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475 Allendale Road
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Document No.	Rev. No.	Comments	Document Title
82A9519	02	1 Controlled Copy-Addendum 001	Erosion and Sediment Pollution Control Plan Phase 1 and Phase 2 Activities at the Whittaker Remediation Site

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ENERGYSOLUTIONS

March 30, 2007
Ref. No. 137003-100

Mr. Rich Neville
Water Pollution Biologist III
Pennsylvania Department of Environmental Protection
Watershed Management
230 Chestnut Street
Meadville, PA 16335-3407

Subject: **Final Grading Plans**
Whittaker Site, Transfer, PA

Dear Mr. Neville:

As we discussed on the phone today, enclosed you will find a copy of the addendum to our site closure plan that addresses final grading for the subject site. We have also included a copy of the entire Restoration Plan for the site. The main Restoration Plan is provided for your reference. Please focus your review and approval on the final grading addendum.

If you have any questions or need any additional information, please feel free to call me at 801-303-1092.

Sincerely,

Robert E. McPeak

Robert E. McPeak, Jr., P.E., LEP
Department Manager, Environmental Services

REM/lhc
Enclosures (2)
cc: J. Kottan w/enclosure
E. Lardiere w/enclosure
K. Taylor w/enclosure
G. Toumey w/enclosure

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ENERGYSOLUTIONS

March 21, 2007
Effective Date

ADDENDUM AUTHORIZATION

Document Title: Erosion and Sediment Pollution Control Plan for Phase I and Phase II Activities at the Whittaker Remediation Site

Document No. 82A9519, Revision 2

Addendum No.: 001

Originator Robert McPeak

For Site/Utility: Mercer Alloys (Whittaker) Site Remediation, Reynolds Industrial Park, Transfer, PA

Description of Addendum: Addendum for Phase III Final Grading Plan

CONTROLLED COPY No. 693

Reason for Change: Final grading design could not be completed until all contaminated material had been removed and the extent of the excavations was known.

APPROVALS:

Title		Signature	Date
Project Manager	Gerard M. Toumey-		3/28/07
Field Services RSO	Kenneth Kasper-		3/22/07
Operations Manager	Lee Penney-		3/28/07
Prepared by	Robert McPeak-		3/22/07

Approvals for the Addendum shall at least be equal to the approvals of the base document and may include customer sign off.

Distribute to all Controlled Copy holders of affected document and.

A copy of this authorization shall be attached to the affected document.

Permanent Stabilization

Following completion of the removal of contaminated material, the site will be stabilized permanently. This permanent site stabilization will be completed as a part of Phase III activities as specified in the Site Restoration Plan in Section 9.0. Activities to be completed during this Phase of the work will include limited clearing and grubbing, final grading, and placement of permanent erosion protection measures including Reno Mattresses, erosion control fabrics, and permanent seeding in all areas disturbed by the site activities. Two seeding mixtures will be used at the site to ensure that wetland areas and other upland areas are covered with appropriate mixtures.

Although some minor fine grading and slope adjustment may be performed in Sections 3 and 4, the majority of the backfilling and heavy grading will be completed in Sections 1 and 2. Current temporary erosion control structures will remain in place while the grading operations are in progress and will not be removed until it is absolutely necessary, or until permanent erosion control measures are in place and operating successfully.

Current estimates indicate that the clean fill material now staged in Sections 2 and 3 will be sufficient to complete the grading in Sections 1 and 2 as shown on the proposed plan. If more material is available than anticipated, adjustments designed to incorporate this additional material into the final grades may be made to the final plan. If additional material is available, grades will be raised in the central portion of Section 2 in order to accommodate this material.

The Grading Plan has been designed to ensure that the new grades will match original grades at the Whittaker/Greenville Metals property line. This will include backfilling of all excavated areas on the Greenville Metals property back to original grade.

Clearing and Grubbing

One minor area at the site remains where clearing and grubbing will be required. This area which is located in the southeastern corner of Section 2 is noted on Figure 1. Discrete removal of material in this area has created an isolated mound with steep slopes near the river that could be eroded easily by river flows. In order to ensure that this area does not become a source of erosion in the future, the mound will be lowered to the grade of the surrounding area. Before the mound can be graded, the vegetation on the mound must be removed. Trees and other vegetation will be removed and disposed of. Soil in the mound will be removed and utilized as backfill in Section 1 or 2.

Final Grading

Final grading will be completed using common earth moving equipment. Whenever possible, equipment operation will be limited to non-wetland areas. In those cases where wetland areas must be disturbed in order to achieve the required final grades, all disturbed areas will be seeded with a wetland mix.

Cutting and filling may be performed as integral parts of the final grading as required. When filling is required, material borrowed from the stockpiles in Sections 2 and 3 will be used as fill. All material in these stockpiles is considered acceptable as fill for the site. Fill material will be place in lifts of approximately 12 inches in thickness and then compacted by passes of the construction equipment. Soils on 2:1 embankment slopes where Reno Mattresses are to be placed will be compacted with a minimum of 5 passes by a 15 ton or larger dozer. Where fill is required it will proceed to the final grades shown on Figure 1.

Reno Mattresses and Gabion Basket

Numerous site factors contributed to the decision to utilize Reno Mattresses at the site. These factors included the proximity of the site to the Shenango River, the increased flow velocities expected during flooding events, and the steepness of the remaining original grades adjacent to the excavated areas (which must be matched by the new grades at the transition point). The Reno Mattresses were selected to accommodate the largest flow recorded at the USGS gaging station approximately 2,000 feet down stream (Station # 03102850). Based on other information available this design flow is anticipated to be between a 10 and 20 year frequency. Design calculations and available gaging station flow information are included in Appendix A.

Design calculations suggested that the flood stage for the design storm would be at an approximate elevation of 930. Based on this information, the Reno Mattresses were designed to protect a slope of 2 horizontal to 1 vertical (2:1) up to the 930 contour. Mattresses will be installed in the areas as shown on Figure 2. The Installation will include a foundation under the Mattress of non-woven geotextile fabric which will prevent migration of fines into the mattress. A Gabion Basket toe wall will also be included for additional stability. Gabion Toe Walls will be installed in a 3 to 4 foot deep trench at the bottom of the 2:1 slope. The trench will be installed in a manner which creates a vertical face of virgin material on the river side of the trench. This undisturbed face will provide additional bearing capacity for the toe wall to resist the downward movement of the Reno Mattresses. Prior to installation of the baskets in the trench, a 6″ to 12″ foundation of crushed stone will be installed in the base of the trench. A detail of the Mattress and Gabion Basket toe wall installation is included in Figure 3.

Areas along the River at the south end of Section 2 as shown in Figure 2 (38' x 50') where existing natural slopes were less than 2:1 will not require Reno Mattress protection. These areas will be seeded and protected with temporary erosion matting which will ensure that the seed is protected until it is established.

The Reno Mattress is a mattress shaped container manufactured from heavily galvanized wire to form a flexible and effective surface protection to defend against erosion and scouring. The flexible wire mesh will accommodate significant deformation without failure. The base and sides of the Reno Mattress are made of a single sheet of wire mesh (main panel). Partition panels (diaphragms) are made of the same wire mesh as the main panel and are attached to the base of the main panel dividing the Reno Mattress into 3 foot cells. The lid is formed either by a single sheet or in rolls of a specified length from the same wire as in the main panel.

The mesh shall be woven into a hexagonal pattern with the joints formed by twisting each pair of wires through three and a half turns. Because of this appearance, the joints are often termed triple twisted. The mesh opening shall be hexagonal in shape and uniform in size measuring $2^1/_2$ inches by $3^1/_4$ inches.

All wire used in the fabrication of the Reno Mattress and in the lacing operations shall conform to Federal Specification QQ-W-461H, Class 3, Finish 5, soft, and have an average tensile strength in accordance with the current ASTM A 641, Table 2, measured before fabrication of the netting. The nominal diameter of the wire used in the fabrication of the netting shall be 0.0866 inches minimum, subject to diameter tolerance in accordance with the current ASTM A 641, Table 3. Tests shall be conducted on the wire before fabrication of the Reno Mattress on a sample 12 inches long. Elongation shall not be less than 12%.

All wire used in the fabrication and construction of the gabions shall be galvanized according to ASTM A 641, Table 1. The minimum weight of the zinc coating shall be according to the table following when tested in accordance with ASTM A 90.

Description	Nominal Diameter of Wire	Minimum Weight of Coating
Mesh and Lacing	0.0866 inches (2.2mm) minimum	0.80 ozs / sq ft
Selvedge	0.106 inches (2.7mm) minimum	0.85 ozs /sq ft

Adhesion of the zinc coating to the wire shall be capable of being wrapped in a close helix at a rate not exceeding 15 turns per minute around a cylindrical steel mandrel having a diameter 3 times the nominal wire diameter being tested. After the wrap test is completed, the wire shall not exhibit any cracking or flaking of the zinc coating to such an extent that any zinc can be removed by rubbing with bare fingers.

All edges of the Reno Mattress including end panels and the diaphragms, shall be mechanically connected in such a way as to prevent unraveling of the mesh and to develop the full strength of the mesh. The wire used for the selvedge shall have a diameter greater than that of the wire used to form the mesh.

Sufficient lacing and connecting wire shall be supplied with the mattress for all wiring operations. The nominal diameter of lacing wire shall be 0.0866 inches minimum. According to engineering and design requirements the Reno Mattress shall incorporate internal diaphragms to form cells having a nominal length of three feet. The internal diaphragms shall prevent rock migration within the Reno Mattress unit.

