OFFICE ESTIMATE
1@ 55' Bridge

Project# 17BP.11.R.93
TIP#
Let Date
WBS#

PREDESIGN-PRESURVEY REPORT

Bridge# 940153 D-8
Road# SR 1508 (ELK CRK. RD)
Stream ELK CREEK

County WATAUGA (Div. 11)

Type Of Request: POC Force Account TIP NCMA
Date 4/15/14 Name WSH Assigned To RCH
Checked By MJY - 4/22/14
Prior Survey Date NONE (attach copy of prior survey) BRN. BK.: NO CO. FILE NO
Study By Scour Section NO
Flood Zone AE Detail Study LIMITED Date 12/3/09 Panel# 2940
B.M. Info N/A
Quad Map DEEP GAP Drainage Area 6.0 SQ MI. From STREAM STATS / RURAL REGION 2
Q25 = 1500 cfs Q50 = 1700 cfs Q100 = 2100 cfs Method REG. EQU.
LG. 81° 32' 55.49" LAT: 36° 12' 01.03"
81.54875 36.20029

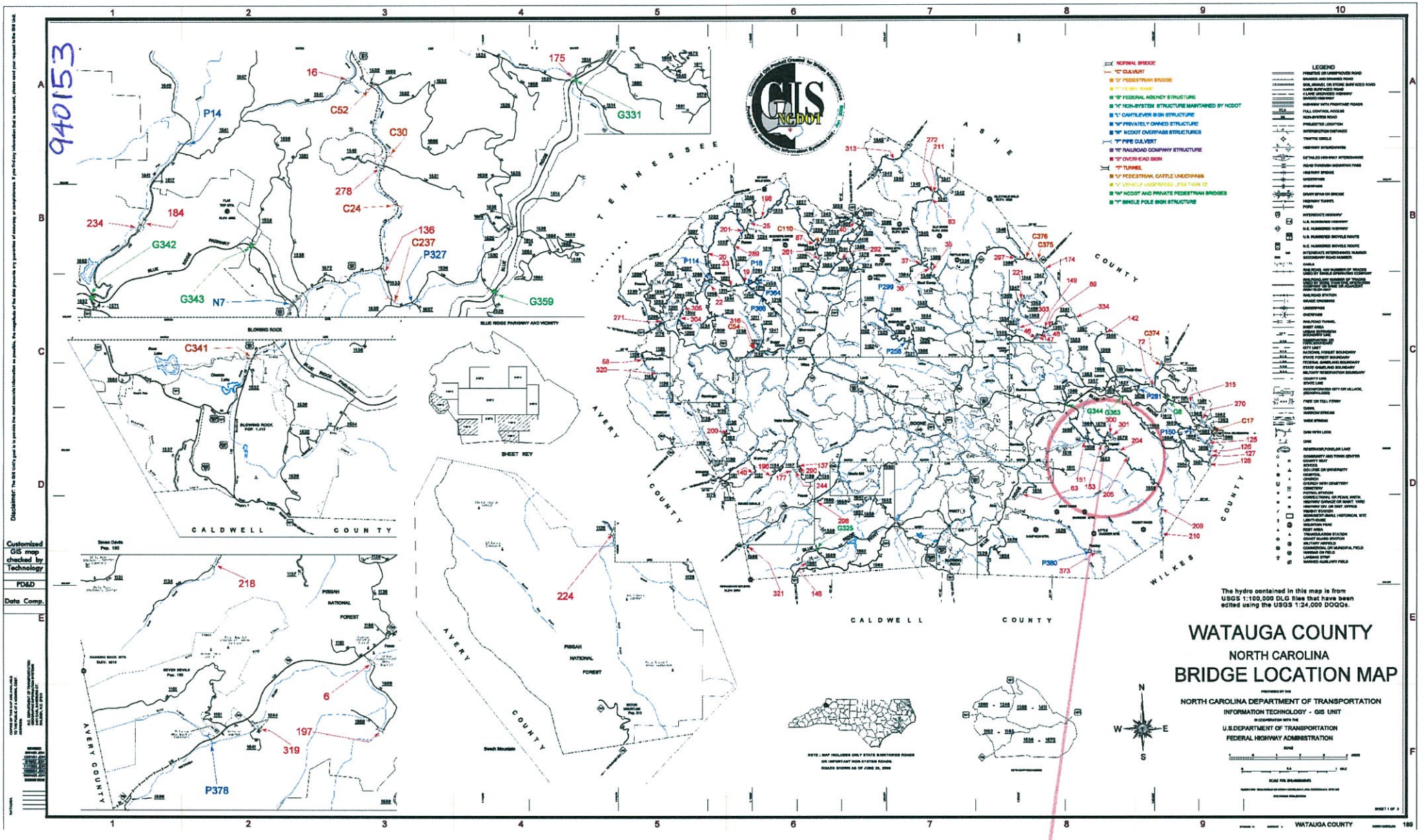
EXISTING BRIDGE INFORMATION

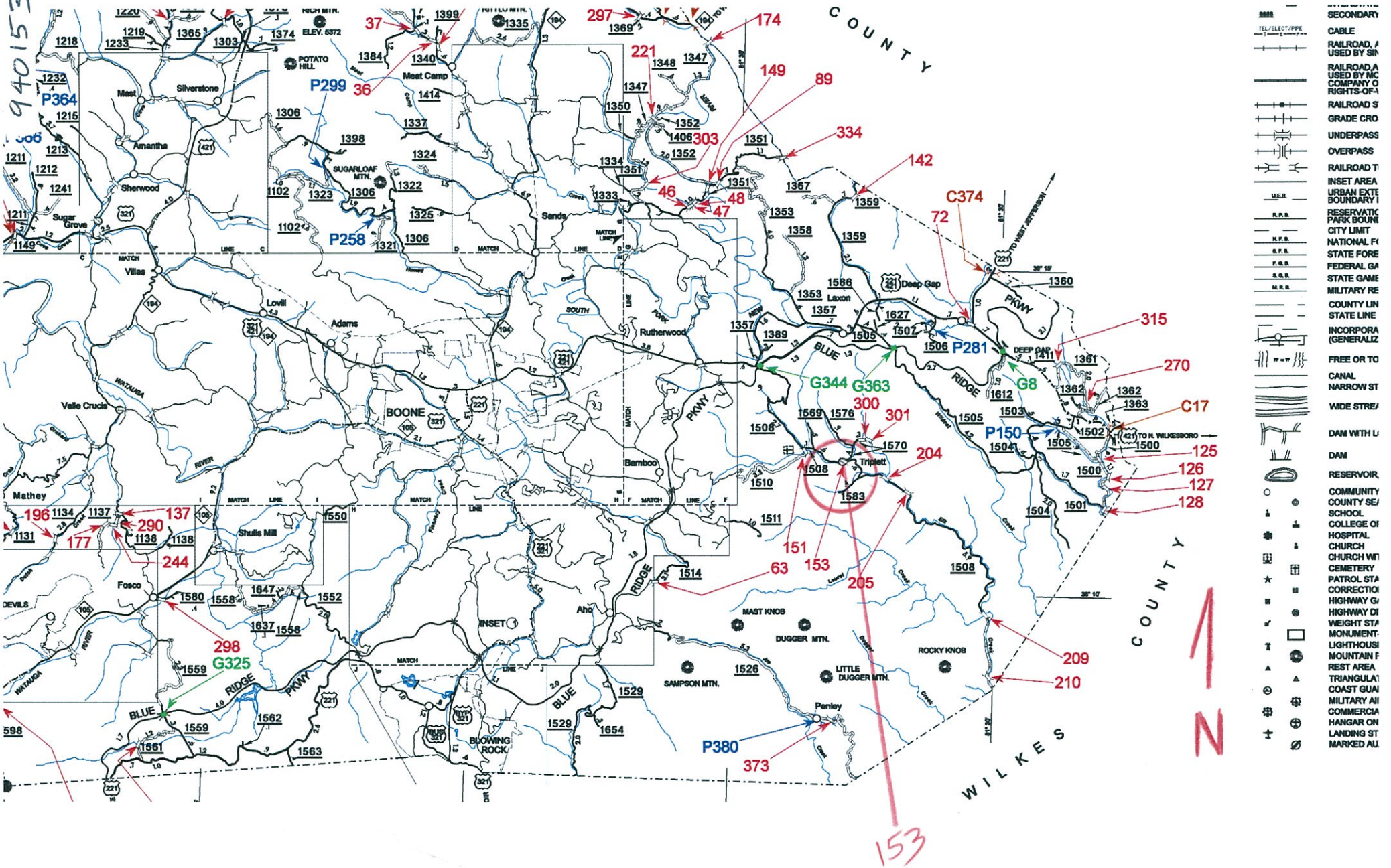
Location 50 FT. S. JCT SR 1570 (ELK LN.)
Average Daily Traffic 300 (2011) 6% TRK.
Length 46' Bed- To Crown 12' Water Depth 1'
Type Structure STEEL PLANK FLR ON I BEAMS, TIMBER E. BTS, CAPS, POST CONC. SILLS
Type Spans 1 @ 46'
Upstream Structure 940151 ABUTS - CONC.
Location SR 1510 (0.1 M. W. JCT. SR 1508) TIMBER FLR ON STEEL GIRDER
Bed- To Crown 17' (1' DEEP) Prior Survey — 1 @ 34' (JAKES MT. RD)
Downstream Structure 940 300
Location SR 1570 (0.2 M. N.E. JCT. SR 1576) TIMBER FLR ON I-BEAMS TIM. CAPS POST & SILLS
Bed- To Crown 6' (1' DEEP) Prior Survey — 1 @ 25' 8"
SCS Watershed N/A

