



Water-Data Report 2008

01476835 EAST BRANCH CHESTER CREEK AT WESTTOWN, PA

Lower Delaware Basin
Lower Delaware Subbasin

LOCATION.--Lat 39°56'26", long 75°32'30" referenced to North American Datum of 1927, Chester County, PA, Hydrologic Unit 02040202, at bridge on State Route 926, 3.5 mi east of West Chester.

DRAINAGE AREA.--10.40 mi².

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1970 to current year.

REMARKS.--Samples were collected as part of the Chester County Biological Monitoring project.

Long-term benthic-macroinvertebrate and water-quality data are available for this site. Collection of benthic macroinvertebrate data over time allows for determination of a change in the benthic macroinvertebrate community but additional data are needed to explain why. One reason a macroinvertebrate community may change is because of habitat alterations related to stream-channel adjustment. Geomorphic surveys of stream-channel profile, dimension, and substrate were conducted to document existing (baseline) conditions in 2008. These data may be useful to explain future changes in the benthic macroinvertebrate community. Selected components of the surveys are described in more detail below.

The longitudinal profile is a survey along the length of the stream displayed as if viewed from the side, or in profile. There are three components to the longitudinal profile; the water surface that would occur when the bankfull channel is flowing full (bankfull stage); the water surface at the time of the survey; and the streambed along the line of maximum depth and velocity (thalweg). For East Branch Chester Creek, the longitudinal profile began (station 0) at Route 926 bridge and continued downstream for approximately 600 feet. Locations of surveyed cross sections are plotted on the longitudinal profile along with their respective distance along the reach (station). The slope of the water surface assigned to the longitudinal profile was 0.002 feet per foot.

Cross-sections are surveyed perpendicular to the stream channel and are displayed as if looking in the downstream direction with station zero being located in the left overbank area. There are four components to the cross-section survey; the streambed, streambanks, and overbank areas (bed and bank surfaces); the water surface at the time of the survey; the water-surface elevation that would occur when the bankfull channel is flowing full (bankfull stage); and the water surface that would occur at twice the maximum depth of the bankfull channel (twice bankfull stage).

For additional information, contact Drew Reif at the USGS Pennsylvania Water Science Center, Exton Office, 770 Pennsylvania Drive, Suite 116, Exton, PA 19341; 610-321-2434 extn 200 (email agreif@usgs.gov).

COOPERATION.--Samples were collected with cooperation from the Chester County Water Resources Agency.

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 1 of 2

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

Date	Time	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd, field, std (00400)	pH, water, unfltrd, lab, std (00403)	Specific conductance, wat unfiltered, μS/cm 25 degC (90095)	Specific conductance, wat unfiltered, μS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium, water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered, titr., field, mg/L as CaCO3 (00419)
Oct 04...	0830	3.3	8.5	7.5	7.7	521	504	18.9	36.8	18.9	4.32	27.6	78

01476835 EAST BRANCH CHESTER CREEK AT WESTTOWN, PA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 2 of 2

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

Date	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L as SiO ₂ (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate + nitrite		Ortho-phosphate, water, fltrd, mg/L as P (00671)	Boron, water, fltrd, µg/L (01020)	Iron, water, fltrd, µg/L (01046)
						water, fltrd, mg/L as N (00631)	water, fltrd, mg/L as N (00613)			
Oct 04...	78.7	E.09	14.4	26.7	<.020	4.93	.015	.470	43	17

01476835 EAST BRANCH CHESTER CREEK AT WESTTOWN, PA—Continued**ECOLOGICAL RECORDS**

PERIOD OF RECORD.--October 1970 to current year.

REMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 mm. Three samples were collected and composited.

