

Project Number 45623.1.1
 TIP Number B-5668
 Let Date _____

PREDESIGN-PRESURVEY REPORT

County Nash

Bridge Number 630103
 Road Number SR 1105
 Stream Haw Branch

Type Of Request: POC Force Account TIP

Date 1/28/16 Name EAKpuogu Assigned To _____

Checked By _____

Prior Survey Date No (attach copy of prior survey)

Panel : 2753

Study By Scour Section _____

Flood Zone X Detail Study No Date 07/07/2014 (attach copy of flood map)

B.M. Info _____

Quad Map Middlesex Drainage Area 7.75 mi From stream stat
 Q25 1080 Q50 1350 Q100 1645 Method USGS - urban regression
coastal plain 3% 1A

EXISTING BRIDGE INFORMATION

Location 0.4 mi W Jct SR 1100

Average Daily Traffic 490 (2011)

Length 91 Bed- To Crown 13 Water Depth 6

Type Structure Prestressed Conc. Channels STD BMD-13

Type Spans 1 @ 30' 6" 1 @ 30'

Upstream Structure (SR 1100) P55

Location 0.2 mi S Jct US 264 ALT

Bed- To Crown 8 Prior Survey No

Downstream Structure (SR 1101) Brg # 52

Location 0.3 mi E of Jct SR 1112

Bed- To Crown 23' Prior Survey 11-04

SCS Watershed _____

ENVIRONMENTAL

Trout Stream No Anadromous Fish No Primary Nursery Area No

High Quality Waters No Nutrient Sensitive Waters Yes

Near Water Supply Intake No CAMA County No

Stream Classification C, NSW

DENR River Basin Info. Neuse

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 06/24/2014

COUNTY : DIVISION : DISTRICT : STRUCTURE NUMBER : LENGTH :
NASH 4 2 630103 91 FEET

ROUTE CARRIED : SR1105 FEATURE INTERSECTED : HAW BRANCH

LOCATED : 0.4 MI W. OF SR1100 BRIDGE NAME : CITY :

FUNC. CLASS : SYST.ON : SYST.UNDER : ADT & YR : RAIL TYPE :
09 NFA NFA 490 2011 LT 233 RT 233

BUILT : BY : PROJ : FED.AID PROJ : DESIGN LOAD :
1971 BMU 6.322037 H 10

REHAB : BY : PROJ : ALIGNMENT : SKEW : LANES :
TAN 90 ON 2 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 13 FT WATER DEPTH : 6 FT

SUPERSTRUCTURE : PRESTRESSED CONCRETE CHANNELS,STD BMD-13

SUBSTRUCTURE : EBTS&BTS:PPC CAPS/TIMBER PILES@5'9 CTS

SPANS : 1@30'6;1@30';1@30'6

BEAMS OR GIRDERS : 12LINES PRESTRESSED CONCRETE CHANNEL SECTIONS

FLOOR : ENCROACHMENT : DECK (OUT TO OUT) :
PPC 30.583 FT
CHAN/4.5AWS

CLEAR ROADWAY : BETWEEN RAILS : SIDEWALK OR CURB :
29.083 FT 30.083 FT LT .5 FT RT .5 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. : OPE.RTG. : CONTR.MEMBER : POSTED :
HS-5 HS-17 Ch - Patt SV 22 TTST 27 DATE 09/17/2008
B,Timber
pile

SYSTEM : GREEN LINE ROUTE :
Secondary S.R. Route N

UNDER ROUTES AND CLEARANCES

REMARKS :



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY NASH BRIDGE NUMBER 630103 INSPECTION CYCLE 2 YRS
ROUTE SR1105 ACROSS TRIB OF TURKEY CR M.P. 0

LOCATION 0.4 MI W SR1100

SUPERSTRUCTURE PRESTRESSED CONCRETE CHANNELS,STD BMD-13

SUBSTRUCTURE EBTS&BTS:PPC CAPS/TIMBER PILES@5'9 CTS

SPANS 1@30'6;1@30';1@30'6

LONGITUDE 78° 8' 38.28" LATITUDE 35° 46' 31.93"