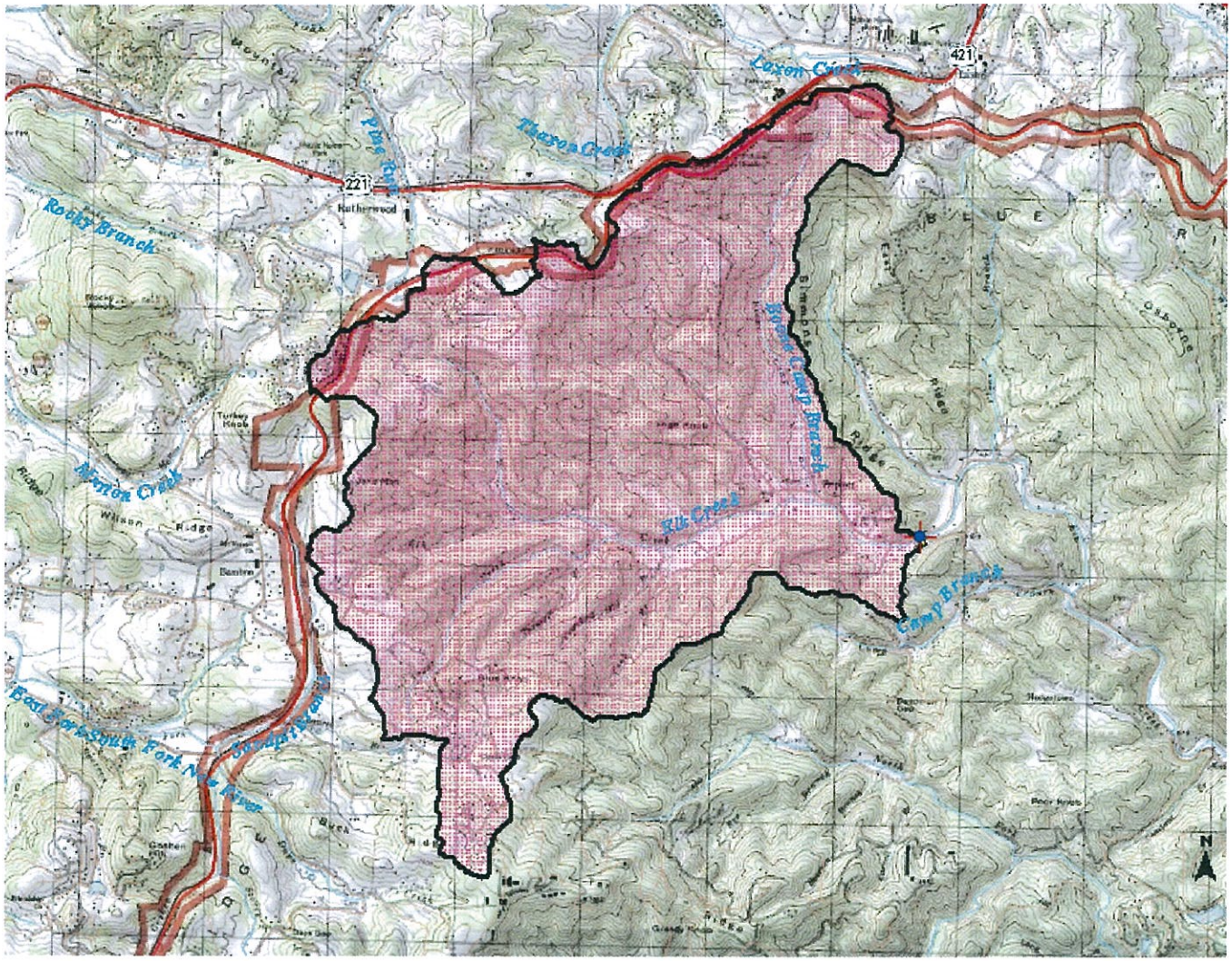
ENVIRONMENTAL TVA: YES ✓

Trout Stream YES Anadromous Fish NO Primary Nursery Area NO
High Quality Waters YES / ORW Nutrient Sensitive Waters NO
Near Water Supply Intake NO CAMA County NO
Stream Classification B, Tr, ORW 12-24-(1) FROM SOURCE TO DUGGER CRK.
DENR River Basin Info. YADKIN

1, 4, 41, 51


940153
WATAUGA COUNTY
NORTH CAROLINA
BRIDGE LOCATION MAP
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
INFORMATION TECHNOLOGY - GIS UNIT
U.S.DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
The hydro contained in this map is from USGS 1:100,000 DLG files that have been edited using the USGS 1:24,000 DOQQs.
CALDWELL COUNTY
AVERY COUNTY
WILKES COUNTY
TENNESSEE
BLOWING ROCK
BLUE RIDGE PARKWAY AND VICINITY
SHEET KEY
PISGAH NATIONAL FOREST
Beech Mountain
LEGEND
#153


940153
BOONE
Valle Crucis
Mathey
Sugar Grove
Vilas
Sherwood
Amantha
Silverstone
Mast
Lovill
Adams
Sands
Rutherwood
Meat Camp
Sugarloaf Mtn.
Potato Hill
Rich Mtn.
Elev. 5372
Deep Gap
Laxon