Date	10/04/07
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	162
Nematoda (NEMATODES)	249
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<i>Prostoma</i>	24
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<i>Ferrissia</i>	32
Physidae	
<i>Physa</i>	1
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
<i>Corbicula fluminea</i>	14
Sphaeriidae	
<i>Sphaerium</i>	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	4
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	59
Crustacea	
Podocopa (SEED SHRIMP)	4
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<i>Baetis</i>	308
<i>Plauditus</i>	501
Heptageniidae	
<i>Maccaffertium</i>	6
Odonata (DRAGONFLIES AND DAMSELFLIES)	

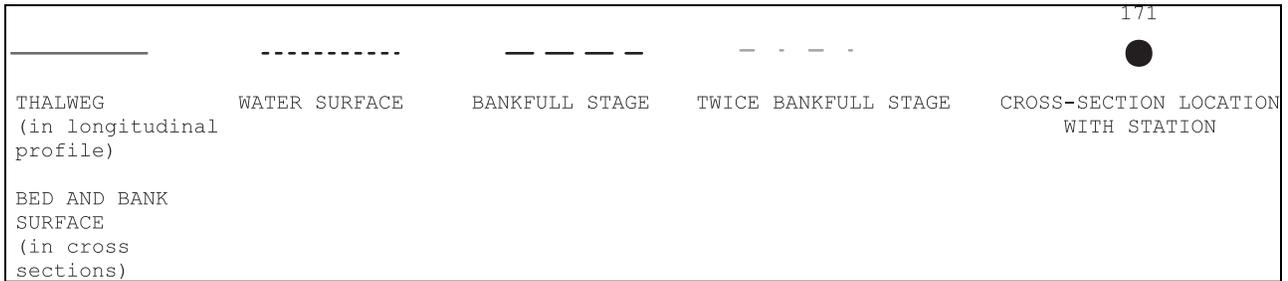
01476835 EAST BRANCH CHESTER CREEK AT WESTTOWN, PA—Continued

Date	10/04/07
Benthic Macroinvertebrate	Count
Coenagrionidae	
<i>Argia</i>	4
Trichoptera (CADDISFLIES)	
Glossosomatidae	
<i>Glossosoma</i>	1
Hydropsychidae	
<i>Cheumatopsyche</i>	774
<i>Hydropsyche</i>	1156
Hydroptilidae	
<i>Hydroptila</i>	88
<i>Leucotrichia</i>	2
Philopotamidae	
<i>Chimarra</i>	223
Polycentropodidae	
<i>Polycentropus</i>	4
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<i>Ancyronyx</i>	1
<i>Macronychus</i>	5
<i>Microcylloepus</i>	6
<i>Optioservus</i>	135
<i>Oulimnius</i>	122
<i>Stenelmis</i>	1221
Hydrophilidae	
<i>Berosus</i>	2
Psephenidae (WATER PENNIES)	
<i>Psephenus</i>	119
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	3089
Empididae (DANCE FLIES)	
<i>Hemerodromia</i>	35
Simuliidae (BLACK FLIES)	
<i>Simulium</i>	620
Tipulidae (CRANE FLIES)	
<i>Antocha</i>	122
<i>Hexatoma</i>	10
<i>Tipula</i>	19
Total Organisms	9124

