

OFFICE ESTIMATE

1@ 60, 1@ 70, 1@ 60' Bridge

PREDESIGN-PRESURVEY REPORT

Project# _____

TIP# _____

Let Date _____

WBS# 17BP.12.P.32

County IREDELL (DIV 12)

Bridge# 480 282

Road# SR 1828 (Barnard Mill Rd.)

Stream Nooth little hunting creek

Type Of Request: POC Force Account TIP NCMA

Date 7/17/13 Name M. G. S.

Assigned To RCH

Checked By WSH 7-17-13

Prior Survey Date NO (attach copy of prior survey) BRN BK: Yes COFILE: NO

Study By Scour Section NONE

Flood Zone AE Detail Study LIMITED Date 5/18/09 Panel# 4864

B.M. Info N/A (30542 Ac)

Quad Map Brooks Crossroads Drainage Area 47.8 SQ. MI From USGS / S-beam Stats

Q25 5670 cfs Q50 6800 cfs Q100 7800 cfs Method Regression REG. 1
5600 6800 7800 cfs DASS = 47.7 SQ. MI.
STA 211846989

EXISTING BRIDGE INFORMATION

Location 0.6 MI. W. Jct US 21

Average Daily Traffic 230 YR 2011 (TRK 6%)

Length 181 ft Bed- To Crown 27 ft Water Depth 2 ft

Type Structure Steel plank deck on I-beams

Type Spans 1@ 45'-3, 2@ 45'-0, 1@ 45'-3'

Upstream Structure N/A (980023 SR 1102 No. Hunting Crk.)

Location _____

Bed- To Crown _____ Prior Survey _____

Downstream Structure N/A (480280 SR 1829 N. Hunting Crk.)

Location _____

Bed- To Crown _____ Prior Survey _____

SCS Watershed N/A

ENVIRONMENTAL

TVA: NO

Trout Stream NO

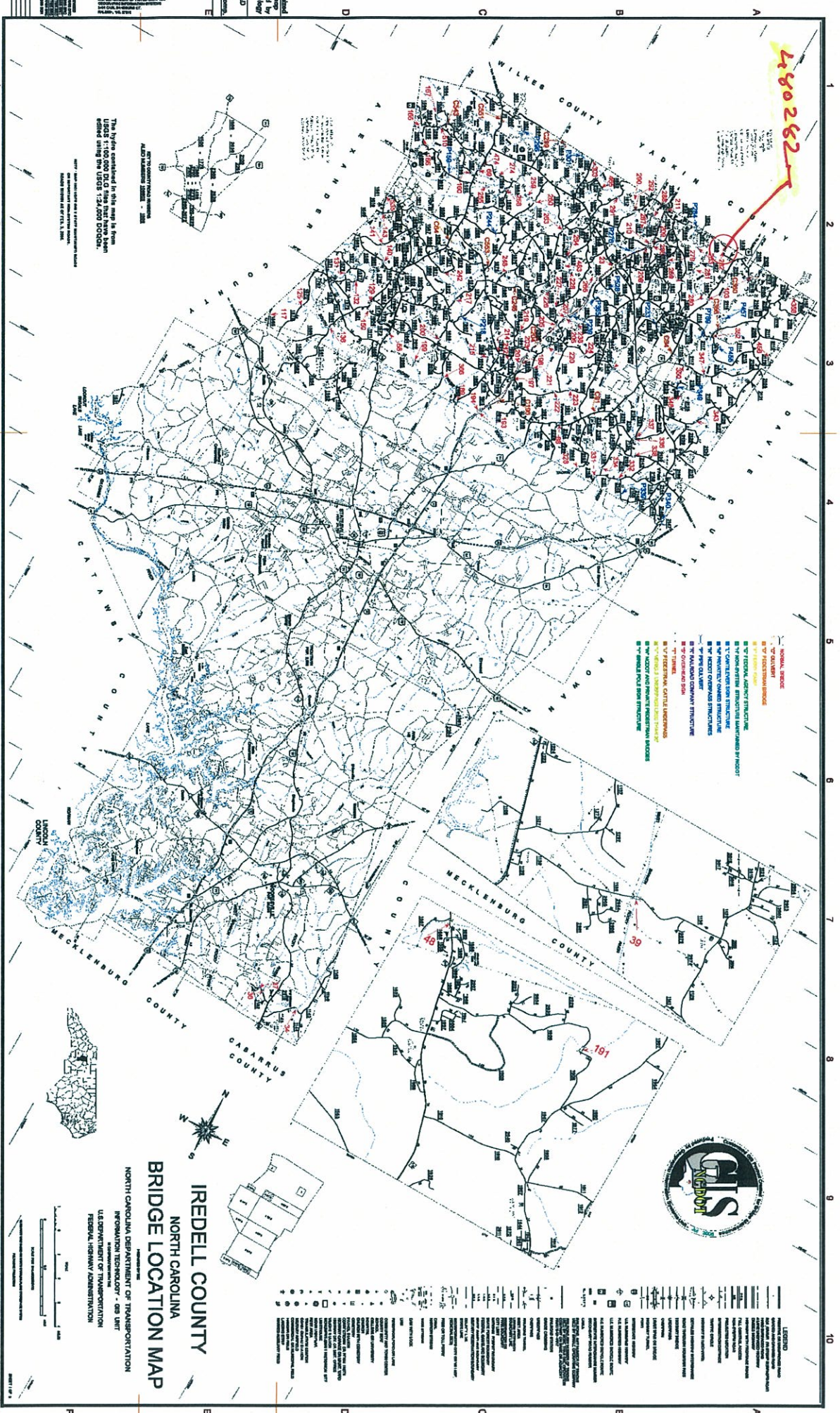
Anadromous Fish NO Primary Nursery Area NO