Triplett
Bamboo
Shulls Mill
Fosco
Aho
Blowing Rock
Sampson Mtn.
Dugger Mtn.
Little Dugger Mtn.
Mast Knob
Rocky Knob
Penley
Watauga River
Watauga
South Fork
Meat Camp Creek
Blue Ridge Pkwy
INSET 1
P364
P299
P258
P281
P150
P380
G325
G344
G363
G8
C374
C17
TO W. JEFFERSON
TO N. WILKESBORO
COUNTY
WILKES
N
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WATAUGA 940153
DA = 6.0 SQ. MI.

940153

USGS North Carolina StreamStats

Streamstats Ungaged Site Report

Date: Tue Apr 15 2014 05:26:54 Mountain Daylight Time
Site Location: North_Carolina
NAD27 Latitude: 36.2002 (36 12 01)
NAD27 Longitude: -81.5489 (-81 32 56)
NAD83 Latitude: 36.2003 (36 12 01)
NAD83 Longitude: -81.5488 (-81 32 56)
Drainage Area: 5.96 mi2
Percent Urban: 7.0 %
Percent Impervious: 0.3 %

Peak Flows Region Grid Basin Characteristics			
100% Peak Southeast US 2009 5158 (5.96 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	5.96	1	9000
Percent Area in Region 1 (percent)	0.000	0	100
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

