

Water-Data Report 2007

**0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC**

Neuse Basin  
Upper Neuse Subbasin

LOCATION.--Lat 36°07'55", long 78°50'00" referenced to North American Datum of 1983, Durham County, NC, Hydrologic Unit 03020201, on left bank at culvert on Secondary Road 1680, 1.5 mi southeast of Willardville.

DRAINAGE AREA.--1.14 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--March 1988 to September 1990, October 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 270 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No flow occurred on many days during the period. Maximum discharge for period of record, from rating curve extended above 70 ft<sup>3</sup>/s, on basis of computation of flow through culvert with road overflow. Maximum gage height for period of record from floodmarks.

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**  
**DAILY MEAN VALUES**

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.02	0.23	0.18	0.26	0.20	0.34	0.72	0.54	0.04	0.02	0.00	0.00
2	0.01	0.23	0.12	0.30	0.32	4.2	0.65	0.51	0.04	0.00	0.00	0.00
3	0.00	0.22	0.09	0.24	0.28	1.7	0.55	0.49	0.34	0.00	0.00	0.00
4	0.00	0.19	0.09	0.22	0.23	1.2	0.50	0.51	0.17	0.00	0.00	0.00
5	0.00	0.20	0.06	0.23	0.23	1.1	0.42	0.52	0.10	0.00	0.00	0.00
6	0.23	0.21	0.05	0.79	0.22	0.99	0.39	0.52	0.11	0.00	0.00	0.00
7	0.17	2.4	0.06	0.67	0.24	0.96	0.39	0.49	0.05	0.00	0.00	0.00
8	0.23	2.7	0.03	1.5	0.22	0.85	0.34	0.53	0.04	0.00	0.00	0.00
9	0.13	0.55	0.03	0.55	0.21	0.77	0.32	0.66	0.03	0.00	0.00	0.00
10	0.08	0.29	0.03	0.35	0.19	0.74	0.32	0.61	0.03	0.00	0.00	0.00
11	0.06	0.22	0.03	0.27	0.19	0.66	0.40	0.52	0.02	0.11	0.00	0.00
12	0.08	8.5	0.03	0.25	0.19	0.61	2.2	44	0.02	0.05	0.00	0.00
13	0.03	1.4	0.04	0.22	0.22	0.60	0.91	4.9	0.05	0.00	0.00	0.00
14	0.02	0.65	0.07	0.22	0.91	0.58	0.59	1.4	0.04	0.02	0.00	0.00
15	0.01	0.43	0.10	0.21	0.45	0.57	32	0.90	0.04	0.00	0.00	0.00
16	0.02	14	0.09	0.18	0.34	9.4	10	0.73	0.03	0.00	0.00	0.00
17	0.17	2.1	0.09	0.15	0.31	5.1	2.8	0.80	0.03	0.00	0.00	0.00
18	0.36	0.76	0.10	0.17	0.31	1.9	1.8	0.58	0.02	0.07	0.00	0.00
19	0.09	0.48	0.10	0.19	0.27	1.3	1.4	0.47	0.01	0.00	0.00	0.00
20	0.19	0.35	0.08	0.16	0.28	1.1	1.1	0.41	0.02	0.00	0.00	0.00
21	0.13	0.90	0.11	0.21	0.28	0.88	0.99	0.33	0.01	0.00	0.00	0.00
22	0.22	27	0.18	1.1	0.32	0.80	0.90	0.29	0.01	0.00	0.00	0.00
23	0.23	3.6	0.27	0.56	0.27	0.76	0.82	0.27	0.02	0.00	0.00	0.00
24	0.16	1.2	0.18	0.37	0.25	0.65	0.81	0.23	0.01	0.00	0.00	0.00
25	0.15	0.66	3.1	0.31	0.45	0.58	0.77	0.22	0.05	0.00	0.00	0.00
26	0.17	0.45	1.1	0.25	0.63	0.52	0.71	0.17	0.01	0.00	0.00	0.00
27	0.23	0.31	0.40	0.25	0.43	0.60	0.71	0.15	0.00	0.00	0.00	0.00
28	0.60	0.23	0.27	0.24	0.35	1.3	0.64	0.10	0.00	0.00	0.00	0.00
29	0.21	0.17	0.22	0.19	---	1.6	0.60	0.08	0.01	0.00	0.00	0.00
30	0.12	0.16	0.19	0.19	---	1.2	0.56	0.05	0.03	0.00	0.00	0.00
31	0.14	---	0.19	0.19	---	0.83	---	0.05	---	0.00	0.00	---
<b>Total</b>	4.26	70.79	7.68	10.99	8.79	44.39	65.31	62.03	1.38	0.27	0.00	0.00
<b>Mean</b>	0.14	2.36	0.25	0.35	0.31	1.43	2.18	2.00	0.05	0.01	0.00	0.00
<b>Max</b>	0.60	27	3.1	1.5	0.91	9.4	32	44	0.34	0.11	0.00	0.00
<b>Min</b>	0.00	0.16	0.03	0.15	0.19	0.34	0.32	0.05	0.00	0.00	0.00	0.00
<b>Cfsm</b>	0.12	2.07	0.22	0.31	0.28	1.26	1.91	1.76	0.04	0.01	0.00	0.00
<b>In.</b>	0.14	2.31	0.25	0.36	0.29	1.45	2.13	2.02	0.05	0.01	0.00	0.00