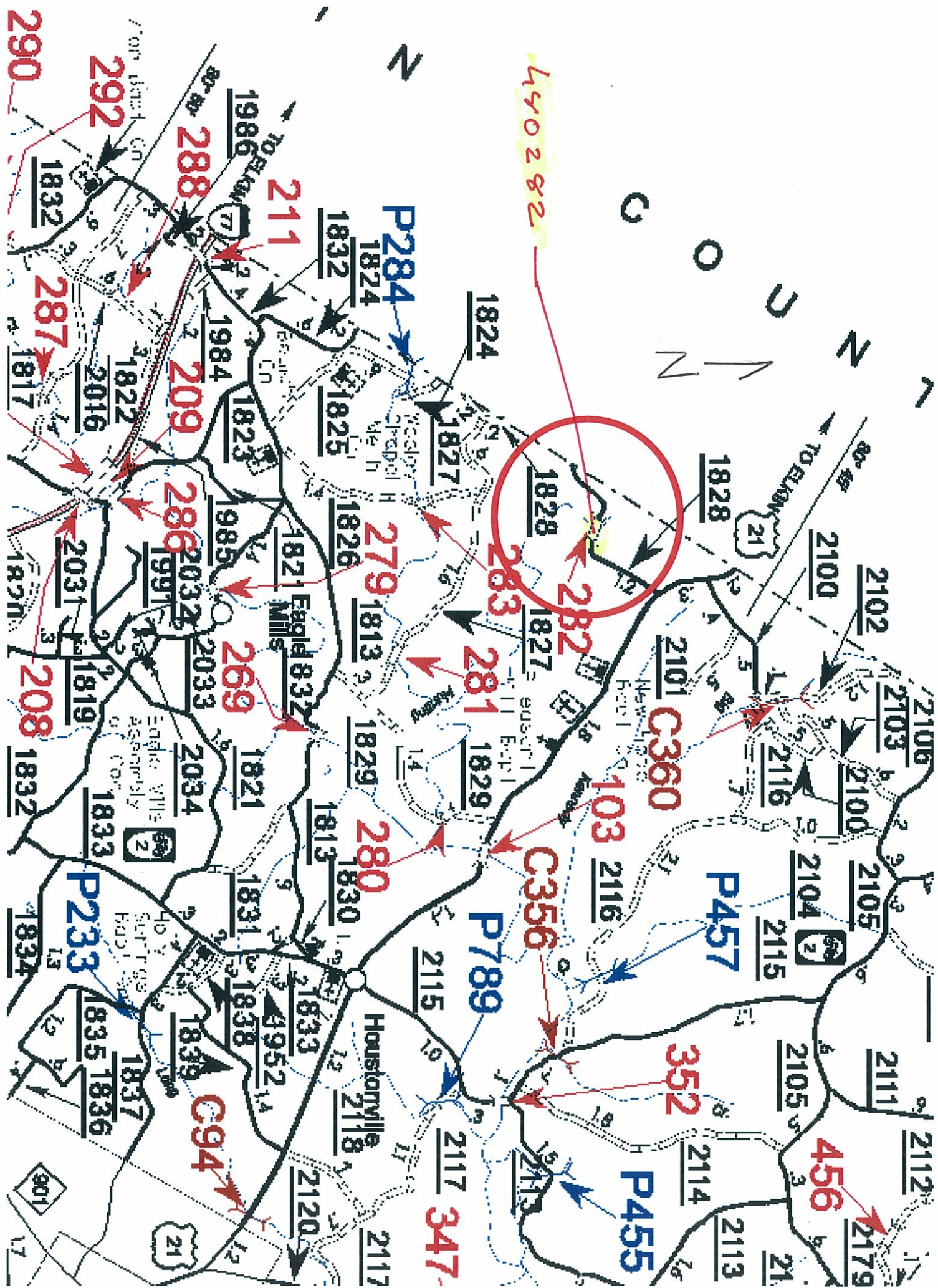
High Quality Waters NO Nutrient Sensitive Waters NO