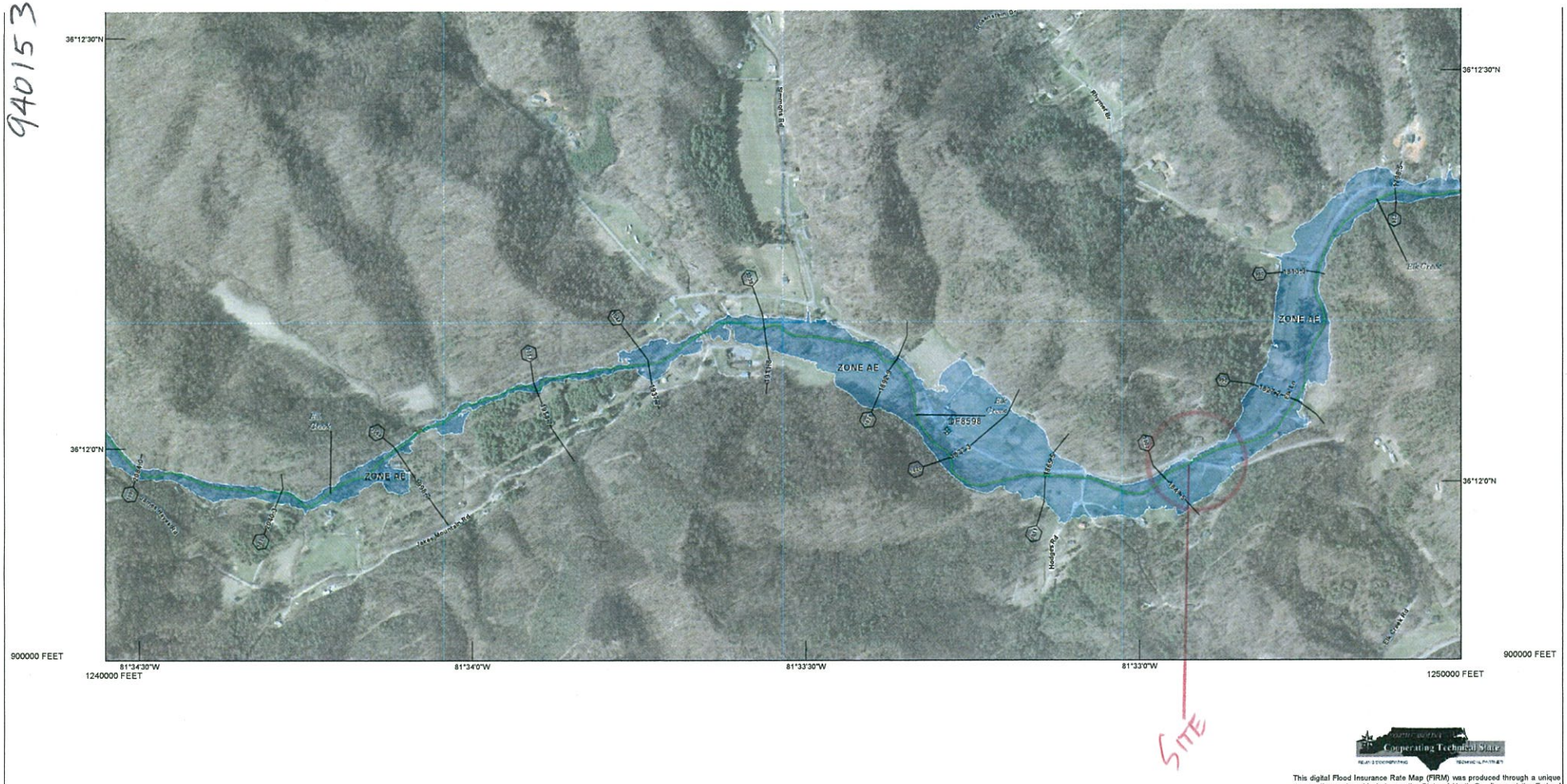
Urban Flows Region Grid Basin Characteristics			
100% Peak urban Blue Ridge-Piedmont FS007-00 (5.96 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	5.96	0.04	41
Area of Impervious Surfaces (percent)	0.30 (below min value 2)	2	54.6

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	440	35		252	770
PK5	796	34		458	1380
PK10	1070	35		606	1900
PK25	1450	38		790	2660
PK50	1720	40		909	3270
PK100	2050	42		1050	4040
PK200	2340	44		1150	4770
PK500	2790	48		1300	5980

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	54.5				
PK5U	134				
PK10U	211				
PK25U	401				
PK50U	538				
PK100U	700				

940153



Cooperating Technical State

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 to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map flood hazard areas at the local 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 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

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-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.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 http://www.ncfloodmaps.com

SCALE

Map Projection:
North Carolina State Plane Projection Feet (Zone 3200)
Datum: NAD 1983 (Horizontal), NAVD 1988 (Vertical)

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

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION PRIORITY MAINTENACE
SIGN NOTICE
TEMPORARY REPAIR

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection - Contract

COUNTY WATAUGA BRIDGE NUMBER 940153 INSPECTION CYCLE 0 YRS

SR1508 (ELK CREEK RD)

ROUTE SR1508 ACROSS ELK CREEK M.P. 0

50 FT. SOUTH OF JUNCTION WITH SR1570 (ELK LANE)

LOCATION 50 FT.S.JCT.SR1570

SUPERSTRUCTURE STEEL PLANK FLOOR ON I-BEAMS

SUBSTRUCTURE E.BTS:TIM.CAPS/TIM.POST&CONC.SILLS@VAR.CTRS.

