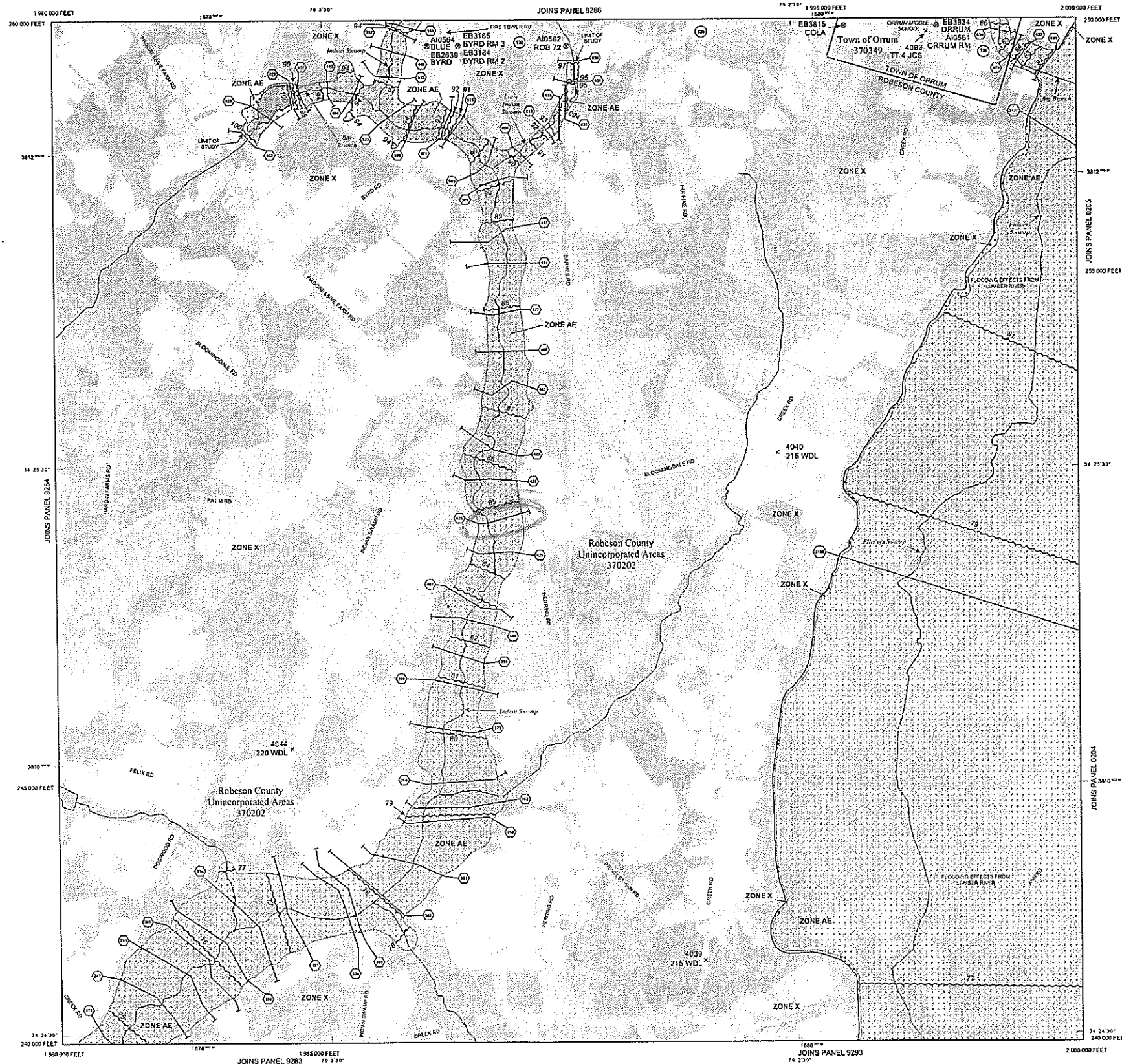
Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. An average offset between NAVD 88 and the National Geodetic Vertical Datum of 1929 (NGVD 29) has been computed for each North Carolina county. This offset was then applied to the NGVD 29 flood elevations that were not revised during the creation of the statewide format FIRM. The effects for each county shown on this FIRM panel are shown in the vertical datum offset table below. Where a county boundary and a flooding source with unrevised NGVD 29 flood elevations are coincident, an individual offset has been calculated and applied during the creation of the statewide format FIRM. See Section 6 of the accompanying Flood Insurance Study report to obtain further information on the conversion of elevations between NAVD 88 and NGVD 29. To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the North Carolina Geodetic Survey at the address shown below. You may also contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

County Average Vertical Datum Offset Table	
County	Vertical Datum Offset (Feet)
Robeson	-0.55
Example: NAVD 88 + NGVD 29 = (0.55)	

All streams listed in the Flood Hazard Data Table below were studied by detailed methods using field survey. Other flood hazard data shown on this map may have been derived using either a coastal analysis or limited detailed morphine analysis. More information on the flooding sources studied by these analyses is contained in the Flood Insurance Study report.