Near Water Supply Intake NO CAMA County NO

Stream Classification WS - III #12-108-16-6 (FROM SOURCE TO HUNTING CREEK)

DENR River Basin Info Yadkin





[illegible]

This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperation between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has been designated as a "preferred" state by FEMA. As a result, FEMA has agreed to map floodwaters along the flood level. As a part of this effort, the state of North Carolina has joined in a "Cooperating Technical State" agreement with FEMA to produce and maintain its digital FIRM.



NOTES TO USERS

MAY 18, 2008
 according to other members already applying
 many members today just to estimate sample size to the Community Day (they told himself to
 find answers is available in that currently extend your answers apart to North Carolina
 group management or the National Finance Program at the following phone numbers or
 Emergency Management
 National Finance Program
 1-800-275-1213

[illegible]

	NATIONAL FLOOD INSURANCE PROGRAM	NFP
PANEL 4864K	FIRM FLOOD INSURANCE RATE MAP NORTH CAROLINA PANEL 4864 (THIS IS A COPIED DRAWING OF AN NFP PANEL; IT IS NOT AN ORIGINAL.) COMMENTS: COMMUNITY: FLOOD ZONE: FLOOD COUNTY: FLOOD DISTRICT: FLOOD EFFECT DATE:	CITY/TOWNSHIP, PARCEL, BUILDING 7-11111 ROAD NO. N
State of North Carolina Federal Emergency Management Agency	Notes: 1) This "Map Number" refers to the map number of the Flood Insurance Rate Map (FIRM) panel which was used to determine whether your property is located in a Special Flood Hazard Area. 2) The Flood Insurance Rate Map (FIRM) panel numbers are listed below. 3) The Flood Insurance Rate Map (FIRM) panel numbers are listed below.	MAY REVISED MAY 18, 2009 MAP NUMBER 3710482400K



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION

TEMPORARY REPAIRS; BEAMS, PIER 2 CAP...

(PMN'S) ISSUED FOR BEAMS,CAPS AND RAILS...
BRIDGE OUT OF SERVICE...

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY IREDELL BRIDGE NUMBER 480282 INSPECTION CYCLE 2 YRS

ROUTE SR1828 ACROSS NORTH HUNTING CREEK M.P. 0

LOCATION 0.6 MI. W. JCT. US21

SUPERSTRUCTURE STEEL PLANK DECK ON I-BEAMS

SUBSTRUCTURE END & INT.BTS:TIMBER CAPS & PILES,INT.BTS:CONCRETE ENCASED

SPANS 1@45'3, 2@45'0, 1@45'3

LONGITUDE 80° 46' 98.01"

LATITUDE 36° 2' 57.51"

PRESENT CONDITION POOR

INVENTORY RATING

INSPECTION DATE 07/25/2012

OPERATING RATING

PRESENT POSTING SV 25 TTST 30 SV 25 TTST 30

PROPOSED POSTING

COMPUTER UPDATE

ANALYSIS DATE

POSTING LETTER DATE

SUFFICIENCY RATING

OTHER SIGNS PRESENT 4 DELINEATORS



LOOKING WEST

SIGN NOTICE
ISSUED FOR

NUMBERED
REQUIRED

No	WEIGHT LIMIT	
No	DELINEATORS	
No	NARROW BRIDGE	
No	ONE LANE BRIDGE	
No	LOW CLEARANCE	

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 08/08/2012

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :
IREDELL	12	2	480282	181 FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
SR1828(CLOSED)	NORTH HUNTING CREEK

LOCATED :	BRIDGE NAME :	CITY :
0.6 MI. W. JCT. US21		

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
09	NFA	NFA	230 2011	LT 233 RT 233

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1962	BMU			Unknown

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

NAVIGATION :	VC	0	FT	HC	0	FT	HT. CRN. TO BED :	27	FT	WATER DEPTH :	2	FT
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SUPERSTRUCTURE : STEEL PLANK DECK ON I-BEAMS

SUBSTRUCTURE : END & INT.BTS:TIMBER CAPS & PILES,INT.BTS:CONCRETE ENCASED

SPANS : 1@45'3, 2@45'0, 1@45'3

BEAMS OR GIRDERS : 10 LINES OF W18X65 I-BEAMS @ 2'7 CENTERS

FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
STL.PLK,2 AWS		24.083 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
24 FT	24.5 FT	LT .3 FT RT .3 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :	TTST	DATE
HS-	HS-	IntBeam (SecLoss)	SV		08/08/2012