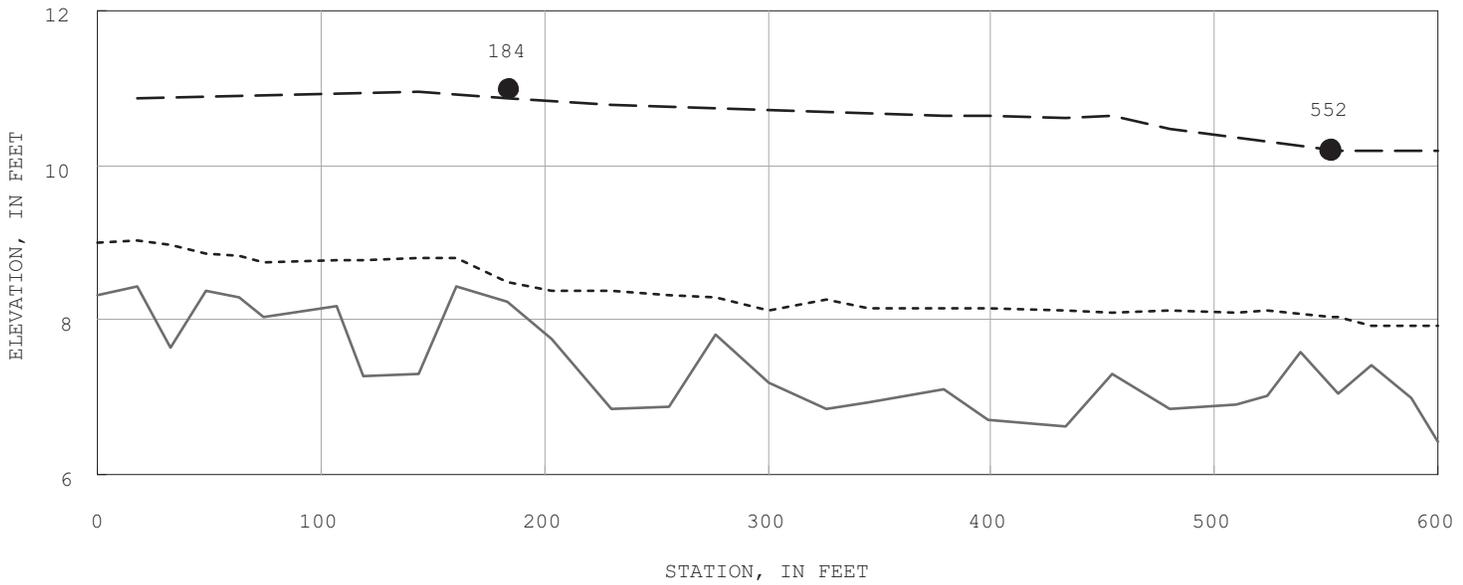
01476835 EAST BRANCH CHESTER CREEK AT WESTTOWN, PA—Continued