On channel slopes, the mattress shall be placed perpendicular to the flow in the channel with the shorted dimensions of the diaphragm going up and down the slope. An approved corner closure tool shall be used to adjoin adjacent mattresses to insure a tight, neat seam and minimize mattress wire joint deformation.

Rock to be utilized as fill in the mattresses will be sound, free from structural defects and foreign substances such as soil, shale and organic materials. Rock will be hard angular rock with a minimum specific gravity of 2.5 and neither width nor thickness less than one-third its length. Rock size will be 4 to 8 inches.

Crushed Stone

Prior to the installation of the Gabion toe wall, a layer of crushed stone will be placed in the bottom of the trench. The stone will comply with Pennsylvania DOT specification 703.2, Type A, $1^1/_2$" coarse aggregate. Six to twelve inches of stone will be place evenly in the base of the trench. Care will be taken to minimize damage of the trench wall on the river side of the excavation while placing the stone in the trench.

Geotextile Fabric

Geotextile fabric shall be installed under all Reno Mattresses and at the back of the Gabion toe wall. Installation details are included in Figure 3. The fabric will provide stabilization and serve as a separation medium which will prevent migration of the subsurface soils into the mattress stone. Fabric will be a 6 to 8 ounce non-woven fabric with a minimum tensile strength of 150 lbs in accordance with ASTM D-4632.

Prior to placement of the fabric, the subgrade will be inspected for weak compressible soils which will be replaced. Then the subgrade will be compacted with multiple passes from a bulldozer. Once the subgrade has been prepared, the fabric will be installed and secured in accordance with the manufacturer's recommendations.

Erosion Fabric

In addition to the use of Reno Mattresses, some areas on the site will be protected by the use of Erosion Control Fabric. Fabric will be installed in the areas indicated on Figure 2. Fabrics will be Curlex Quick Grass or GEOCOIR or AgriDrain straw blanket or another similar type product.

Erosion Fabrics will be installed and secured in accordance with the manufacturer's recommendations.

Permanent Seeding

Seed will be applied to all areas disturbed during the soil removal and grading operations. All seed material will conform to the Pennsylvania Seed Act of 1965. Required seed formulas for upland areas are included in the following Table. All seed provided will meet purity and germination requirements as specified in the table.

TABLE A
SEEDING REQUIREMENTS

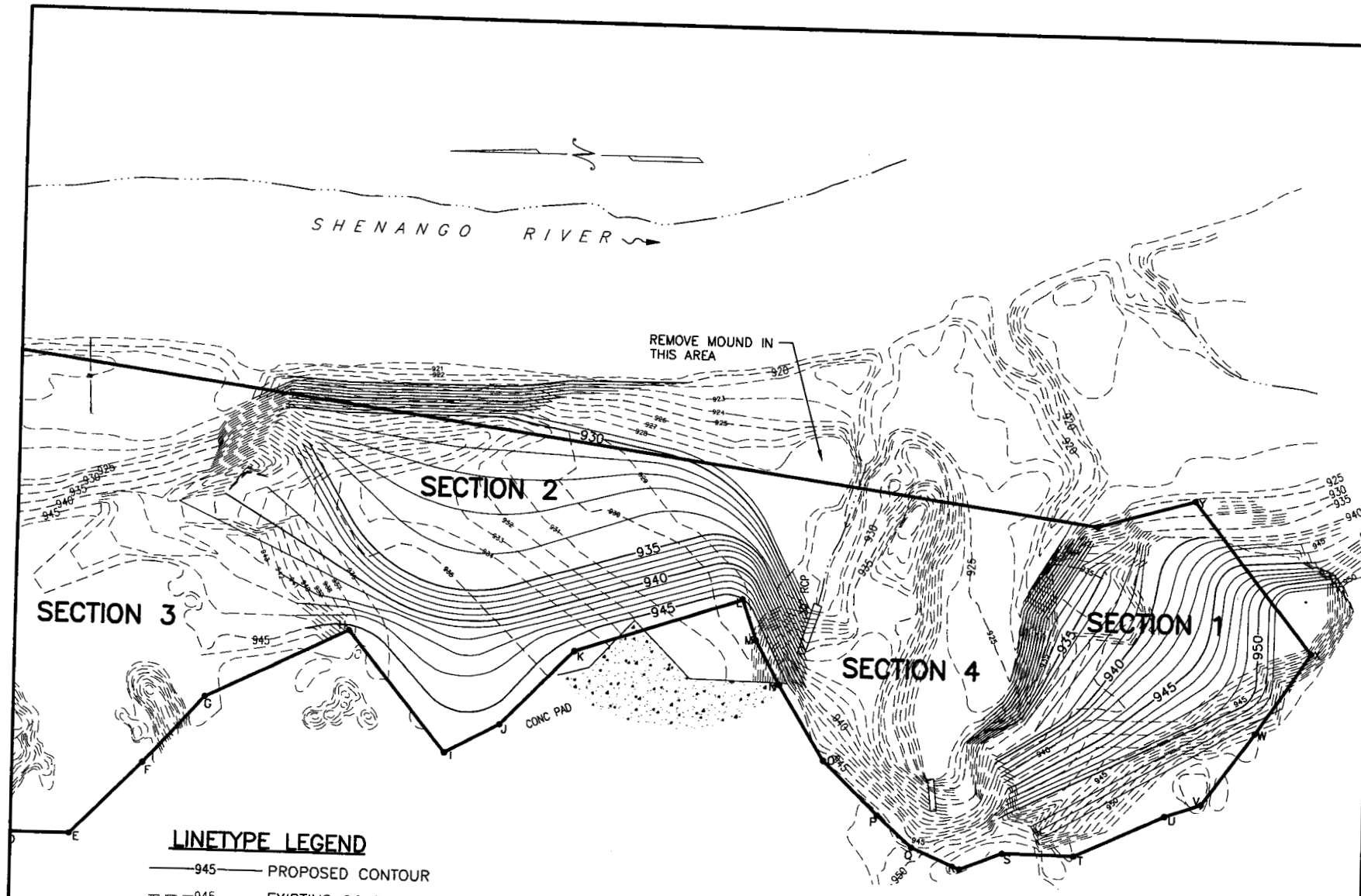
Formula and Species	% By Mass	Minimum %		Max % Weed Seed	Seeding Rate lb/1000 yd^2
		Purity	Germination		
Upland Formula					
Tall Fescue (Festuca arundinacea var. Kentucky 31)	70	98	85	0.15	7.5
Birdsfoot Trefoil mixture (Lotus Corniculatus. A combination of varieties (Viking, Empire, Conec, Dawn, Leo, Bull Maitland with no one variety exceeding 50% of the total Trefoil Component	20	98	80	0.1	2.0
Redtop (Agrostis alba)	10	92	80	0.15	1.0

Wetlands mix seeding will meet the following formula.

20%	Elymus virginicus	Virginia Wild Rye
15%	Carex vulpinoidea	Fox Sedge
10%	Juncus effusus	Soft Rush
8%	Sparganium eurycarpum	Giant Bur Reed
8%	Verbena hastata	Blue Vervain
6%	Scirpus cyperinus	Wool Grass
5%	Aster novae-angliae	New England Aster
5%	Glyceria grandis	American Mannagrass
5%	Sparganium americanum	Eastern Lesser Bur Reed
4%	Scirpus atrovirens	Green Bulrush
3.5%	Carex comosa	Cosmos (Bristly) Sedge
3.5%	Carex lurida	Lurid (Shallow) Sedge
2%	Carex lupulina	Hop Sedge
2%	Carex gynandra	Nodding Sedge
2%	Glyceria canadensis	Rattlesnake Grass
1%	Bromus altissima	Wild Brome Grass

The wetland seed mixture will be applied at a rate of 15 pounds per acre on areas disturbed within the wetland areas. Wetland areas are presumed to be those located below the 925 contour. All seed will be sown uniformly on the prepared areas by hydraulic placement, broadcasting, or hand methods. Seed placed using hydraulic methods will be spread along with hay or another type of mulch/moisture retaining cover. Seed placed using broadcasting or by hand will be mulched with hay following application.