INSPECTION DATE 05/20/2014 PRESENT CONDITION FAIR

PRESENT POSTING SV 22 TTST 27 PROPOSED POSTING _____

OTHER SIGNS PRESENT 4 DELINEATORS



LOOKING EAST

Fracture Critical	<u>No</u>
Temporary Shoring	<u>No</u>
Scour Critical	<u>Yes</u>
Scour POA	<u>Yes</u>

SIGN NOTICE ISSUED FOR	NUMBERED REQUIRED
<u>No</u> WEIGHT LIMIT	_____
<u>No</u> DELINEATORS	_____
<u>No</u> NARROW BRIDGE	_____
<u>No</u> ONE LANE BRIDGE	_____
<u>No</u> LOW CLEARANCE	_____

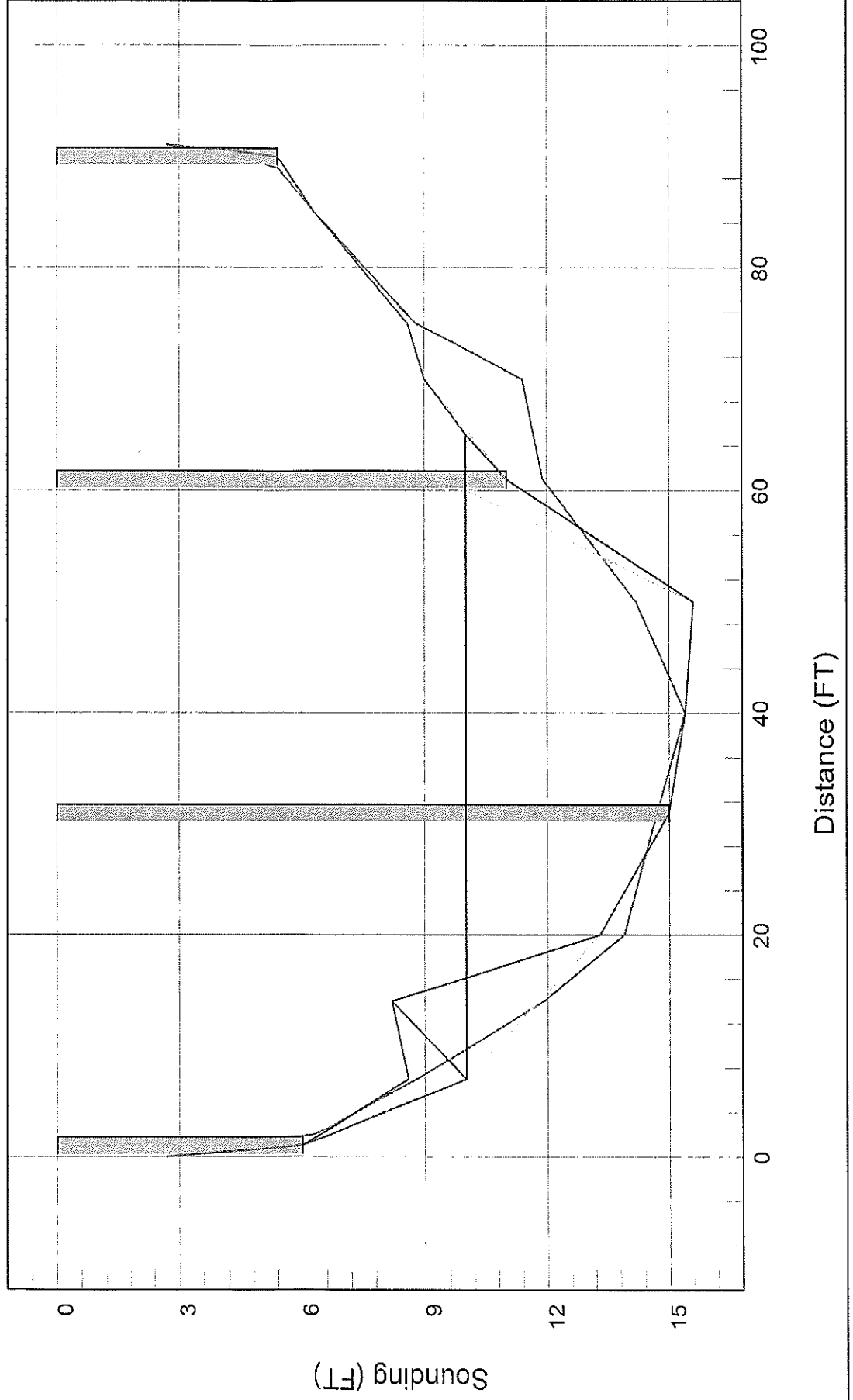
Bridge: 630103

County NASH

Date: 05/20/2014

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 06/19/2014

COUNTY : DIVISION : DISTRICT : STRUCTURE NUMBER : LENGTH :
NASH 4 2 630055 48 FEET

ROUTE CARRIED : SR1100 FEATURE INTERSECTED : CAMP BRANCH

LOCATED : 0.2 MI S. JCT US264ALT. BRIDGE NAME : CITY :

FUNC. CLASS : SYST.ON : SYST.UNDER : ADT & YR : RAIL TYPE :
09 NFA NFA 540 2011 LT 0 RT 0

BUILT : BY : PROJ : FED.AID PROJ : DESIGN LOAD :
1999 BMU 5.3251 HS 20 + MOD

REHAB : BY : PROJ : ALIGNMENT : SKEW : LANES :
TAN. 70 ON 2 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 8 FT WATER DEPTH : 1 FT

SUPERSTRUCTURE : 3 LNS.142X91 STL.PLATE ARCH;60' ALONG CENTERLINE OF PIPE

SUBSTRUCTURE :

SPANS :

BEAMS OR GIRDERS :

FLOOR : ENCROACHMENT : DECK (OUT TO OUT) :
0 FT

CLEAR ROADWAY : BETWEEN RAILS : SIDEWALK OR CURB :
0 FT 0 FT LT 0 FT RT 0 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. : OPE.RTG. : CONTR.MEMBER : POSTED : TTST DATE 05/11/1999