GEOMORPHIC DATA

Explanation for Longitudinal Profile and Cross Section Surveys

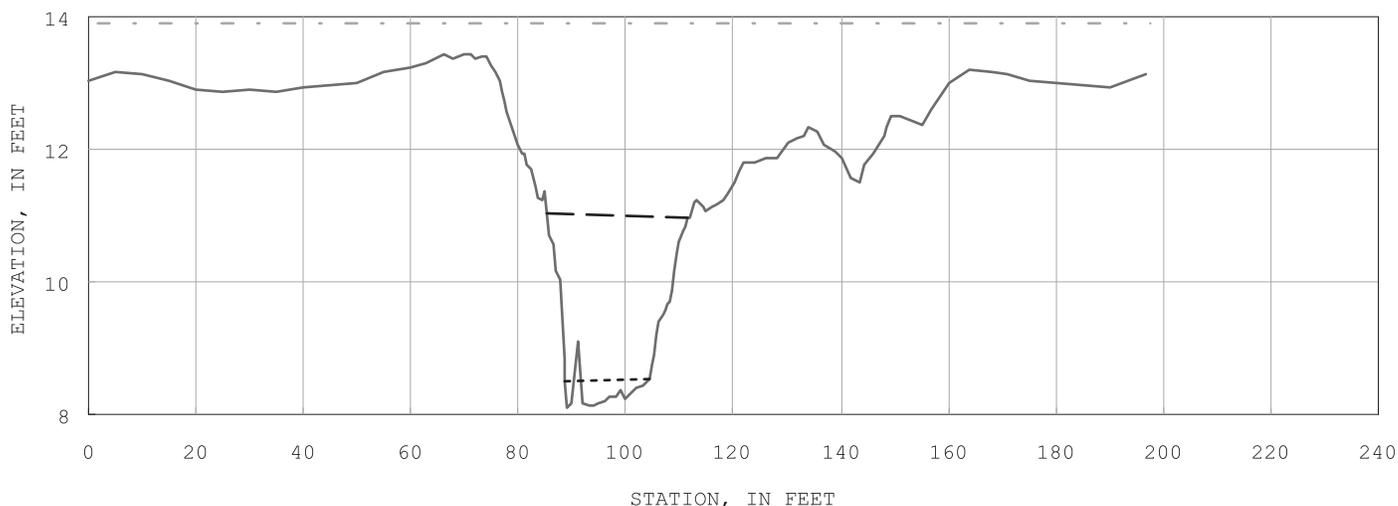


Longitudinal Profile



01476835 EAST BRANCH CHESTER CREEK AT WESTTOWN, PA—Continued

Cross Section at Station 184 of the Longitudinal Profile



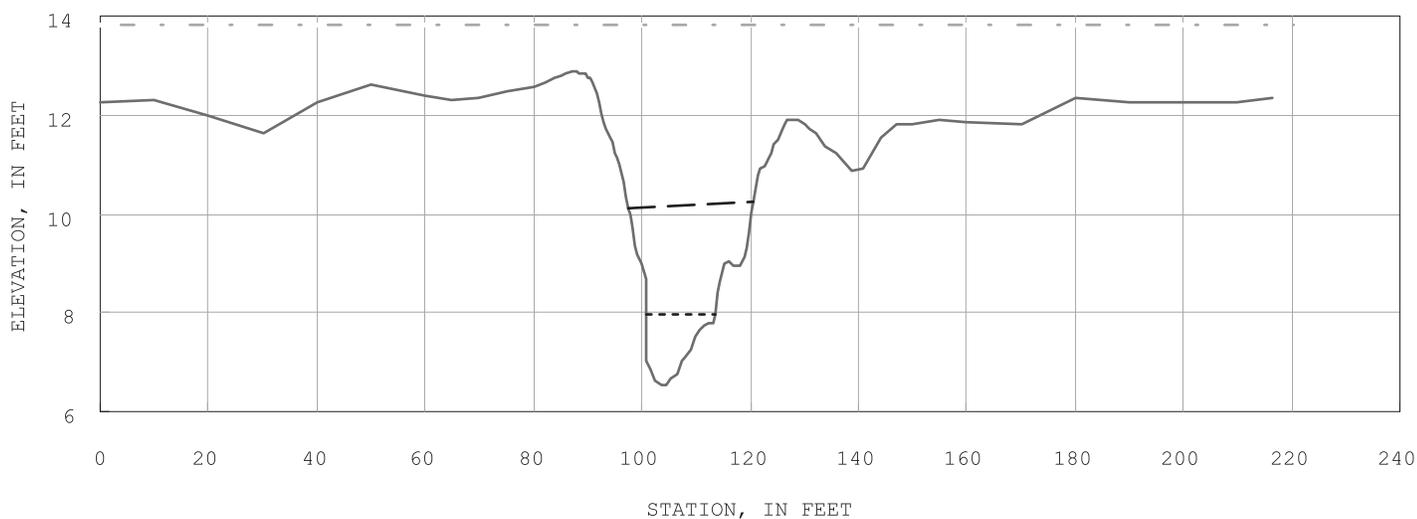
Cross-section station	Cross-section type	Bankfull area (ft ²)	Bankfull mean depth (ft)	Bankfull width (ft)	Stream type ¹	D ₅₀ ²	D ₈₄ ³
184	rifle	53.2	2.0	26.1	C4	19.1	46.8

¹ Rosgen, 1996 (Stream only classified in rifle sections)

² D₅₀, particle size larger than 50 percent of the cumulative sample

³ D₈₄, particle size larger than 84 percent of the cumulative sample

Cross Section at Station 552 of the Longitudinal Profile



Cross-section station	Cross-section type	Bankfull area (ft ²)	Bankfull mean depth (ft)	Bankfull width (ft)	Stream type ¹	D ₅₀ ²	D ₈₄ ³
552	rifle	50.5	2.2	23.1	E4	10.7	35.1

¹ Rosgen, 1996 (Stream only classified in rifle sections)

² D₅₀, particle size larger than 50 percent of the cumulative sample

³ D₈₄, particle size larger than 84 percent of the cumulative sample