SPANS 1@46'

LONGITUDE 81° 32' 55.49" LATITUDE 36° 12' 1.03"

INSPECTION DATE 10/16/2013 PRESENT CONDITION FAIR

PRESENT POSTING SV 31 TTST 31 SV 32 TTST 36 PROPOSED POSTING

OTHER SIGNS PRESENT FOUR (4) DELINEATORS



LOOKING NORTH

Fracture Critical	No
Temporary Shoring	No
Scour Critical	No
Scour POA	No

SIGN NOTICE ISSUED FOR		NUMBERED REQUIRED
No	WEIGHT LIMIT	
Yes	DELINEATORS	1
No	NARROW BRIDGE	
No	ONE LANE BRIDGE	
No	LOW CLEARANCE	

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE Run Date: 01/21/2014

COUNTY :	DIVISION :	DISTRICT:	STRUCTURE NUMBER :	LENGTH :
WATAUGA	11	2	940153	46 FEET

ROUTE CARRIED : SR1508

FEATURE INTERSECTED : ELK CREEK

LOCATED : 50 FT.S.JCT.SR1570

BRIDGE NAME :

CITY :

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :		RAIL TYPE :			
09	NFA	NFA	300	2011	LT	233	RT	233

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1967	BMU			Unknown

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :		
			TAN	135	ON 2	UNDER	0

NAVIGATION :					HT. CRN. TO BED :		WATER DEPTH :	
VC	0	FT	HC	0 FT	12	FT	1	FT

SUPERSTRUCTURE : STEEL PLANK FLOOR ON I-BEAMS

SUBSTRUCTURE : E.BTS:TIM.CAPS/TIM.POST&CONC.SILLS@VAR.CTRS.

SPANS : 1@46'

BEAMS OR GIRDERS : 10 LINES 21 I-BEAMS @ 2'-6.5 CENTERS

FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
STL.PLK/3 AWS		24.083 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :			
24 FT	24.583 FT	LT	.3 FT	RT	.3 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :				
HS-1	HS-1	IntBeam	SV 32	TTST	36	DATE	11/28/2011

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

UNDER ROUTES AND CLEARANCES

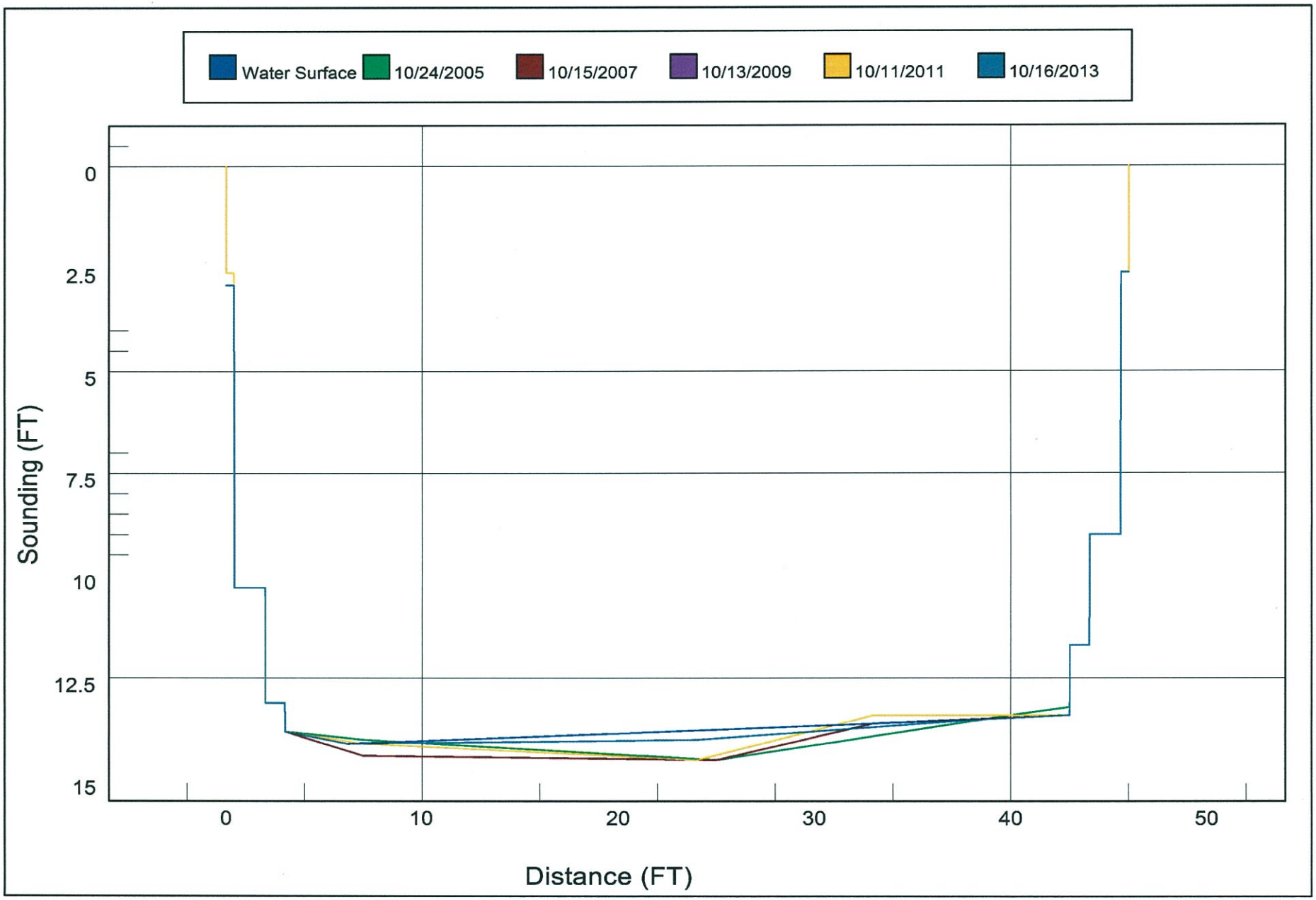
REMARKS :