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2007<sup>a</sup>, BY WATER YEAR (WY)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	0.53	0.54	0.80	1.43	1.79	2.18	1.48	0.71	0.44	0.25	0.12	1.03
<b>Max</b>	4.01	2.36	3.26	3.17	5.41	8.30	5.04	2.20	4.07	1.26	0.50	8.60
<b>(WY)</b>	(2003)	(2007)	(1990)	(1998)	(1998)	(1998)	(2003)	(1989)	(1995)	(1989)	(1989)	(1996)
<b>Min</b>	0.00	0.04	0.01	0.16	0.27	0.15	0.06	0.01	0.05	0.00	0.00	0.00
<b>(WY)</b>	(2006)	(2006)	(1989)	(2001)	(2002)	(2006)	(1995)	(2002)	(2007)	(1988)	(2007)	(1990)

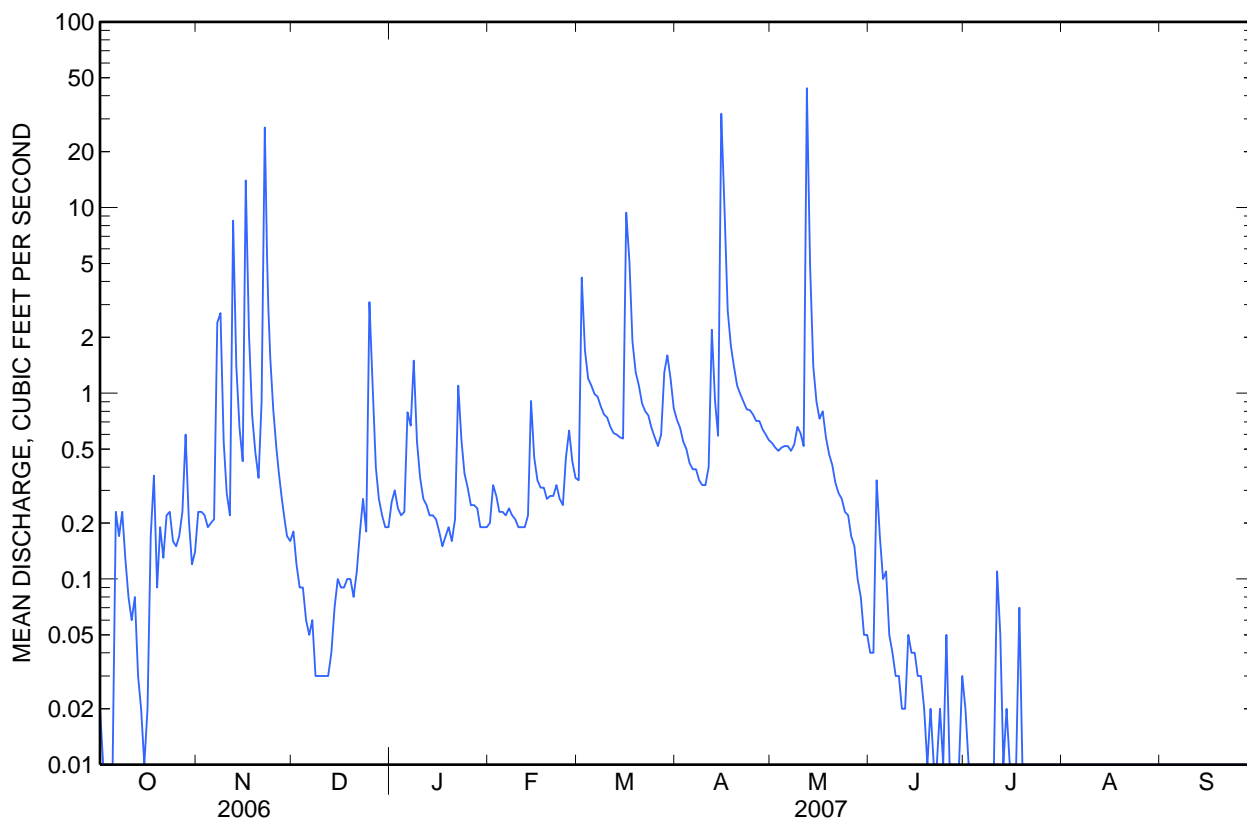
0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1987 - 2007 <sup>a</sup>	
<b>Annual total</b>	161.31		275.89			
<b>Annual mean</b>	0.44		0.76		0.96	
<b>Highest annual mean</b>					2.00	2003
<b>Lowest annual mean</b>					0.16	2002
<b>Highest daily mean</b>	27	Nov 22	44	May 12	225	Sep 6, 1996
<b>Lowest daily mean</b>	0.00	Jul 21	0.00	Oct 3	0.00	Jun 22, 1988
<b>Annual seven-day minimum</b>	0.00	Jul 29	0.00	Jul 2	0.00	Jul 2, 1988
<b>Maximum peak flow</b>			647	May 12	<sup>b</sup> 1,410	Sep 6, 1996
<b>Maximum peak stage</b>			7.02	May 12	<sup>b</sup> 7.77	Sep 6, 1996
<b>Instantaneous low flow</b>			0.00	Oct 2	<sup>b</sup> 0.00	Jun 15, 1988
<b>Annual runoff (cfsm)</b>	0.388		0.663		0.838	
<b>Annual runoff (inches)</b>	5.26		9.00		11.39	
<b>10 percent exceeds</b>	0.50		0.99		1.7	
<b>50 percent exceeds</b>	0.13		0.19		0.20	
<b>90 percent exceeds</b>	0.00		0.00		0.00	