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

UNDER ROUTES AND CLEARANCES

REMARKS :

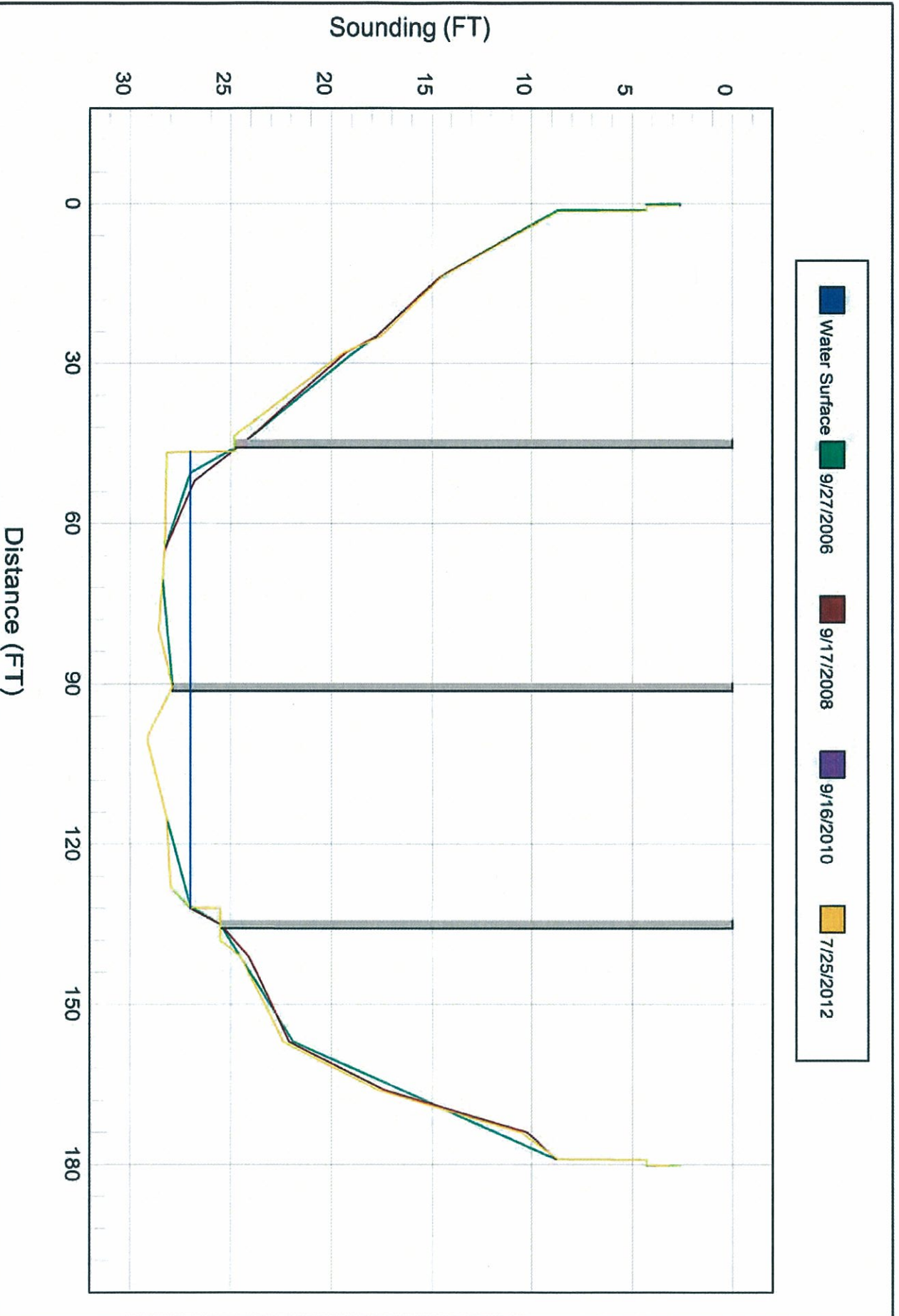
Bridge: 480282

County IREDELL

Date: 07/25/2012

Top of Rail = 0 FT (Sounding)

STREAMBED PROFILE (Downstream)