FIGURES



PROJECT: 137003
FILENAME: 137003-CP-3-07
SCALE: 1" = 60'
DATE: 03/15/07
BY: MR
CK: RM
Figure 1

ENERGYSOLUTIONS
THE BLEACHERY
143 WEST STREET
NEW MILFORD, CT. 06776
(860) 210-3000

FINAL GRADING PLAN

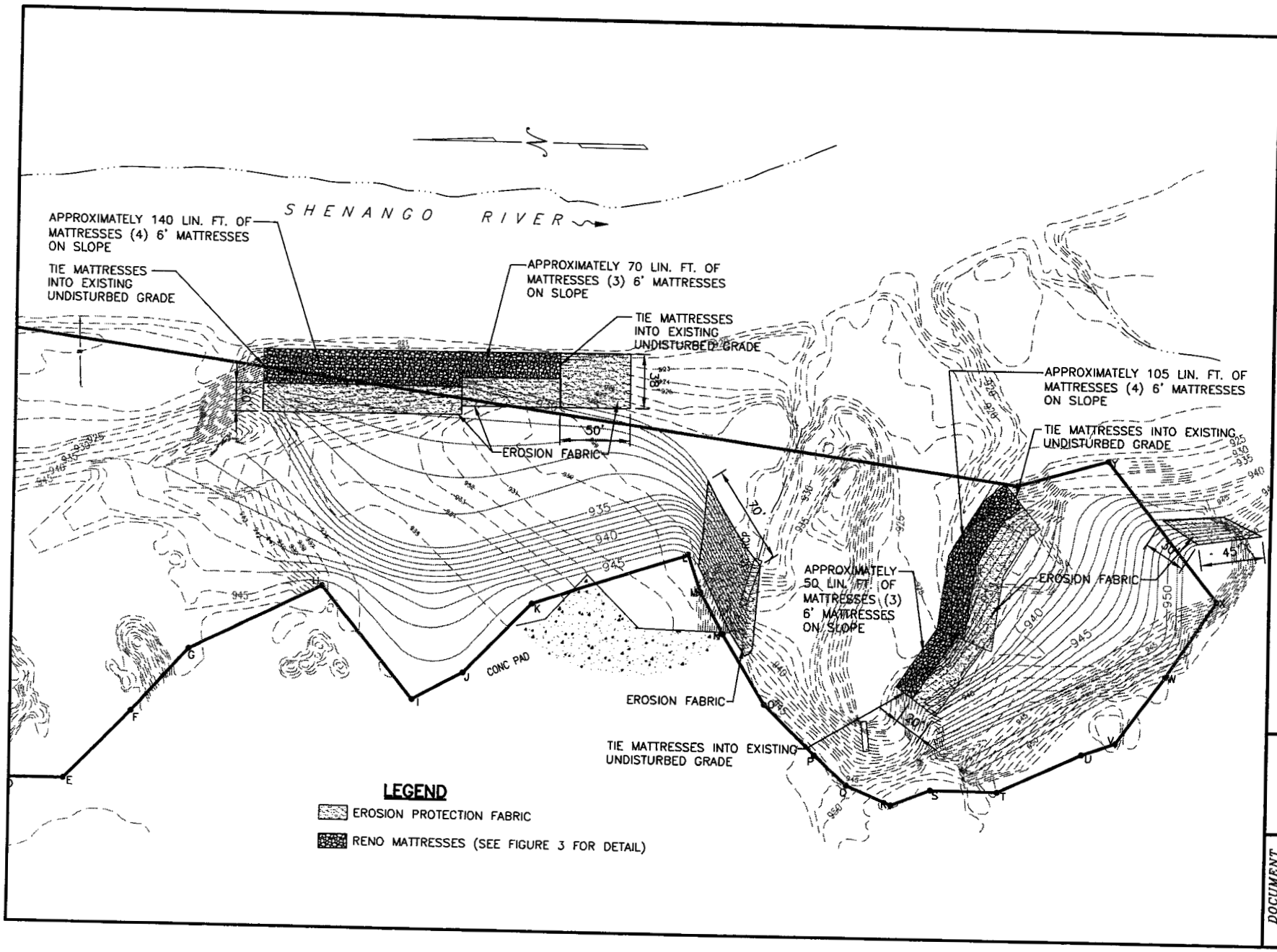
WHITTAKER PROPERTY
MEADVILLE COUNTY, PA.

PROJECT

DRAWING

DOCUMENT CONTROL NO.

REVISION NO.



PROJECT # 137003
FILENAME: 137003-GP-3-07
SCALE: 1":60'
DATE: 03/15/07
BY: MR
CK: RM
Figure 2

ENERGYSOLUTIONS
THE BLEACHERY
143 WEST STREET
NEW MILFORD, CT. 06776
(860) 210-3000

RENO MATTRESS AND EROSION FABRIC LOCATION PLAN

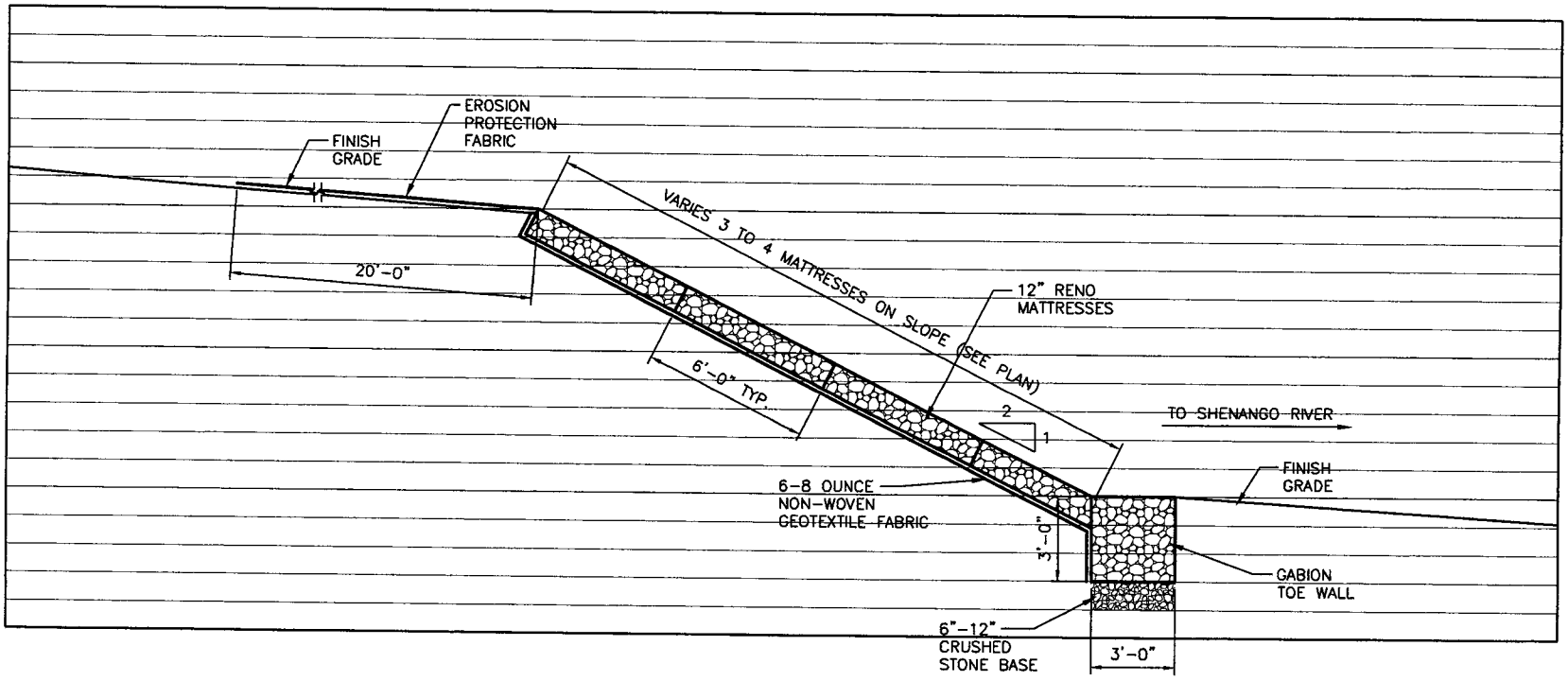
WHITTAKER PROPERTY
MEADVILLE COUNTY, PA.

PROJECT

DRAWING

DOCUMENT CONTROL NO.

REVISION NO.



TYPICAL STREAM SLOPE
PROTECTION CROSS SECTION

WHITTAKER PROPERTY
CLEARFIELD COUNTY, PA.

ENERGYSOLUTIONS
THE BLEACHERY
143 WEST STREET
NEW MILFORD, CT. 06776
(860) 210-3000

PROJECT # 137003
FILENAME: 137003-CP-3-07
SCALE: 1/4":1'
DATE: 03/15/07
BY: MR
CK: RM

Figure 3

PROJECT

DRAWING

DOCUMENT CONTROL NO.

REVISION NO.

APPENDIX A

DESIGN CALCULATIONS AND GAGING STATION FLOW INFORMATION

NES
A SCIENTECH, INC., Company

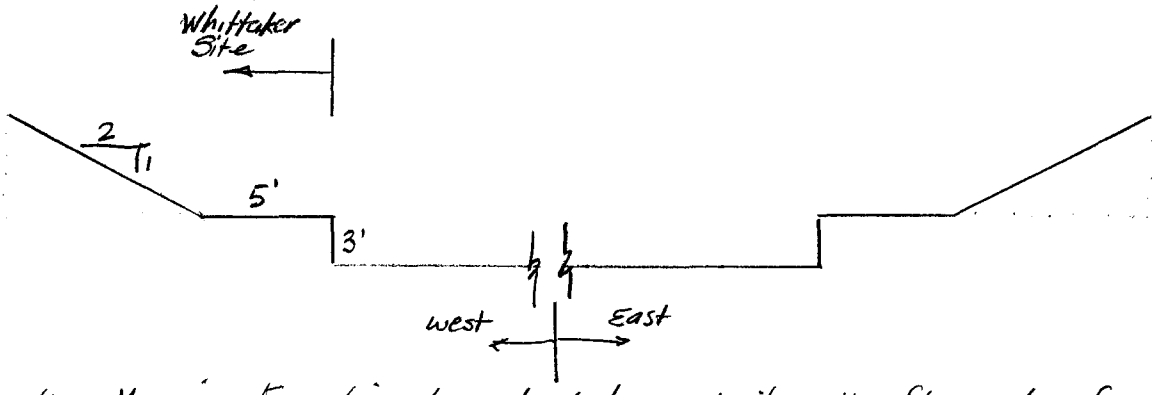
BY RCM DATE 2/23/07 PROJ. 137003 TASK
CHKD. DATE PAGE 1 OF 1
See Attached Spreadsheet Calculation.

REF.