<sup>a</sup> See Period of Record.

<sup>b</sup> See Remarks.



## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1988-91, 1994 to current year

REMARKS.--Station operated to define the impacts of various land-use development on surface-water quality in the Upper Neuse River basin. For the period February 1988 through June 1989 the inorganic chemical data and trace metal data were analyzed by the city of Durham's Brown Water Treatment Plant Laboratory.

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 1 of 3

[Remark codes: <, less than; E, estimated.]

Date	Time	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf 25 degC (00095)	Temperature, water, deg C (00010)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)
<b>Oct</b>													
<b>18...</b>	1315	.19	753	8.1	84	6.8	81	16.5	.31	.24	<.020	<.06	<.002
<b>Nov</b>													
<b>16...</b>	1045	23	739	9.0	93	5.8	40	15.4	.73	.66	<.020	<.06	.002
<b>Jan</b>													
<b>30...</b>	1045	.19	756	13.7	101	7.1	57	2.5	.50	E.09	E.011	<.06	<.002
<b>Mar</b>													
<b>07...</b>	1345	.98	758	9.9	92	5.9	52	11.5	.13	.10	E.015	<.06	<.002
<b>Apr</b>													
<b>16...</b>	1130	7.4	744	10.0	94	5.5	40	11.7	.23	.33	<.020	<.06	<.002
<b>May</b>													
<b>30...</b>	1430	.06	753	7.5	85	6.8	69	20.5	.28	.14	<.020	.09	<.002

## 0208650112 FLAT RIVER TRIBUTARY NEAR WILLARDVILLE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 2 of 3

[Remark codes: &lt;, less than; E, estimated.]

Date	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd, mg/L (00600)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd, mg/L (00665)	Aluminum, water, recover-able, µg/L (01105)	Arsenic, water, unfltrd, µg/L (01002)	Cadmium, water, unfltrd, µg/L (01027)	Chromium, water, recover-able, µg/L (01034)	Cobalt, water, recover-able, µg/L (01037)	Copper, water, recover-able, µg/L (01042)	Iron, water, recover-able, µg/L (01045)	Lead, water, recover-able, µg/L (01051)
Oct 18...	--	--	E.003	<.04	E.04	400	.49	.03	.80	.352	1.7	706	.49
Nov 16...	--	--	E.005	<.04	.06	1,130	.54	.03	1.2	1.21	3.2	1,340	1.57
Jan 30...	--	--	E.003	<.04	<.04	--	--	--	--	--	--	--	--
Mar 07...	--	--	E.003	<.04	<.04	--	--	--	--	--	--	--	--
Apr 16...	--	--	E.004	<.04	E.03	--	--	--	--	--	--	--	--
May 30...	.38	.23	E.005	<.04	E.02	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 3 of 3

[Remark codes: &lt;, less than; E, estimated.]

Date	Manganese, water, unfltrd recover-able, µg/L (01055)	Mercury, water, unfltrd recover-able, µg/L (71900)	Molybdenum, water, unfltrd recover-able, µg/L (01062)	Nickel, water, unfltrd recover-able, µg/L (01067)	Selenium, water, unfltrd, µg/L (01147)	Silver, water, unfltrd recover-able, µg/L (01077)	Zinc, water, unfltrd recover-able, µg/L (01092)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct 18...	19.0	<.010	.1	.71	.10	<.02	2	17	.01
Nov 16...	91.5	.019	<.1	1.28	.16	E.01	5	106	6.5
Jan 30...	--	--	--	--	--	--	--	3	.00
Mar 07...	--	--	--	--	--	--	--	3	.01
Apr 16...	--	--	--	--	--	--	--	23	.46
May 30...	--	--	--	--	--	--	--	4	.00