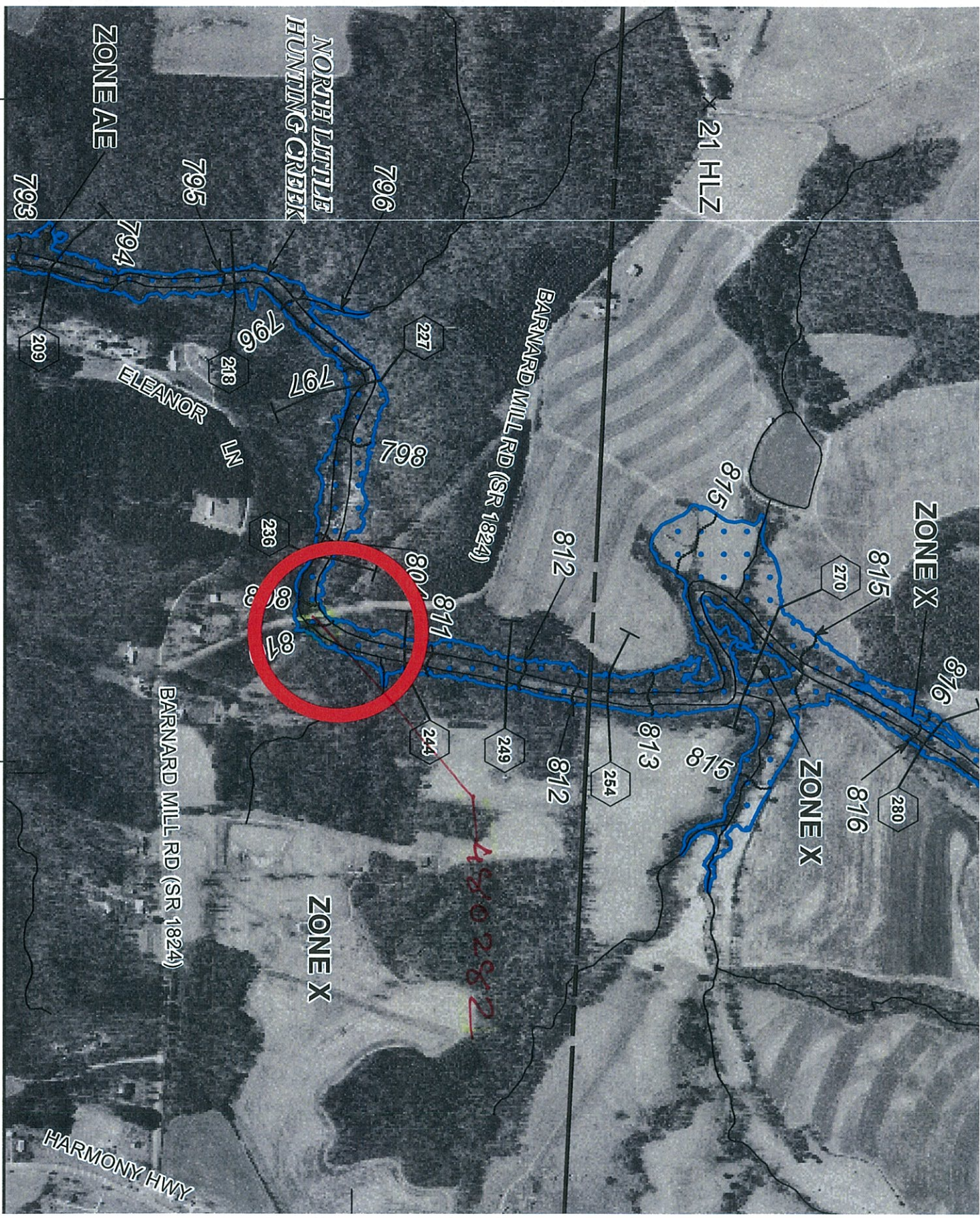


SOUTH PROFILE



LOOKING WEST

2



520'000 M

JOINS PANEL 4873

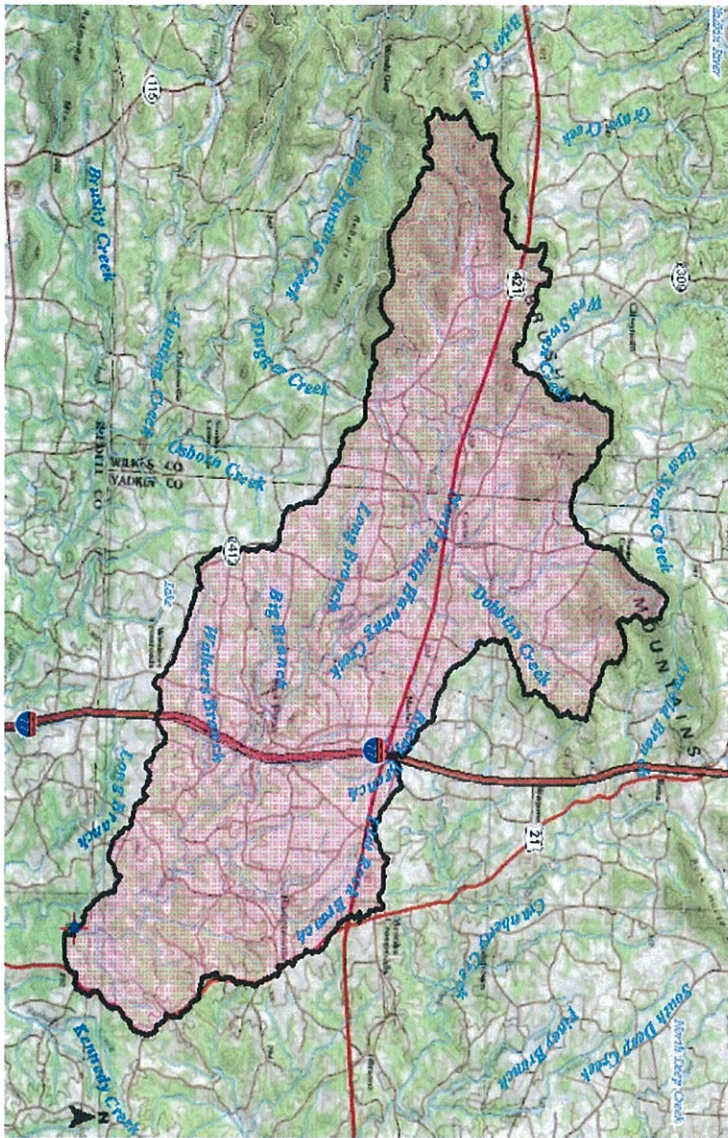
521'000 M

80°46'00"

1 480 (



StreamStats Print Page



- Explanation**
- ★ Global Watershed Point
 - SPT/OGSP Point
 - NCDOT Points
 - ▲ Localities
 - ▲ 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 HHD2
 - Longest Low at 3D
 - Stream Grid
 - Global Watershed
 - Pilot Study Area
 - Inupoly

7/15/2013 1:53:18 PM



North Carolina StreamStats

Streamstats Ungaged Site Report

Date: Mon Jul 15 2013 13:53:29 Mountain Daylight Time

Site Location: North_Carolina

NAD27 Latitude: 36.0493 (36 02 58)

NAD27 Longitude: -80.7694 (-80 46 10)

NAD83 Latitude: 36.0495 (36 02 58)

NAD83 Longitude: -80.7692 (-80 46 09)

Drainage Area: 47.8 mi² — 30592 AC

Percent Urban: 8.6 %

Percent Impervious: 1.2 %

Peak Flows Region Grid Basin Characteristics			
100% Peak Southeast US 2009 5158 (47.8 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	47.8	1	9000
Percent Area in Region 1 (percent)	91.838	0	100
Percent Area in Region 2 (percent)	8.162	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 (47.8 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	47.8 (above max value 41)	0.04	41
Area of Impervious Surfaces (percent)	1.24 (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	1970	35		1140	3420
PK5	3370	34		1960	5800
PK10	4380	35		2500	7650
PK25	5670	38		3130	10300
PK50	6800	40		3640	12700
PK100	7820	42		4050	15100
PK200	8810	44		4400	17600
PK500	10400	48		4930	21700

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	672				
PK5U	1240				
PK10U	1720				
PK25U	2660				
PK50U	3310				
PK100U	4000				