HS-55 HS-55 STL.PL. ARCH SV

SYSTEM : Secondary S.R. Route GREEN LINE ROUTE : N

UNDER ROUTES AND CLEARANCES

upstream structure

REMARKS :

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 06/19/2014

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :
NASH	4	2	630052	180 FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
SR1101	TURKEY CREEK

LOCATED :	BRIDGE NAME :	CITY :
0.3 MI E. OF JCT SR1112		

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
09	NFA	NFA	230 2012	LT 41 RT 41

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
2008	DOH	8.2322201	BRZ-1101(7)	HS 20 + MOD

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :
			TAN	90	ON 2 UNDER 0

NAVIGATION :	HT. CRN. TO BED :	WATER DEPTH :
VC 0 FT HC 0 FT 23 FT		7 FT

SUPERSTRUCTURE : RC FLOOR / CONTINUOUS PPC GIRDERS

SUBSTRUCTURE : EBTS:RC CAPS/H-PILES;IBTS:RC CAPS&COLS./DRILLED SHAFT PIERS

SPANS : 2@65',1@50' CONTINUOUS

BEAMS OR GIRDERS : 4 LNS.36 INCH CONTINUOUS PPC GIRDERS @ 8.3' CTS.

FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
8.5RC/NO AWS		31.333 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
28.125 FT	28.125 FT	LT 0 FT RT 0 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :	TTST	DATE
HS-28	HS-54	PS Gdr C	SV		10/15/2008

SYSTEM :	GREEN LINE ROUTE :
Secondary S.R. Route	N

UNDER ROUTES AND CLEARANCES

Downstream Structure

REMARKS :