FLOOD HAZARD DATA TABLE				
Creek Section	Stream Station	Flood Elevation (Feet)	1% Annual Chance Flood Elevation (Feet)	Floodway Width (Feet)
LUMBER RIVER				
2100	209,558	74.4	78.6	8,200
2177	217,728	74.4	80.9	8,430

Feet above mouth



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, APP, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

- ZONE A:** No Base Flood Elevations determined.
- ZONE AE:** Base Flood Elevations determined.
- ZONE AH:** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of a broad fan flooding, velocities also determined.
- ZONE AR:** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE APP:** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE VE:** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE D: Areas determined to be outside the 0.2% annual chance floodplain.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

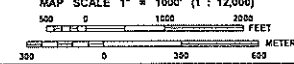
OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary defining Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities
- Base Flood Elevation line and value; elevation in feet
- Base Flood Elevation value where uniform within zone; elevation in feet
- Reference to the North American Vertical Datum of 1988
- Cross section line
- Transect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4278 M
- 2000-meter Universal Transverse Mercator grid zone 17
- 5000-foot grid values: North Carolina State Plane coordinate system (FIPS2010E: 2000, State Plane NAD 83 feet)
- North Carolina Geodetic Survey bench mark (see explanation in the Datum Information section of this FIRM panel)
- National Geodetic Survey bench mark (see explanation in the Datum Information section of this FIRM panel)
- BM 515
- River Mile

GRID NORTH

MAP SCALE 1" = 1000' (1 : 12,000)



NOTES TO USERS

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 of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles, Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the floodways were computed at cross sections and interpolated 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 are provided in the Flood Insurance Study report for the jurisdiction.

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 the jurisdiction.

Base map information and geospatial data used to develop this FIRM were obtained from various organizations, including the participating local community(ies), state and federal agencies, and/or other sources. The primary base for this FIRM is aerial imagery acquired as part of the National Digital Orthophoto Program. The time period of collection for the imagery is 1998-1999. Information and geospatial data supplied by the local community(ies) that met FEMA base map specifications were considered the preferred source for development of the base map. See geospatial metadata for the associated digital FIRM for additional information about base map preparation.

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 published. Map users should consult the appropriate community official or website to verify current conditions of jurisdictional boundaries and base map features.

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodway and floodway data that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map data.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each 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 (1-877-336-2627) or visit the FEMA website at www.fema.gov.

An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) 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 www.ncfloodmaps.org, or contact the FEMA Map Service Center at 1-800-358-9616 for information on all related products associated with this FIRM. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and their website at www.fema.gov.

MAP REPOSITORY

Refer to listing of Map Repositories on Map Index or visit www.ncfloodmaps.org.

EFFECTIVE DATE OF FLOOD INSURANCE RATE MAP PANEL

JANUARY 19, 2005

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to statewide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent, the North Carolina Division of Emergency Management or the National Flood Insurance Program at the following phone numbers or websites:
NC Division of Emergency Management (919) 751-8000 www.dem.ncm.gov
National Flood Insurance Program 1-800-638-6620 www.fema.gov/nfip

PANEL 9284J

FIRM FLOOD INSURANCE RATE MAP NORTH CAROLINA

PANEL 9284

(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTACTS:

COMMUNITY	NUMBER	PANEL	SURVEY
ORRUM TOWN OF	370349	9284	J
ROBESON COUNTY	370202	9284	J

Notes to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

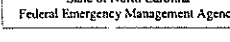
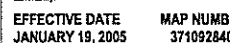
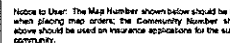
EFFECTIVE DATE

JANUARY 19, 2005

MAP NUMBER

3710928400J

State of North Carolina
Federal Emergency Management Agency



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 long term approach of floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map floodplain areas at the local level. As a part of this effort, the State of North Carolina has joined in a Cooperative Technical State agreement with FEMA to produce and maintain this digital FIRM.

www.ncfloodmaps.com