Reno Mattress Design

Based on the highest recorded instantaneous flow at the gaging station at Industrial Park Road of 6,150 cfm calculate the approximate maximum surface water height at our site. Then use this surface water height to plan the needed maximum height of the mattresses above the stream.

Based on observations the river section at the Whittaker site looks like this. The proposed section is a conservative estimate, based on the actual location of the valley slope to the East which is further away than drawn.



Using the Manning Equation to calculate velocity; the flow rates for various velocities are shown on the attached spreadsheet.

$$V = \frac{1.486}{n} \times R^{2/3} \times S^{.5} \quad ft/s$$

$n = .0277$ for Reno Mattresses

$R =$ hydraulic Radius $= \frac{\text{Area}}{\text{Wetted Perimeter}}$ ft.

$S =$ Slope in ft/ft

Slope is calculated based on contours crossing river at site. 20' Contour crosses at north end and 19' contour does not cross. Estimate approx 1' fall in 1000 feet = .0010 ft/ft

Provide 25% safety margin. 6150 x 1.25 = 7,687
At 7,539 CFS Water height is 9' above stream bank. Use 10'
Install Mattresses to 10' above stream bank at approximate Elevation of 930 +/-.

Whittaker Shenango Velocity Calculations for various gage depths

Based on Formula $V = 1.486/n * R^{0.6666} * S^{0.5}$

Where n is Manning Roughness coefficicent, R = hdraulic radius (area/wetted perimeter) and S = slope in ft/ft

Total Water Depth (ft)	n	Bank Ht (ft)	Base width (ft)	Flat Area width per side (ft)	Height of water above stream bank (ft)	Slope length (ft)	surface width (ft)	Area (sf)	Wetted Perimeter (ft)	Hydraulic Radius R (ft)	Slope (ft/ft)	Velocity (fps)	Q (cfs)
14	0.04	3	100	5	11	24.5967	154.0	1752.0	165.2	10.6	0.0010	5.67	9,934
13.5	0.04	3	100	5	10.5	23.5	152.0	1675.5	163.0	10.3	0.0010	5.55	9,306
13	0.04	3	100	5	10	22.4	150.0	1600.0	160.7	10.0	0.0010	5.44	8,697
12.5	0.04	3	100	5	9.5	21.2	148.0	1525.5	158.5	9.6	0.0010	5.32	8,108
12	0.04	3	100	5	9	20.1	146.0	1452.0	156.2	9.3	0.0010	5.19	7,539
11.5	0.04	3	100	5	8.5	19.0	144.0	1379.5	154.0	9.0	0.0010	5.07	6,989
11	0.04	3	100	5	8	17.9	142.0	1308.0	151.8	8.6	0.0010	4.94	6,458
10.5	0.04	3	100	5	7.5	16.8	140.0	1237.5	149.5	8.3	0.0010	4.81	5,947
10	0.04	3	100	5	7	15.7	138.0	1168.0	147.3	7.9	0.0010	4.67	5,455
9.5	0.04	3	100	5	6.5	14.5	136.0	1099.5	145.1	7.6	0.0010	4.53	4,983
9	0.04	3	100	5	6	13.4	134.0	1032.0	142.8	7.2	0.0010	4.39	4,531
8.5	0.04	3	100	5	5.5	12.3	132.0	965.5	140.6	6.9	0.0010	4.24	4,097
8	0.04	3	100	5	5	11.2	130.0	900.0	138.4	6.5	0.0010	4.09	3,684
7.5	0.04	3	100	5	4.5	10.1	128.0	835.5	136.1	6.1	0.0010	3.94	3,290
7	0.04	3	100	5	4	8.9	126.0	772.0	133.9	5.8	0.0010	3.78	2,916
6.5	0.04	3	100	5	3.5	7.8	124.0	709.5	131.7	5.4	0.0010	3.61	2,562
6	0.04	3	100	5	3	6.7	122.0	648.0	129.4	5.0	0.0010	3.44	2,228
5.5	0.04	3	100	5	2.5	5.6	120.0	587.5	127.2	4.6	0.0010	3.26	1,914
5	0.04	3	100	5	2	4.5	118.0	528.0	124.9	4.2	0.0010	3.07	1,621
4.5	0.04	3	100	5	1.5	3.4	116.0	469.5	122.7	3.8	0.0010	2.87	1,349
4	0.04	3	100	5	1	2.2	114.0	412.0	120.5	3.4	0.0010	2.67	1,099

Stream Data

Gaging Station

Water Resources National Water Information System: Web Interface

Data Category: Surface Water | Geographic Area: United States | GO

Peak Streamflow for the Nation

USGS 03102850 Shenango River near Transfer, PA

Available data for this site Surface-water: Peak streamflow GO

Mercer County, Pennsylvania
Hydrologic Unit Code 05030102
Latitude 41°21'13", Longitude 80°23'53" NAD27
Drainage area 337.00 square miles
Gage datum 913.94 feet above sea level NGVD29

Output formats

- Table
- Graph
- Tab-separated file
- WATSTORE formatted file
- Reselect output format

Water Year	Date	Gage Height (feet)	Stream-flow (cfs)
1966	Feb. 13, 1966	6.64	5,680[6]
1967	May 11, 1967	6.44	3,060[6]
1968	Jan. 30, 1968	8.68	4,460[6]
1969	Dec. 28, 1968	9.72	5,010[6]
1970	Mar. 05, 1970	7.35	3,660[6]
1971	Feb. 20, 1971	7.36	3,670[6]
1972	Mar. 02, 1972	8.87	4,570[6]
1973	Mar. 15, 1973	6.65	3,200[6]
1974	May 12, 1974	9.15	4,720[6]
1986	Nov. 05, 1985	10.47	5,390[6]
1987	Dec. 03, 1986	6.69	3,130[6]
1988	Dec. 20, 1987	6.07	2,690[6]
1989	Jun. 14, 1989	9.60	4,950[6]
1990	Feb. 15, 1990	9.50	4,900[6]
1991	Dec. 30, 1990	10.28	5,290[6]
1992	Aug. 09, 1992	9.21	4,730[6]
1993	Dec. 31, 1992	8.09	4,050[6]
1994	Aug. 13, 1994	9.42	4,850[6]

1975	Feb. 24, 1975	8.03	4,070[6]	1995	Feb. 28, 1995	5.37	2,190[6]
1976	Feb. 17, 1976	10.09	5,200[6]	1996	Jan. 19, 1996	10.04	5,170[6]
1977	Feb. 25, 1977	7.45	3,770[6]	1997	Jun. 02, 1997	8.94	4,560[6]
1978	Dec. 15, 1977	9.59	4,940[6]	1998	Jan. 09, 1998	9.03	4,970[6]
1979	Sep. 14, 1979	8.56	4,390[6]	1999	Jan. 24, 1999	8.31	4,470[6]
1980	Dec. 25, 1979	9.28	4,790[6]	2000	Apr. 08, 2000	8.03	4,270[6]
1981	Feb. 19, 1981	9.37	4,840[6]	2001	Dec. 17, 2000	6.61	3,150[6]
1982	Jun. 29, 1982	9.64	4,970[6]	2002	May 14, 2002	8.14	4,350[6]
1983	Jun. 28, 1983	7.96	4,030[6]	2003	Jul. 22, 2003	11.33	6,150[6]
1984	May 12, 1984	9.23	4,760[6]	2004	Sep. 09, 2004	10.66	6,110[6]
1985	Feb. 24, 1985	7.87	3,970[6]	2005	Jan. 06, 2005	8.48	4,560[6]

Peak Streamflow Qualification Codes.

- 6 -- Discharge affected by Regulation or Diversion

Questions about data?
Feedback on this web site
Surface Water for USA: Peak Streamflow
http://waterdata.usgs.gov/nwis/peak?

Top
Explanation of terms

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1.38 1.39 nadww01

Water Resources National Water Information System: Web Interface

Data Category: Surface Water Geographic Area: Pennsylvania GO

USGS 03102850 Shenango River near Transfer, PA

PROVISIONAL DATA SUBJECT TO REVISION

Available data for this site Time-series: Daily data GO

STATION.--03102850 SHENANGO RIVER NEAR TRANSFER, PA
LOCATION.--Lat 41`21'13", long 80`23'53", Mercer County, Hydrologic Unit 05030102, on left bank at downstream side of covered wooden bridge, 200 ft downstream from highway bridge, 0.6 mi downstream from Big Run, 2.5 mi north-east of Transfer, and at mile 71.8.
DRAINAGE AREA.--337 mi2.
PERIOD OF RECORD.--October 1965 to current year.
GAGE.--Water-stage recorder. Datum of gage is 913.94 ft above sea level (Pennsylvania Department of Transportation bench mark).
REMARKS.--Flow regulated since 1933 by Pymatuning Reservoir (station 03100500) 13 mi upstream and by mills above station. U.S. Army Corps of Engineers satellite telemeter at station.
COOPERATION.--Funding for the operation of this station is provided by the U.S. Army Corps of Engineers, the Pennsylvania Department of Environmental Protection, and the U.S. Geological Survey.