StreamStats

X

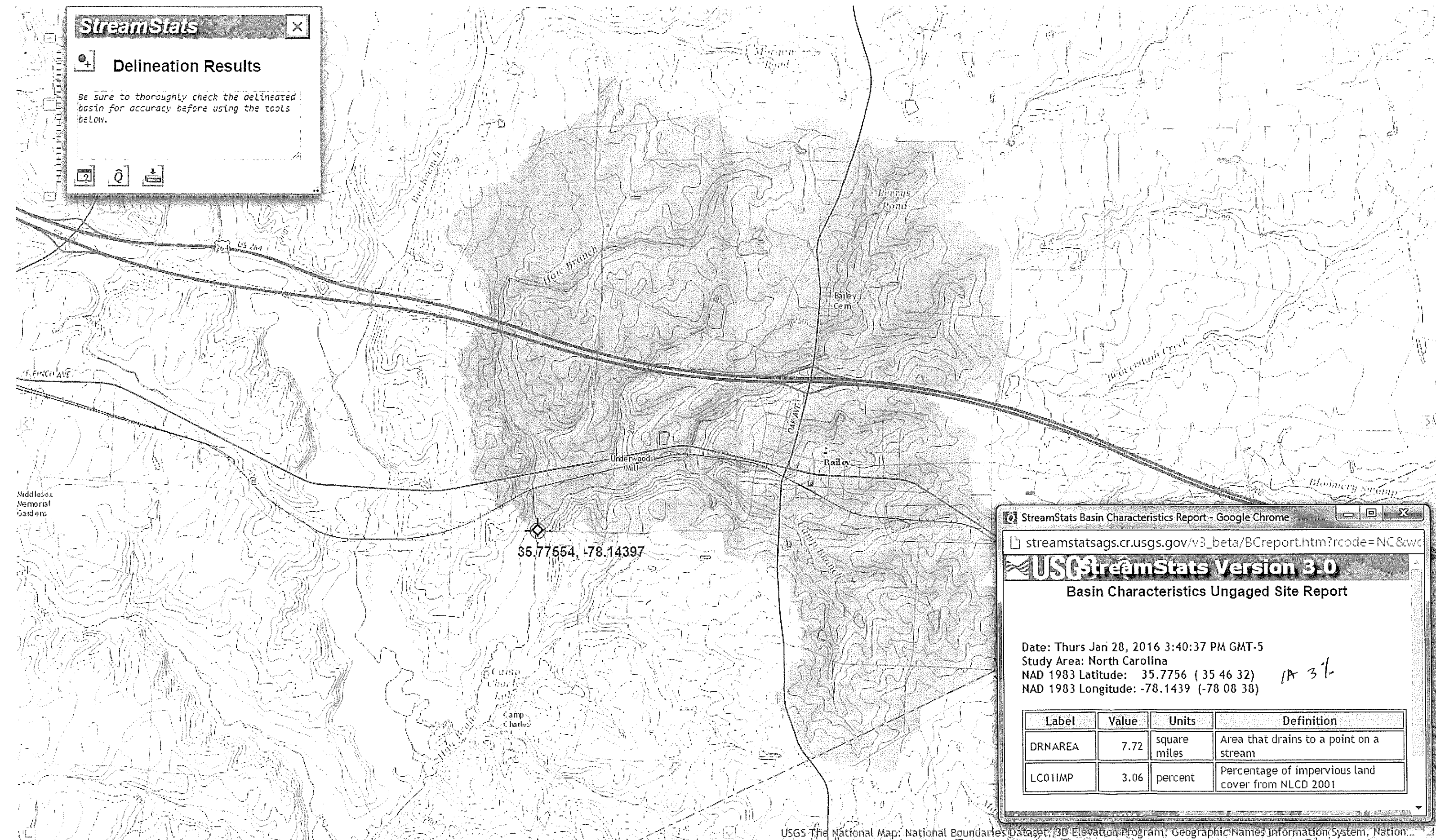
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Delineation Results