Bridge: 940153 County WATAUGA Date: 10/16/2013

153

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



Structure 940153 County WATAUGA Date: 10/16/2013 Structure Photos



ASPHALT WEARING SURFACE



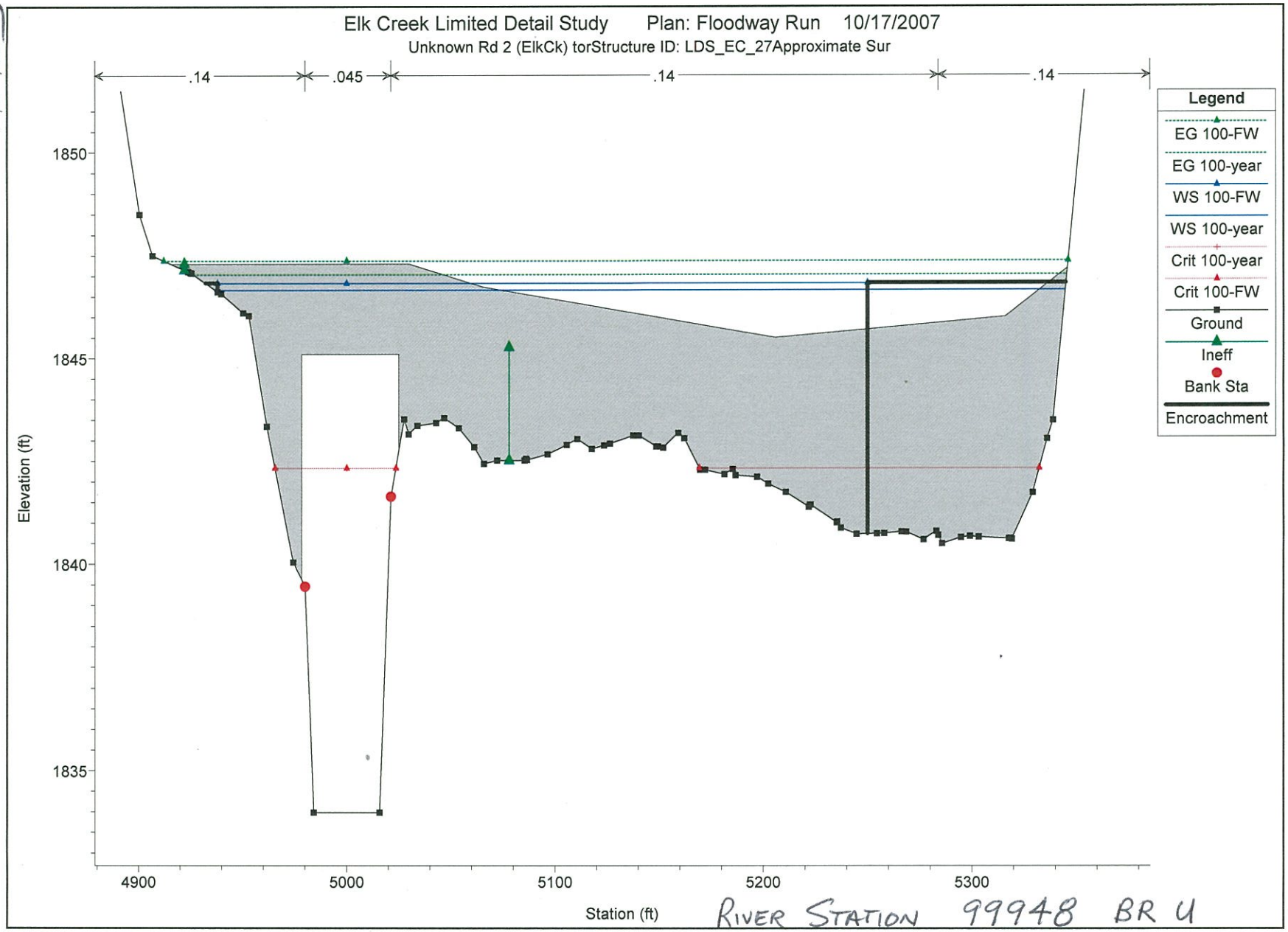
UPSTREAM PROFILE

940153

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)*
ELK CREEK				
870	86,955	6,993	1,636.2	137 / 37
874	87,377	6,993	1,642.5	84 / 59
876	87,603	6,993	1,645.0	29 / 72
878	87,832	6,993	1,648.4	32 / 44
881	88,058	6,993	1,653.1	28 / 43
887	88,664	6,993	1,661.4	31 / 68
892	89,193	6,993	1,670.8	98 / 80
895	89,524	6,993	1,675.0	96 / 73
898	89,758	6,993	1,677.3	33 / 96
901	90,116	6,993	1,681.5	32 / 101
906	90,580	6,993	1,687.0	100 / 33
908	90,802	6,993	1,692.3	168 / 24
912	91,241	6,456	1,701.9	50 / 409
916	91,591	6,456	1,704.6	147 / 25
918	91,811	6,456	1,711.9	134 / 40
920	92,000	6,456	1,716.0	105 / 35
923	92,261	6,432	1,719.3	33 / 51
925	92,547	6,432	1,726.5	38 / 61
928	92,782	6,432	1,736.3	36 / 35
929	92,934	6,221	1,738.8	31 / 29
932	93,178	6,221	1,744.4	78 / 30
935	93,538	6,221	1,747.1	54 / 68
939	93,932	6,221	1,750.3	42 / 78
943	94,257	6,221	1,754.8	131 / 78