	Available Parameters	Period of Record	
☐	All 1 Available Parameters for this site		
☑	00060 Discharge (Mean)	1965-10-01	2006-11-29

Output format
- ○ Graph
- ○ Graph w/ stats
- ○ Graph w/ meas
- ◉ Table
- ○ Tab-separated

Begin date 2003-11-29
End date 2006-11-29
GO

Summary of additional data for this site

Daily Mean

DATE	Nov 2003	Dec 2003	Jan 2004	Feb 2004	Mar 2004	Apr 2004	May 2004	Jun 2004	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
1		1,180 A	779 A	487 e A	1,160 A	1,050 A	454 A	796 A	190 A	1,590 A	161 A	771 A	494 A	1,360 A
2		946 A	1,410 A	487 e A	1,690 A	2,460 A	1,160 A	818 A	185 A	709 A	149 A	775 A	497 A	1,120 A
3		866 A	1,470 A	485 e A	1,370 A	1,460 A	905 A	766 A	178 A	656 A	136 A	775 A	674 A	557 A
4		804 A	1,670 A	499 e A	970 A	843 A	507 A	726 A	178 A	591 A	129 A	769 A	653 A	398 A
5		784 A	3,090 A	565 e A	1,050 A	716 A	438 A	510 A	189 A	570 A	125 A	758 A	998 A	333 A
6		778 A	1,700 A	686 e A	850 A	681 A	391 A	426 A	180 A	542 A	121 A	754 A	816 A	291 A
7		758 A	909 A	850 e A	708 A	672 A	366 A	233 A	174 A	527 A	113 A	751 A	693 A	331 A
8		726 A	749 e A	761 e A	701 A	766 A	346 A	223 A	158 A	517 A	275 A	748 e A	632 A	639 A
9		719 A	688 e A	688 e A	635 A	755 A	333 A	218 A	128 A	508 A	5,480 A	746 A	601 A	514 A
10		917 A	729 e A	640 e A	545 A	698 A	350 A	251 A	128 A	513 A	4,400 A	743 A	579 A	567 A
11		1,680 A	672 e A	604 e A	443 A	667 A	361 A	493 A	124 A	511 A	2,040 A	734 A	568 A	631 A
12		1,240 A	594 e A	579 e A	454 A	660 A	337 A	722 A	224 e A	504 A	1,080 A	728 A	565 A	560 A
13		873 A	583 e A	563 e A	441 A	1,200 A	306 A	549 A	1,070 e A	522 A	1,010 A	728 A	562 A	599 A
14		785 A	576 e A	544 e A	449 A	1,890 A	281 A	589 A	471 e A	482 A	990 A	741 A	549 A	575 A
15		758 A	576 e A	531 e A	473 A	1,240 A	351 A	765 A	335 e A	204 A	982 A	801 A	544 A	490 A
16		757 A	606 e A	517 e A	429 A	966 A	396 A	581 A	300 A	187 A	933 A	798 A	451 A	437 A
17		1,230 A	743 e A	512 e A	414 A	865 A	325 A	526 A	255 A	181 A	2,040 A	765 A	214 A	420 A
18		1,000 A	615 e A	508 e A	414 A	843 A	705 A	759 A	315 A	180 A	3,720 A	771 A	212 A	397 A

19		857 A	528 e A	511 e A	472 A	794 A	998 A	617 A	412 A	189 A	2,130 A	604 A	214 A	410 A
20		815 A	481 e A	576 e A	1,110 A	802 A	648 A	528 A	328 A	207 A	1,200 A	709 A	236 A	389 A
21		768 A	528 e A	1,300 e A	2,120 A	777 A	1,570 A	491 A	445 A	378 A	1,020 A	766 A	254 A	479 A
22		766 A	527 e A	1,070 e A	940 A	930 A	3,940 A	467 A	386 A	322 A	946 A	743 A	236 A	342 A
23		1,130 A	530 e A	864 A	626 A	1,020 A	2,350 A	451 A	372 A	176 A	897 A	726 A	214 A	1,760 A
24		2,210 A	533 e A	854 A	579 A	906 A	1,250 A	438 A	327 A	145 A	860 A	872 A	182 A	2,120 A
25		1,470 A	530 e A	740 A	936 A	830 A	1,260 A	444 A	256 A	131 A	839 A	885 A	376 A	917 A
26		935 A	520 e A	710 A	917 A	824 A	1,040 A	401 A	316 A	123 A	831 A	794 A	353 A	643 A
27		788 A	501 e A	707 A	1,650 A	649 A	905 A	205 A	356 A	124 A	806 A	757 A	259 A	519 A
28		716 A	497 e A	808 A	1,080 A	610 A	1,030 A	202 A	334 A	201 A	795 A	743 A	398 A	557 A
29	2,100 A	709 A	494 e A	976 A	650 A	524 A	897 A	224 A	319 A	247 A	785 A	724 A	399 A	413 A
30	1,400 A	1,330 A	492 e A		663 A	393 A	815 A	209 A	317 A	226 A	778 A	515 A	281 A	446 A
31		1,100 A	487 e A		1,040 A		804 A		642 A	185 A		513 A		978 A
COUNT	**2**	**31**	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**
MAX	**2,100**	**2,210**	**3,090**	**1,300**	**2,120**	**2,460**	**3,940**	**818**	**1,070**	**1,590**	**5,480**	**885**	**998**	**2,120**
MIN	**1,400**	**709**	**481**	**485**	**414**	**393**	**281**	**202**	**124**	**123**	**113**	**513**	**182**	**291**

Explanation

A	Approved for publication -- Processing and review completed.
P	Provisional data subject to revision.
e	Value has been estimated.

Top
Explanation of terms

Questions about data?
Feedback on this web site
USGS Surface-Water Daily Data for Pennsylvania
http://waterdata.usgs.gov/pa/nwis/dv?

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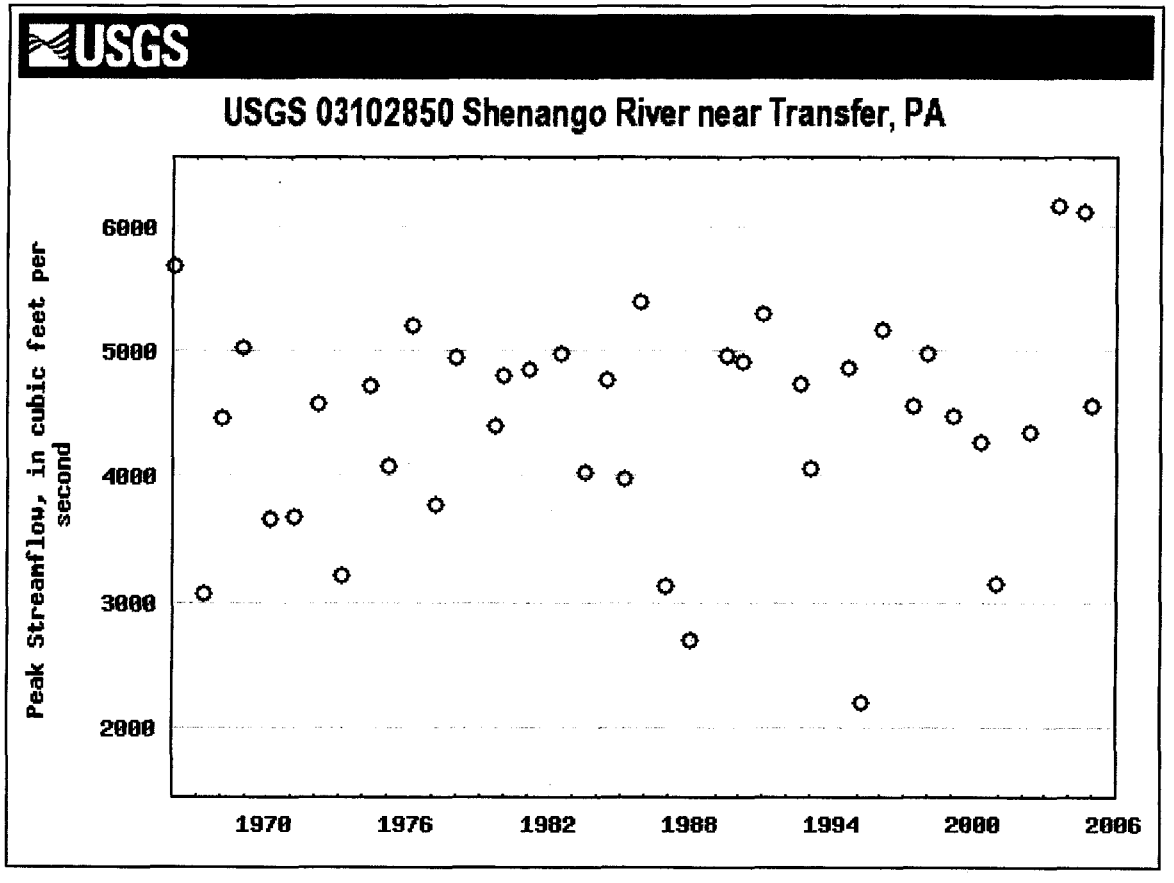
USGS
USGS 03102850 Shenango River near Transfer, PA
Peak Streamflow, in cubic feet per second
6000
5000
4000
3000
2000
1970
1976
1982
1988
1994
2000
2006

Water Resources National Water Information System: Web Interface

Data Category: Surface Water | Geographic Area: United States | GO

Streamflow Measurements for the Nation

USGS 03102850 Shenango River near Transfer, PA

Available data for this site Surface-water: Field measurements GO

Mercer County, Pennsylvania
Hydrologic Unit Code 05030102
Latitude 41°21'13", Longitude 80°23'53" NAD27
Drainage area 337.00 square miles
Gage datum 913.94 feet above sea level NGVD29

Output formats

- HTML table of all measurement data
- Tab-separated data
- Graph of measurement data (GIF format)
- Reselect output format