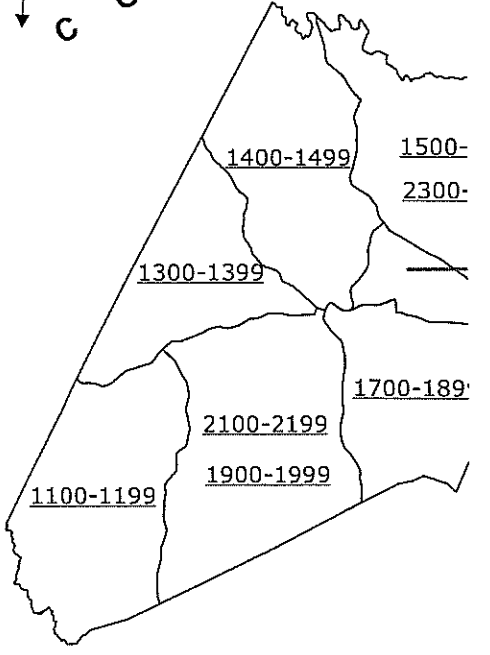
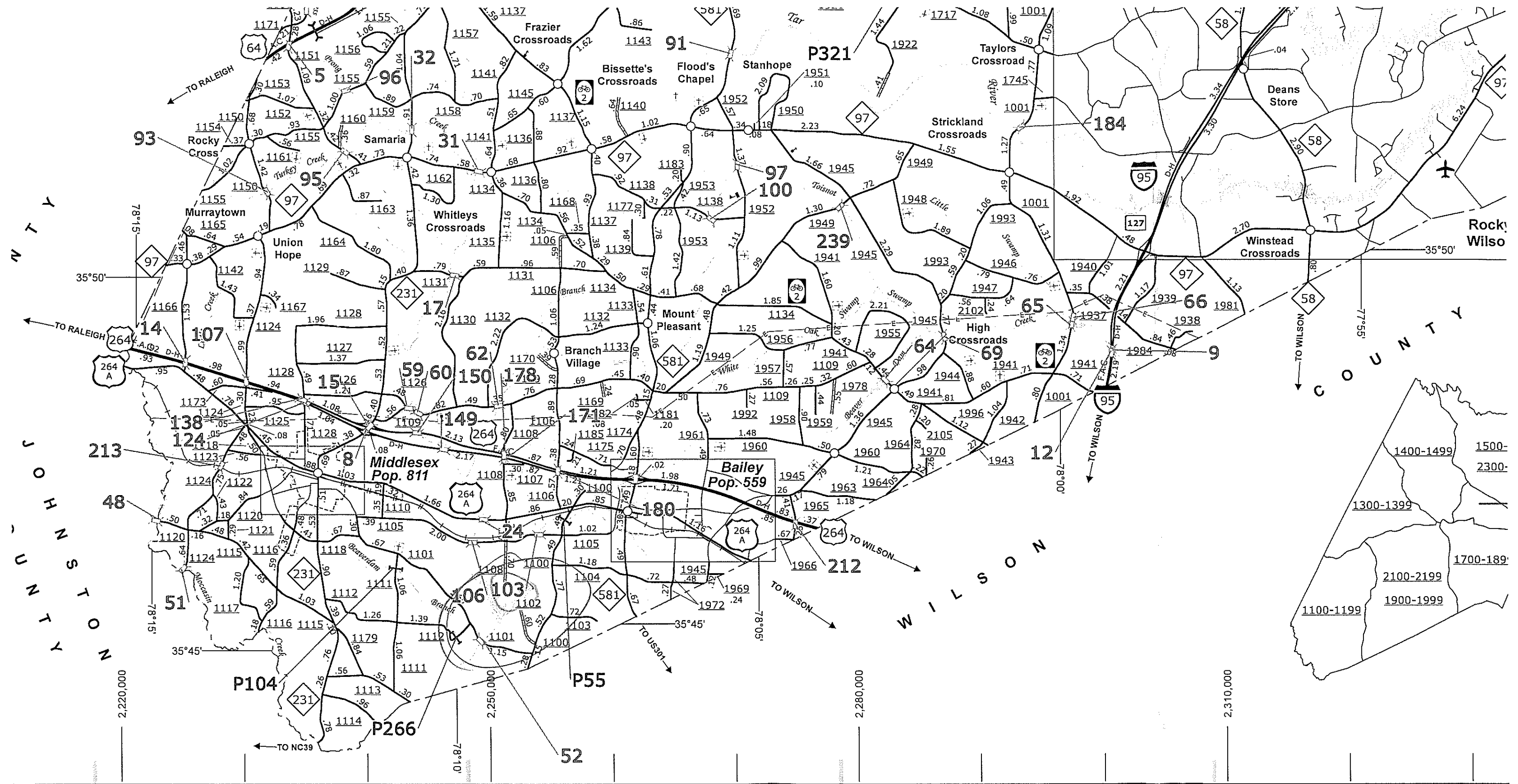
Be sure to thoroughly check the delineated basin for accuracy before using the tools below.