Section 4.0 – Area Studied

Table 6—Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Little Creek (North)	The Iredell/Davie County boundary	Approximately 0.8 mile upstream of Stroud Mill Road (SR 2146)	Iredell County (Unincorporated Areas)
Little Creek (South)	The Iredell County/Rowan County boundary	Approximately 470 feet upstream of Iredell County/Rowan County boundary	Iredell County (Unincorporated Areas)
Little Rocky Creek	The confluence with Patterson Creek	Approximately 100 feet downstream of Hams Grove Road (SR 2017)	Iredell County (Unincorporated Areas)
Little Rocky Creek Tributary 1	The confluence with Little Rocky Creek	Approximately 0.7 mile upstream of the confluence with Little Rocky Creek	Iredell County (Unincorporated Areas)
Long Branch	The confluence with North Little Hunting Creek	Approximately 600 feet upstream of Barnard Mill Road (SR 1824)	Iredell County (Unincorporated Areas)
North Little Hunting Creek	The confluence with Hunting Creek	Approximately 1,440 feet upstream of Barnard Mill Road (SR 1824)	Iredell County (Unincorporated Areas)
Norwood Creek	The confluence with Lake Norman (Hicks Creek)	Approximately 1.9 miles upstream of East Monbo Road	Iredell County (Unincorporated Areas)
Olin Creek	The confluence with Patterson Creek	Approximately 600 feet upstream of Eupeptic Springs Road (SR 1858)	Iredell County (Unincorporated Areas)
Pasture Bottom Creek	The confluence with Brushy Creek	Approximately 200 feet downstream of Zeb Road (SR 1800)	Iredell County (Unincorporated Areas)
Patterson Creek	The confluence with Rocky Creek (into South Yadkin River)	Approximately 1,900 feet upstream of the confluence of Patterson Creek Tributary 2	Iredell County (Unincorporated Areas)
Patterson Creek Tributary 1	The confluence with Patterson Creek	Approximately 0.5 mile upstream of Raider Road (SR 1953)	Iredell County (Unincorporated Areas)
Patterson Creek Tributary 2	The confluence with Patterson Creek	Approximately 0.7 mile upstream of the confluence with Patterson Creek	Iredell County (Unincorporated Areas)
Powder Spring	The confluence with Lake Norman (Norwood Creek)	Approximately 1,100 feet upstream of Pilgrim Circle	Iredell County (Unincorporated Areas)
Powder Spring Branch	The confluence with Lake Norman (Norwood Creek)	Approximately 1,000 feet downstream of Talley Street	Iredell County (Unincorporated Areas)
Reeder Creek	The confluence with Catawba River	Approximately 0.9 mile upstream of Eufola Road	Iredell County (Unincorporated Areas)
Reeder Creek Tributary 1	The confluence with Reeder Creek	Approximately 0.7 mile upstream of confluence with Reeder Creek	Iredell County (Unincorporated Areas)

Section 5.0 – Engineering Methods

Table 8—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
Morrison Creek	At the confluence with Fourth Creek	11.6	2,977	4,394	4,829	6,003
	Approximately 0.9 mile downstream of South Chipley Ford Road	8.0	2,091	3,227	3,588	4,577
	Approximately 400 feet downstream of Wilkesboro Highway	7.0	1,971	3,044	3,381	4,306
	Approximately 500 feet upstream of Old Wilkesboro Road (SR 1645)	5.7	1,625	2,572	2,874	3,713
North Little Hunting Creek	At the confluence with Hunting Creek	54.6	*	*	9,074	*
	Approximately 1,100 feet upstream of Hunting Creek Road (SR 1829)	54.3	*	*	9,047	*
	Approximately 240 feet upstream of the confluence of Long Branch	49.8	*	*	8,565	*
	Approximately 0.8 mile upstream of the confluence of Long Branch	49.3	*	*	8,510	*
	Approximately 2.0 miles upstream of the confluence of Long Branch	48.9	*	*	8,468	*
	Approximately 1,600 feet downstream of Barnard Mill Road (SR 1824)	47.9	*	*	8,360	*
Norwood Creek	Approximately 60 feet upstream of State Park Road	8.9	*	*	3,670	*
	Approximately 0.4 mile upstream of State Park Road	8.1	*	*	3,469	*
	Approximately 870 feet downstream of East Monbo Road	7.7	*	*	3,356	*
	Approximately 870 feet upstream of East Monbo Road	7.5	*	*	3,305	*
	Approximately 1,900 feet upstream of East Monbo Road	7.3	*	*	3,240	*