Number	Date	Made By	Width (ft)	Area (ft^2)	Mean Vel (ft/s)	Inside Gage Height (ft)	Outside Gage Height (ft)	Stream flow (ft^3/s)	Shift Adj (ft)	MS Rated	Number of Sections	GH Change (ft)	GH Change (hr)	MS Type	Control
367	2006-08-28 13:17	LJF	116	191	1.90	2.89		362	-0.09	G	32	0.00	0.5	ADV	MOD DEBRIS
366	2006-07-20 10:07	LJF	113	134	1.37	2.52		184	-0.12	G	33	0.00	0.5	ADV	MOD DEBRIS
365	2006-05-25 14:06	LJF	111	139	1.38	2.55		192	-0.13	G	32	0.00	0.5	ADV	MOD DEBRIS
	2006-														

364	03-08 12:16	LJF	113	201	2.08	3.01		418	-0.09	G	33	0.00	0.5	ADV	LGT DEBRIS
363	2006-01-17 13:14	TMN	119	225	2.29	3.14		515	-0.09	G	28	0.00	0.5	WADING	CLEAR
362	2005-12-07 13:15	LJF	120	224	2.11	3.06		473	-0.09	F	36	0.00	0.6	ADV	LGT DEBRIS
361	2005-10-24 13:33	LJF	112	142	1.33	2.60		190	-0.15	G		0.00	0.5	ADV	MOD DEBRIS
360	2005-09-19 13:51	LJF	110	106	1.00	2.33		107	-0.15	G	36	0.00	0.6	WADING	LGT DEBRIS
359	2005-08-08 13:16	LJF	108	111	1.03	2.36		114	-0.15	G	33	0.00	0.5	WADING	LGT DEBRIS
358	2005-06-27 13:36	LJF	112	124	1.18	2.40		146	0.00	G	29	0.00	0.5	WADING	CLEAR
357	2005-05-25 14:50	LJF	114	155	1.48	2.64		229	-0.15	G	26	0.00	0.5	WADING	MOD DEBRIS
356	2005-04-05 13:52	LJF	157	554	3.29	5.00		1820	0.00	G	29	-0.04	1.0	BRG CRANE	CLEAR
355	2005-01-12 09:34	LJF	159	846	3.64	6.73		3080	0.00	F	27	+0.17	1.5	BRG CRANE	CLEAR
354	2004-11-24 08:21	LJF	112	137	1.23	2.51		169	-0.15	G	27	0.00	0.5	WADING	CLEAR
	2004-													BRG	

353	10-08 09:52	LJF	151	338	2.30	3.45		777	0.00	F	31	0.00	0.8	CRANE	CLEAR
352	2004-09-10 13:23	LJF	172	1010	3.43	7.20		3460	0.00	F	29	-0.14	1.0	BRG CRANE	CLEAR
351	2004-08-09 13:25	LJF	113	216	2.31	3.09		500	-0.03	G	29	0.00	0.5	WADING	CLEAR
350	2004-06-28 14:18	LJF	110	137	1.36	2.52		186	-0.09	G	27	0.00	0.5	WADING	CLEAR
349	2004-06-28 13:37	LJF	114	137	1.41	2.52		193	-0.09	G	28	0.00	0.5	WADING	CLEAR
348	2004-05-17 13:50	LJF	113	167	1.72	2.69		287	0.00	G	30	0.00	0.5	WADING	CLEAR
347	2004-04-08 13:57	LJF	154	331	2.41	3.46		797	0.00	G	35	0.00	1.0	BRG CRANE	CLEAR
346	2004-02-23 13:22	LJF	153	344	2.47	3.56		848	0.00	G	31	-0.01	0.8	BRG CRANE	CLEAR
345	2004-02-23 12:15	LJF	153	340	2.52	3.57		858	0.00	G	32	-0.01	0.8	BRG CRANE	CLEAR
344	2004-01-20 10:05	LJF	115	207	2.22	3.10		459	0.00	G	28	-0.01	0.5	WADING	SHORE ICE
343	2003-12-11 14:10	LJF	155	540	3.11	4.82	5.45	1680	0.00	G	30	-0.04	1.0	BRG CRANE	CLEAR
	2003-														LGT

342	10-09 12:48	LJF	117	227	2.45	3.21		558	-0.06	G	29	0.00	0.5	WADING	DEBRIS
341	2003-08-25 10:46	WS	112	129	1.31	2.47		169	-0.12	F	27	0.00	0.5	WADING	CLEAR
340	2003-08-25 09:57	WS	113	130	1.19	2.47		155	-0.12	F	26	-0.01	0.6	WADING	CLEAR
339	2003-07-08 09:09	LJF	111	150	1.62	2.59		242	-0.05	G	27	0.00	0.5	WADING	CLEAR
338	2003-05-19 09:22	LJF	114	171	1.86	2.75		317	-0.05	G	28	0.00	0.5	WADING	CLEAR
337	2003-04-09 15:00	MJ	113	265	2.80	3.39		744	0.00	G	28	+0.02	0.8	WADING	CLEAR
336	2003-03-04 09:40	LJF	112	186	2.13	2.92		395	-0.05	G	34	0.00	0.5	WADING	CLEAR
335	2003-01-14 09:30	TMN/MH	105	177	2.00	3.01		354	0.00	G	29	0.00	0.6	WADING	ICE COVER
334	2002-11-21 13:21	LJF	127	133	1.28	2.44		171	-0.05	F	28	0.00	0.6	WADING	CLEAR
333	2002-11-21 12:42	LJF	109	124	1.39	2.44		172	-0.05	G	29	0.00	0.5	WADING	CLEAR
332	2002-10-01 09:17	WKS	100	86.2	1.19	2.23		103	-0.05	G	27	0.00	0.5	WADING	CLEAR
	2002-														

331	08-27 11:38	LJF	110	113	1.23	2.32		139	0.00	F	29	0.00	0.5	WADING	CLEAR
330	2002-06-26 13:30	ljf	112	112	1.30	2.29		145	0.00	F	31	0.00	0.5	WADING	CLEAR
329	2002-05-15 08:27	LJF	157	584	3.18	5.02		1860	0.00	G	29	-0.10	1.0	BRG CRANE	CLEAR
328	2002-05-09 07:44	LJF	154	371	2.60	3.63		967	+0.12	F	33	-0.02	1.0	BRG CRANE	CLEAR
327	2002-05-08 15:04	LJF	151	318	2.28	3.32		727	+0.09	F	30	+0.01	0.8	BRG CRANE	CLEAR
326	2002-03-18 10:30	ws	110	176	2.12	2.83		374	0.00	G	27	0.00	0.5	WADING	CLEAR
325	2002-01-31 09:40	MS	152	368	2.67	3.79		1010	0.00	G	32	+0.05	1.0	WADING	CLEAR
324	2001-12-13 08:40	TMN	106	104	1.58	2.41		164	-0.05	G	28	0.00	0.6	WADING	CLEAR
323	2001-11-07 13:40	MJ	108	100	1.27	2.30		127	-0.05	E	33	-0.01	0.5	WADING	CLEAR
322	2001-09-17 08:50	WS	98.0	79.8	1.23	2.19		98.1	0.00	F	28	0.00	0.5	WADING	CLEAR
321	2001-08-01 12:26	LJF	101	95.3	1.19	2.19	2.63	113	0.00	G	31	0.00	0.8	WADING	CLEAR
	2001-														

320	06-20 15:50	MDS	94.0	44.5	1.56	2.05		69.6	0.00	G	29	0.00	0.5	WADING	CLEAR
319	2001-06-20 14:50	MDS	96.0	66.1	1.08	2.05		71.3	0.00	G	33	0.00	0.7	WADING	CLEAR
318	2001-04-30 10:10	WS	106	130	1.79	2.54		233	0.00	G	27	0.00	0.5	WADING	CLEAR
317	2001-03-14 15:15	MJ	151	406	2.96	4.06	4.82	1200	0.00	G	38	-0.04	1.0	BRG CRANE	CLEAR
316	2001-01-22 10:30	WS	110	162	1.86	2.71		302	0.00	G	32	-0.01	0.5	WADING	CLEAR
315	2000-12-05 15:18	LJF	111	158	1.75	2.66	3.25	276	0.00	G	30	0.00	0.7	WADING	CLEAR
314	2000-10-18 14:30	MS	100	93.9	1.27	2.29	2.72	119	0.00	G	30	0.00	0.5	WADING	LGT DEBRIS
313	2000-08-30 11:57	LJF	88.0	78.0	1.19	2.17	2.66	93.1	0.00	F	30	0.00	0.7	WADING	CLEAR
312	2000-07-13 13:10	LJF	79.0	108	0.75	2.14	2.64	80.7	0.00	F	31	0.00	0.7	WADING	CLEAR
311	2000-05-22 09:47	WS	109	175	2.02	2.84		354	0.00	G	26	0.00	0.5	WADING	CLEAR
310	2000-04-06 07:40	EE	102	190	3.26	3.23	3.90	620	0.00	G	32	-0.02	0.8	WADING	CLEAR
	2000-														SHORE