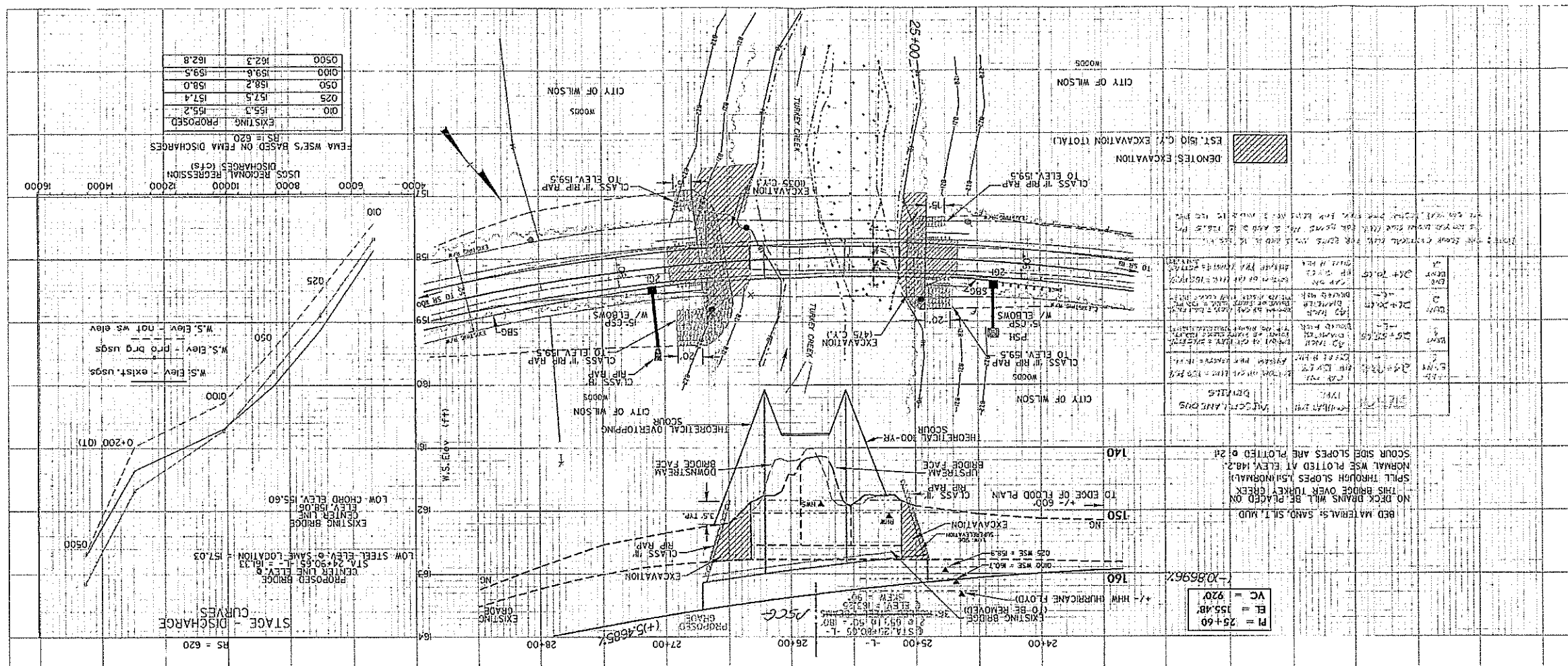






Label	Value	Units	Definition
DRNAREA	7.72	square miles	Area that drains to a point on a stream
LC01IMP	3.06	percent	Percentage of impervious land cover from NLCD 2001





Design:	Discharge	7000	c.f.s.	Frequency	25 yr.	Elev.	158.89
Base Flood:	Discharge	10,100	c.f.s.	Frequency	100 yr.	Elev.	160.78
Overtopping:	Discharge	12,925	c.f.s.	Frequency	+200 yr.	Elev.	161.74