Section 5.0 – Engineering Methods

Table 10—Roughness Coefficients

Stream	Channel "n"	Overbank "n"
Little Creek (South)	0.045	0.080 - 0.140
Little Rocky Creek	0.045 - 0.050	0.110 - 0.150
Little Rocky Creek Tributary 1	0.045	0.110 - 0.150
Long Branch	0.040	0.080 - 0.120
Morrison Creek	0.040 - 0.050	0.080 - 0.150
North Little Hunting Creek	0.040	0.060 - 0.120
Norwood Creek	0.040 - 0.050	0.110 - 0.150
Olin Creek	0.040 - 0.050	0.110 - 0.150
Pasture Bottom Creek	0.050	0.080 - 0.150
Patterson Creek	0.040 - 0.050	0.110 - 0.150
Patterson Creek Tributary 1	0.045 - 0.050	0.100 - 0.140
Patterson Creek Tributary 2	0.045 - 0.050	0.100 - 0.150
Powder Spring	0.040 - 0.050	0.100 - 0.150
Powder Spring Branch	0.045 - 0.050	0.110 - 0.150
Reeder Creek	0.035 - 0.050	0.100 - 0.150
Reeder Creek Tributary 1	0.050	0.130 - 0.150
Reeds Creek	0.040 - 0.055	0.080 - 0.160
Reeds Creek Tributary 1	0.030 - 0.050	0.030 - 0.130
Reeds Creek Tributary 2	0.045	0.120 - 0.150
Reeds Creek Tributary 3	0.045	0.150 - 0.200
Rocky Creek	0.045 - 0.050	0.150
Rocky Creek (into South Yadkin River)	0.045 - 0.050	0.080 - 0.150
Rocky River	0.040 - 0.045	0.045 - 0.150
Rocky River Tributary 12	0.048	0.090 - 0.150
Shinns Creek	0.048	0.090 - 0.140
Sills Creek	0.048	0.100 - 0.130
Snow Creek	0.045 - 0.050	0.110 - 0.150
South Fork Withrow Creek	0.050	0.070 - 0.150
South Yadkin River	0.040 - 0.055	0.100 - 0.150
South Yadkin River Tributary 6	0.045	0.140 - 0.150
South Yadkin River Tributary 7	0.045	0.150
South Yadkin River Tributary 8	0.040 - 0.045	0.130 - 0.150
Third Creek	0.030 - 0.060	0.030 - 0.150
Third Creek Tributary 1	0.048	0.080 - 0.150
Third Creek Tributary 2	0.055	0.080 - 0.150
Third Creek Tributary 3	0.050	0.050 - 0.140
Third Creek Tributary 3A	0.040 - 0.045	0.080 - 0.130
Third Creek Tributary 3B	0.046	0.130
Third Creek Tributary 4	0.046	0.130
Tributary 1	0.030 - 0.060	0.030 - 0.150
Tributary 2	0.046	0.070 - 0.150
Tributary 2A	0.080 - 0.130	0.080 - 0.130
Tributary 3	0.030 - 0.060	0.030 - 0.150
Tributary 4	0.050	0.080 - 0.140
Tributary 5	0.050	0.080 - 0.150
Tributary 6	0.035 - 0.050	0.080 - 0.200
Tributary 6A	0.050 - 0.055	0.080 - 0.150
Tributary 6A1	0.055	0.150
Tributary 6A2	0.055	0.100 - 0.150
Tributary 6B	0.055	0.100 - 0.150
Tributary 6B1	0.055	0.150
Tributary A	0.030 - 0.060	0.030 - 0.150

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)
NORTH LITTLE HUNTING CREEK				
051	5,065	9,047	771.3 ⁴	41 / 142
054	5,419	9,047	771.3 ⁴	55 / 53
057	5,706	9,047	771.3 ⁴	41 / 41
063	6,342	9,047	771.9	41 / 41
067	6,679	9,047	772.3	41 / 41
071	7,062	9,047	772.7	41 / 35
076	7,600	9,047	773.6	41 / 41
080	8,001	8,565	774.2	40 / 40
086	8,581	8,565	774.9	40 / 40
091	9,085	8,565	775.6	40 / 40
093	9,300	8,565	776.9	58 / 754
100	9,967	8,565	777.4	416 / 93
105	10,540	8,565	777.4	99 / 40
110	10,984	8,565	778.0	40 / 42
114	11,397	8,565	778.5	40 / 290
117	11,731	8,565	778.7	40 / 187
124	12,377	8,510	779.3	40 / 40
128	12,753	8,510	780.2	213 / 40
131	13,145	8,510	780.7	48 / 383
135	13,507	8,510	780.9	98 / 40
141	14,120	8,510	781.4	171 / 44
148	14,804	8,510	782.0	517 / 46
154	15,420	8,510	782.0	40 / 40
159	15,881	8,510	783.3	40 / 40
162	16,244	8,510	783.8	40 / 40
167	16,723	8,510	784.7	40 / 40
172	17,232	8,510	785.6	34 / 40
176	17,577	8,510	786.3	40 / 40
180	18,024	8,510	787.1	36 / 40
182	18,214	8,468	787.7	40 / 36
186	18,585	8,468	788.7	40 / 40
189	18,911	8,468	789.3	40 / 40
195	19,527	8,468	790.3	37 / 40
200	20,008	8,468	791.8	40 / 40
205	20,463	8,468	792.5	40 / 40
209	20,863	8,468	793.3	40 / 40
213	21,331	8,468	794.3	45 / 40
218	21,774	8,468	795.1	52 / 40
222	22,239	8,360	795.8	39 / 39
227	22,676	8,360	797.1	47 / 44
231	23,116	8,360	798.4	56 / 66
234	23,417	8,360	798.8	39 / 39
236	23,584	8,360	804.3	39 / 39
240	23,992	8,360	809.8	39 / 39
244	24,399	8,360	810.6	39 / 39
249	24,914	8,360	811.8	39 / 39
254	25,428	8,360	812.5	39 / 39

North Little Hunting Creek Limited Detail Study Plan: Floodway Run 7/15/2008
 Barnard Mill Rd - TORStructure ID: LDS_NLHC_02Approximate Surv