309	02-15 14:45	MDS	104	185	2.87	3.11		531	0.00	G	35	-0.02	0.8	WADING	ICE
308	2000-01-07 12:30	MJ	126	363	2.33	3.52	4.25	846	0.00	F	30	0.00	1.0	BRG CRANE	CLEAR
307	1999-11-17 15:05	MDS	100	144	2.09	2.74	3.30	301	0.00	G	29	0.00	0.6	WADING	CLEAR
306	1999-09-23 08:45	TN	105	101	0.95	2.20	2.64	96.4	0.00	G	27	-0.01	0.6	WADING	CLEAR
305	1999-08-02 08:52	WS	104	99.9	1.35	2.31		135	0.00	G	30	-0.01	0.6	WADING	CLEAR
304	1999-06-17 11:45	LJF	111	100	0.98	2.19	2.64	98.1	0.00	G	31	0.00	0.7	WADING	LGT DEBRIS
303	1999-06-17 10:42	LJF	106	97.0	1.03	2.19	2.64	99.7	0.00	F	32	0.00	0.7	WADING	LGT DEBRIS
302	1999-04-29 08:50	MJ	96.0	155	2.52	2.86	3.14	390	0.00	F	30	0.00	1.0	WADING	CLEAR
301	1999-03-24 11:30	TMN	106	141	1.96	2.64	3.16	277	0.00	G	32	0.00	0.9	WADING	CLEAR

Number	Date	Made By	Width (ft)	Area (ft^2)	Mean Vel (ft/s)	Inside Gage Height (ft)	Outside Gage Height (ft)	Stream flow (ft^3/s)	Shift Adj (ft)	MS Rated	Number of Sections	GH Change (ft)	GH Change (hr)	MS Type	Control
300	1998-12-09	WS	104	94.7	0.89	2.18		85.0	0.00	G	27	0.00	0.5	WADING	LGT DEBR

	13:15		Width	Area	Mean Vel	Inside Gage Ht.	Outside Gage Ht.	Q ft³/s	Shift Adj		# of Sections	GH Change ft	GH Change (hr)	MS Type	
299	1998-11-05 11:19	LJF	76.0	57.6	0.82	2.03	2.45	47.3	0.00	G	28	0.00	0.7	WADING	LGT DEBR
298	1998-10-06 15:15	EE	90.0	80.7	1.19	2.23	2.65	96.5	0.00	G	26	-0.01	0.7	WADING	CLEA
297	1998-09-08 12:30	MJ	104	97.9	1.16	2.27		114	0.00	G	30	+0.01	0.5	WADING	CLEA
296	1998-08-12 15:50	MJ	101	92.2	1.17	2.24		108	0.00	G	31	0.00	0.7	WADING	CLEA
295	1998-06-15 09:30	WS	107	156	1.56	2.66		243	-0.07	G	25	-0.01	0.5	WADING	CLEA
294	1998-04-23 08:45	ERE	103	180	2.45	3.02	3.59	442	-0.07	F	27	-0.01	0.7	WADING	CLEA
293	1998-04-23 07:45	ERE	109	186	2.38	3.03	3.60	443	-0.07	F	27	0.00	0.6	WADING	CLEA
292	1998-02-26 08:40	MJ	105	137	2.10	2.65	3.13	279	0.00	G	36	-0.01	0.7	WADING	CLEA
291	1998-01-08 09:35	LJF	175	1130	4.15	8.66	9.17	4690	0.00	G	31	-0.04	0.8	BRG CRANE	CLEA
290	1998-01-08 08:20	LJF	175	1150	4.17	8.71	9.17	4800	0.00	G	30	+0.01	0.9	BRG CRANE	CLEA
289	1997-11-03	ws	113	122	1.26	2.44		154	-0.05	G	29	0.00	0.6	WADING	LGT DEBR

	09:50														
288	1997-09-10 12:30	LJF	76.0	82.7	1.16	2.22		95.7	0.00	F	29	0.00	0.7	WADING	CLEA
287	1997-07-28 14:30	ws	105	85.0	1.24	2.25		105	0.00	G	28	0.00	0.5	WADING	CLEA
286	1997-07-21 09:15	WS	106	90.0	1.19	2.27		107	0.00	G	32		0.5	WADING	CLEA
285	1997-05-22 11:03	MDS/ERE	104	157	2.26	2.80	3.35	355	0.00	G	31	0.00	0.4	WADING	CLEA
284	1997-03-25 10:24	WS	138	383	2.29	3.65		877	0.00	G	27	0.00	0.8	WADING	CLEA
283	1997-01-29 12:00	MJ	118	303	3.03	3.66	4.34	919	0.00	G	31	-0.05	1.2	WADING	CLEA
282	1996-12-04 14:15	WS	150	367	2.59	3.76	4.52	950	0.00	G	31	-0.01	1.1	BRG CRANE	CLEA
281	1996-10-09 16:00	MS	101	205	2.76	3.24	3.85	567	0.00	G	33	0.00	0.8	WADING	CLEA
280	1996-08-14 14:10	LJF	109	122	1.00	2.37	2.80	124	0.00	F	31	0.00	0.8	WADING	CLEA
279	1996-06-20 12:00	MJ	161	500	3.00	4.42	5.24	1500	0.00	G	42	-0.11	1.5	BRG CRANE	SUBMERGE
278	1996-04-22	WS	106	146	1.99	2.74	3.24	291	0.00	G	27	0.00	0.5	WADING	CLEA

	09:45														
277	1996-02-29 14:45	LJF	151	402	2.73	3.86		1100	0.00	F	29	-0.03	1.3	BRG CRANE	CLEA
276	1996-01-03 11:25	WS	105	183	2.02	2.95		368	0.00	G	26	0.00	0.6	WADING	SHORE IC
275	1995-11-01 15:15	MJ	93.0	84.7	0.64	2.16		54.0	- 0.04	G	33	0.00	0.5	WADING	MOD DEBR
274	1995-08-28 09:55	WS	107	100	1.21	2.37		121	0.00	G	30	0.00	0.5	WADING	CLEA
273	1995-08-15 08:30	LJF	114	124	1.13	2.43	2.79	140	0.00	G	34	0.00	0.7	WADING	CLEA
272	1995-07-12 13:50	LJF	115	97.3	0.94	2.28	2.61	91.8	0.00	G	31	0.00	0.8	WADING	CLEA
271	1995-05-17 11:40	MJ	106	141	1.86	2.68	3.04	263	0.00	G	32	0.00	0.6	WADING	CLEA
270	1995-03-30	MS	100	102	1.20	2.39		123	0.00	G	33	-0.02	0.7	WADING	CLEA
269	1995-01-30 09:20	WS	104	257	2.11	3.42	3.94	542	0.00	G	27	0.00	0.7	WADING	SHORE IC
268	1994-12-14 14:25	LJF	149	326	2.24	3.51	4.08	729	0.00	G	31	0.00	1.3	BRG CRANE	CLEA
267	1994-10-19 14:35	MJ	103	108	1.18	2.45	2.77	127	- 0.04	G	33	0.00	0.7	WADING	LGT DEBR

266	1994-08-25 09:20	MDS	98.0	92.7	1.20	2.34	2.66	111	0.00	G	30	0.00	0.7	WADING	CLEA
265	1994-06-27 09:25	WS	100	103	1.53	2.47		158	0.00	G	29	-0.01	0.5	WADING	CLEA
264	1994-05-12 10:10	LJF	111	130	1.25	2.51	2.85	163	0.00	G	33	0.00	0.8	WADING	CLEA
263	1994-03-16 14:25	MJ	155	474	2.95	4.39		1400	0.00	F	38	-0.04	1.5	BRG CRANE	CLEA
262	1994-02-03 07:45	MDS	157	324	1.40	4.20	4.45	455	0.00	F	27	-0.02	0.9	WADING	ICE COVE
261	1993-12-15 09:00	WS	152	316	2.48	3.49		785	0.00	G	32	0.00	1.1	BRG CRANE	CLEA
260	1993-10-27 13:40	LJF	77.0	81.5	0.69	2.18	2.42	56.2	-0.04	G	32	0.00	0.7	WADING	LGT DEBR
259	1993-09-15 09:00	LJF/MJ	108	92.8	0.89	2.26		83.7	0.00	G	32	-0.01	0.4	WADING	CLEA
258	1993-09-15 08:00	LJF/MJ	105	112	0.80	2.27	2.54	89.4	0.00	G	29	0.00	0.5	WADING	CLEA
257	1993-08-31 14:45	MJ	95.5	132	1.46	2.47		193	0.00	P	32	+0.17	0.0	WADING	CLEA
256	1993-08-27 08:00	LJF/JBL	108	123	1.33	2.48		163	0.00	G	33	0.00	0.7	WADING	CLEA

255	1993-07-08 09:50	MDS	96.0	81.1	0.98	2.24	2.54	78.9	0.00	G	30	0.00	0.7	WADING	CLEA
254	1993-05-19 08:50	WS	96.0	87.7	1.06	2.30		93.0	0.00	G	31	0.00	0.6	WADING	CLEA
253	1993-01-27 15:55	MJ	152	395	2.71	3.86	4.23	1070	0.00	P	32	0.00	1.0	BRG CRANE	CLEA
252	1992-12-11 11:45	MDS	160	357	2.52	3.64	3.94	888	0.00	F	28	+0.01	1.8	BRG CRANE	CLEA
251	1992-10-21 11:20	WS	100	211	2.89	3.34	3.65	611	0.00	G	33	0.00	0.6	WADING	CLEA