ADDITIONAL INFORMATION AND COMPUTATIONS

DISCHARGE CALCULATIONS: (BLUE RIDGE - PIEDMONT/ RURAL)

Q2 = 135A ^{0.702}	= 2500 CFS	D.A. = 65.2 SQ. MI.
Q5 = 242A ^{0.677}	= 4100 CFS	
Q10 = 334A ^{0.662}	= 5300 CFS	
Q25 = 476A ^{0.645}	= 7000 CFS	
Q50 = 602A ^{0.635}	= 8500 CFS	
Q100 = 745A ^{0.625}	= 10,100 CFS	
Q200 = 908A ^{0.616}	= 11,900 CFS	
Q500 = 160A ^{0.605}	= 14,500 CFS	

SCOUR CALCULATIONS (HEC-18, MAY 2000)

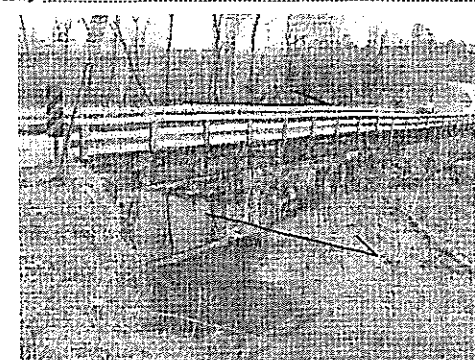
100-YR CONTRACTION SCOUR:	USE LAUREN'S MODIFIED EQUATIONS
$Y_s = Y_1(0.85/0.85)^{0.57}(W_1/W_2)^{0.12}$	ASSUME LIVE BED W/ MOSTLY SUSPENDED MATERIALS (K=0.69)
$Y_s = 14.3 [(5071/2500)^{0.857} (34.7/60)^{0.65} - 1]$	MAX. CONTRACTION SCOUR IS +200-YR EVENT (OVERTOPPING)
$Y_s = 3.5'$	
+200-YR (OT) CONTRACTION SCOUR:	
$Y_s = 15.2 [(6227/3042)^{0.857} (34.7/60)^{0.65} - 1]$	
$Y_s = 3.8'$	
100-YR LOCAL SCOUR:	USE CSH EQUATION
$Y_s = Y_1(1.2/0.1)(K_1/K_2)(K_3/K_4)(\alpha/Y)^{0.45} F_r^{0.45}$	ASSUME PIER WIDTH = 3'
$Y_s = 18.4 [(2.0/0.1)(0.0/0.0)(3/18.4)^{0.65} (0.27)^{0.45}]$	$F_r = V/(gY)^{0.5}$
$Y_s = 7.1'$	$\alpha = 32.2 f/s^2$
+200-YR (OT) LOCAL SCOUR:	ASSUME THALWEG WILL SHIFT TO PIERS OVER TIME
$Y_s = 19.5 [(2.0/0.1)(0.0/0.0)(3/19.5)^{0.65} (0.29)^{0.45}]$	
$Y_s = 7.2'$	