945	94,451	6,221	1,756.6	138 / 35
948	94,817	6,221	1,760.6	90 / 25
951	95,112	6,221	1,768.1	135 / 81
954	95,364	6,221	1,770.6	75 / 68
956	95,581	6,221	1,773.5	60 / 60
959	95,899	6,221	1,777.9	39 / 170
962	96,184	6,221	1,783.0	36 / 111
965	96,535	6,221	1,790.1	62 / 39
969	96,912	5,286	1,795.8	104 / 21
972	97,151	5,286	1,798.5	121 / 58
975	97,468	5,286	1,803.2	194 / 41
977	97,739	5,286	1,807.8	212 / 22
980	98,017	5,286	1,813.3	276 / 25
983	98,308	5,286	1,817.0	352 / 28
987	98,702	5,286	1,823.1	291 / 176
990	99,023	5,286	1,827.2	325 / 55
993	99,331	5,286	1,831.9	271 / 62
997	99,679	4,825	1,838.2	47 / 148
1002	100,193	4,825	1,847.5	45 / 286
1005	100,462	4,825	1,854.2	71 / 178
1011	101,134	4,825	1,865.5	25 / 176
1014	101,428	4,825	1,872.1	108 / 75
1017	101,660	4,825	1,875.3	258 / 31

940153


Elk Creek Limited Detail Study Plan: Floodway Run 10/17/2007
Unknown Rd 2 (ElkCk) torStructure ID: LDS_EC_27Approximate Sur
.14
.045
.14
.14
Legend
EG 100-FW
EG 100-year
WS 100-FW
WS 100-year
Crit 100-year
Crit 100-FW
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1850
1845
1840
1835
4900
5000
5100
5200
5300
Station (ft)
RIVER STATION 99948 BR U