River Basin:	NEUSE	SITE DATA	
Drainage Area:	65.2 mi ²	Source:	FEMA
Stream Classification:	(Such as Trout, High Quality Water, etc.)	Character:	RURAL WOODED FARMLAND
Data on Existing Structure:	1 @ 40' 6" x 2 @ 40' 3" TIMBER FLOOR ON I-BEAM; CBTS & BTS		
	TIMBER CAPS ON TIMBER PILES, STL CRUTCH BENTS @ INT. BENTS		
	Waterway Opening: 1057 S.F.		
Debris Potential:	Low... Moderate... High...		
Data on Structures Up and Down Stream:			
U/S BRC: #106 (NASH CO.)	-- 3 @ 45' = 135'		
D/S BRC: # 52 (WILSON CO.)	-- 1@7'-6", 1@5'-9", 1@7', 1@6'-10", 1@7'-3", 1@7'-1", 1@7'-7" = 119'		
Design Control Elev.	160.71 EXISTING 100-YR WSE, USGS DISCHARGES		
Gage Station No.	NONE	Period of Records	N/A
Max. Discharge	N/A	Date	N/A
		Frequency	N/A
Historical Flood Information:			
DATE	9/29	Elev.	162.7 ±
		Est. Freq.	UNK.
		Source	MR. JOHNNY WILLOUGHBY LOCAL RESIDENT
Period of		Knowledge	20 yrs
DATE		Elev.	
		Est. Freq.	
		Source	
Period of		Knowledge	
DATE		Elev.	
		Est. Freq.	
		Source	
Period of		Knowledge	
Historical Scour Info:			
General	Contraction	USGS QUAD SHEET	Local
Channel Slope	0.0007 F1/F1	Source	FEMA BED PROFILE
		Normal Water Surface Elev.	148.2
Manning's n:	Left 0.3, 0.13	Channel	0.045
	Right 0.3, 0.13	Source	FIELD OBSERVATION
Flood Study / Status	PRELIMINARY FEMA DETAILED FIS DATED 3/7/03		
Floodway Established?	1978		
Flood Study 100 yr. Discharge	7800 c.f.s.	W.S. Elev. with Floodway	150.4
		Without Floodway	159.5
DESIGN DATA			
FLOODING SOURCES STUDIED BY	DETAILED METHODS: REDELINEATED		
Hydrological Method	FEMA AND USGS RURAL REGRESSION EQUATIONS (REPORT 01-4207)		
Hydraulic Design Method	HEC-RAS (v. 3.0)	(WSE'S REPORTED @ STA. 620)	
Floods Evaluated:			
Freq.	0	Elev.	Backwater
10YR	5300 CFS	157.71	0.24'
25YR	7000 CFS	158.89	0.35'
50YR	8500 CFS	159.82	0.36'
100YR	10,100 CFS	160.78	0.49'
+200YR (OT)	12,925 CFS	161.74	0.75'
500YR	14,500 CFS	163.18	0.49'
Waterway Opening Provides	1642 S.F.		
Average Channel Velocity (Design)	4.5 FPS	Average Overbank Velocity (Design)	1.0 FPS
100-yr. Computed Scour:	General	Contraction	3.5'
		Local	7.1'
Is a Floodway Revision Required?	N/A (IN-KIND REPLACEMENT)		

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

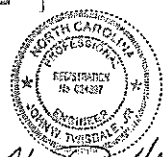
N.C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
HYDRAULICS UNIT
RALEIGH, N.C.

ID. No.	8-3877	Project No.	8-2322201	Proj. Station	25+80.65 -1-
County	NASH	Bridge Over	TURKEY CREEK	Bridge Inv. No.	52
On Highway	SR 101	Between	SR 100	and	SR 111
Recommended Structure	2 @ 65' x 10' 50' = 180'		36" ROLLED STEEL I-BEAMS		
Recommended Width of Bridge	28'	CLEAR OPENING		Shew	90'
Recommended Location Is	Up, At, Down	Stream from Existing Crossing	AT THE EXIST. CROSSING		
Nearest Shipping Point	BAILEY	On	NORTHWESTERN	R.R.	4 Miles From Bridge
Bench Mark Is	BM # 3	STA. 27+10	-EL- RR SPIKE IN 17' POPLAR		
Temporary Crossing	N/A			Elev.	157.14'
				Datum	NAVD88



Downstream Structure

Designed by:	P.P. SHEPARD	Date	7/7/04
Assisted by:	DAVID SHERZAI	Revised	11/18/04
Project Engineer:	P.F. FISHER, P.E.	Use of 31 F11	
Reviewed by:	J.W. TWISDALE, JR., P.E.	Travel time	
		with change	





FRIS

Map Theme ▼



165.7

162.1

161.9

161.0

161.53

Who Am I: General Public ▼

Effective ▼

▼ Flood Information

Click the map to view information.

Map Location

Flood Zone: (Zone X) Minimal Flood Risk

Flood Source:

Base Flood Elevation: Not available for this area.

County: Nash

Political Area: Nash County

CID: 370278

Panel: 2753 [Download](#)

Map Number: 3720275300K

Panel Effective Date: 07/07/2014

Latitude: 35.7756

Longitude: -78.1439

► Risk Information

► Financial Vulnerability

► FIS Reports

► Map Export

► Data Export