Number	Date	Made By	Width (ft)	Area (ft^2)	Mean Vel (ft/s)	Inside Gage Height (ft)	Outside Gage Height (ft)	Stream flow (ft^3/s)	Shift Adj (ft)	MS Rated	Number of Sections	GH Change (ft)	GH Change (hr)	MS Type	Control
250	1992-08-26 09:30	LJF	111	135	1.39	2.62		188	0.00	G	33	0.00	0.7	WADING	LGT DEBRIS
249	1992-07-08 13:40	MJ	113	104	1.40	2.49		146	0.00	G	32	0.00	0.7	WADING	CLEAR
248	1992-05-20 14:30	MDS	92.0	83.4	1.10	2.29	2.59	91.8	0.00	G	31	0.00	0.8	WADING	CLEAR
247	1992-04-01 09:45	WS	98.0	168	2.56	3.08	3.56	432	0.00	G	32	0.00	0.5	WADING	CLEAR
	1992-														LGT

246	02-05 14:35	LJF	102	136	1.23	2.57		167	0.00	G	33	0.00	0.7	WADING	DEBRIS
245	1991-12-11 16:10	MJ	102	139	1.47	2.67		205	-0.02	G	33	0.00	0.7	WADING	CLEAR
244	1991-10-30 07:24	LJF	100	103	0.74	2.36	2.59	76.5	-0.16	G	32	0.00	0.7	WADING	LGT DEBRIS
243	1991-09-10 09:20	WS	97.0	97.5	1.38	2.47	2.81	135	0.00	G	32	+0.01	0.5	WADING	CLEAR
242	1991-07-12 08:20	MDS	92.0	85.4	1.12	2.30	2.61	95.5	0.00	G	30	0.00	1.2	WADING	CLEAR
241	1991-05-15 12:20	LJF	98.0	82.5	1.11	2.30		91.5	0.00	G	32	0.00	0.7	WADING	LGT DEBRIS
240	1991-03-20 15:35	MJ	99.0	131	1.85	2.70		243	0.00	G	32	+0.01	0.7	WADING	CLEAR
239	1991-01-29 14:25	.WS	142	311	2.37	3.50	4.08	737	0.00	G	26	+0.01	1.0	WADING	CLEAR
238	1990-12-07 12:13	MDS	128	264	2.88	3.64	4.27	761	0.00	G	29	0.00	1.3	BRG CRANE	CLEAR
237	1990-10-16 07:45	LJF	128	330	2.81	3.76		928	0.00	G	33	-0.01	1.2	BRG CRANE	CLEAR
236	1990-08-16 11:20	MXJ	100	111	1.31	2.47	2.80	145	0.00	G	33	0.00	1.1	WADING	CLEAR
	1990-														MOD

235	08-03 13:30	MDL	97.0	100	1.28	2.42		128	0.00	G	35	0.00	1.0	WADING	DEBRIS
234	1990-07-03 14:50	WS	96.0	119	1.14	2.52	2.92	136	0.00	G	32	0.00	0.6	WADING	CLEAR
233	1990-06-15 12:17	WS	109	119	1.09	2.41	2.72	130	0.00	G	39	0.00	1.0	WADING	CLEAR
232	1990-04-26 17:45	MDS	99.0	128	1.72	2.70	3.10	220	0.00	G	30	0.00	1.0	WADING	CLEAR
231	1990-04-26 15:20	MDS	99.0	122	1.70	2.70	3.10	207	0.00	G	32	0.00	1.2	WADING	CLEAR
230	1990-03-08 14:55	MDS/LJF	110	295	2.56	3.53	4.14	755	0.00		36	0.00	1.3	BRG CRANE	CLEAR
229	1990-01-16 16:45	WS	102	187	2.78	3.25	3.81	521	0.00	G	26	0.00	0.5	WADING	CLEAR
228	1989-11-27	LJF	132	271	2.25	3.38		610	0.00	G	33	-0.01	1.2	BRG CRANE	LGT DEBRIS
227	1989-10-10 12:00	MZJ/JLO	95.0	115	1.13	2.61	2.87	130	0.00	G	34	0.00	0.5	WADING	MOD DEBRIS
226	1989-08-17 12:00	MDL/WS	95.0	102	1.15	2.58	2.84	118	0.00	G	25	0.00	1.0	WADING	CLEAR
225	1989-06-29	LJF	140	354	2.62	3.87		928	0.00	G	29	-0.01	1.3	BRG CRANE	CLEAR
224	1989-06-01 12:50	MXJ	144	372	2.98	4.11	4.80	1110	0.00	G	35	-0.04	1.5	BRG CRANE	CLEAR

223	1989-03-17	LE	105	176	2.11	3.03		387	0.00	F	29	0.00	0.8	WADING	CLEAR
222	1989-02-03 08:45	TMN	96.0	160	2.62	3.06	3.57	423	0.00	G	27	0.00	0.6	WADING	CLEAR
221	1988-12-15	LJF	96.0	143	1.65	2.80		237	0.00	G	29	0.00	0.8	WADING	CLEAR
220	1988-11-03 13:00	MDL	94.0	116	1.33	2.75	3.01	154	-0.15	G	28	0.00	0.8	WADING	MOD DEBRIS
219	1988-09-15 13:00	MXJ	96.0	103	1.17	2.54	2.54	121	0.00	G	37	-0.01	0.8	WADING	HVY DEBRIS
218	1988-07-21 09:54	TMN	139	293	2.35	3.50	4.26	688	0.00	G	27	-0.04	1.2	WADING	CLEAR
217	1988-05-11	LJF	101	112	1.09	2.65		123	-0.11	G	26	0.00	0.8	WADING	MOD DEBRIS
216	1988-03-18 11:12	TMN	124	198	2.04	3.02	3.52	403	0.00	G	31	0.00	0.7	WADING	CLEAR
215	1988-01-29	ML	107	175	1.87	2.88		327	0.00	F	34	-0.02	1.0	WADING	CLEAR
214	1987-12-14	RWS	145	347	2.71	3.78		939	0.00	G	33	0.00	1.1	BRG CRANE	CLEAR
213	1987-11-06	LJF/TMN	101	151	1.75	2.77		265	0.00	G	29	0.00	0.6	WADING	CLEAR
212	1987-09-10	SRF	108	180	1.57	2.87		283	0.00	G	26	0.00	0.4	WADING	CLEAR
211	1987-07-16	TMN	142	336	2.79	3.82		937	0.00	G	31	-0.01	1.5	BRG CRANE	CLEAR
210	1987-	TMN	107	128	0.98	2.65		127	0.00	G	28	-0.01	0.6	WADING	CLEAR

	05-21														
209	1987-02-26	RWS	101	124	0.91	2.36		113	0.00	G	34	+0.03	0.8	WADING	CLEAR
208	1987-01-08	TMN	102	133	2.04	2.81		263	0.00	G	34	0.00	0.8	WADING	CLEAR
207	1986-11-12	SRF	104	142	1.54	2.71		219	0.00	G	26	0.00	0.4	WADING	CLEAR
206	1986-09-11	RWS/KP	105	128	0.84	2.48		107	0.00	G	32	0.00	0.5	WADING	CLEAR
205	1986-07-16	RMC	98.0	128	1.83	2.63		234	0.00	G	30	0.00	0.6	WADING	CLEAR
204	1986-06-04	MBC	109	177	1.77	2.90		312	0.00	G	31	-0.03	0.5	WADING	CLEAR
203	1986-04-23	SRF	110	163	1.78	2.74		290	0.00	G	28	0.00	0.4	WADING	CLEAR
202	1986-03-05	TMN	139	285	1.47	3.00		418	0.00	G	27	-0.03	0.8	WADING	CLEAR
201	1985-11-15	TMN	156	485	3.28	4.67		1590	0.00	G	33	-0.05	1.6	BRG CRANE	CLEAR

Number	Date	Made By	Width (ft)	Area (ft^2)	Mean Vel (ft/s)	Inside Gage Height (ft)	Outside Gage Height (ft)	Stream flow (ft^3/s)	Shift Adj (ft)	MS Rated	Number of Sections	GH Change (ft)	GH Change (hr)	MS Type	Control
200	1985-10-10	RWM	85.0	58.0	0.91	2.15		52.6	0.00	G	28	0.00	0.5	WADING	LGT DEBRIS
199	1985-09-12	TMN	110	161	1.82	2.88		294	0.00	G	33	0.00	0.8	WADING	CLEAR
198	1985-07-31	SRF	107	139	1.30	2.60		181	0.00	G	27	0.00	0.4	WADING	CLEAR
197	1985-06-12	RWM	93.0	98.0	1.41	2.54		144	0.00	G	28	0.00	0.6	WADING	CLEAR

196	1985-03-28	TMN	102	140	1.98	2.75		278	0.00	G	28	0.00	0.7	WADING	CLEAR
194	1985-02-06	SRF	95.0	173	1.42	3.08		246	0.00	G	28	0.00	0.7	WADING	ICE COVER
193	1984-12-18	RWM	154	342	2.76	3.80		943	0.00	G	30	-0.01	1.0	BRG CRANE	CLEAR
192	1984-10-26	TMN	103	100	0.73	2.33		72.6	0.00	G	32	+0.01	0.8	WADING	CLEAR
191	1984-09-07	RWM	90.0	96.2	1.59	2.52		153	+0.13	G	27	0.00	0.5	WADING	CLEAR
190	1984-06-29	N	107	168	1.79	2.86		300	+0.07	G	32	-0.01	1.0	WADING	CLEAR
189	1984-05-23	RWM	174	860	3.56	6.60		3060	0.00	G	34	+0.16	2.2	BRG CRANE	CLEAR
188	1984-04-04	M	143	330	2.78	3.68		917	0.00	G	31	0.00	1.0		CLEAR
187	1983-12-19	M	143	343	2.60	3.73		893	0.00	G	33	0.00	1.3		CLEAR
186	1983-10-05	M	95.0	112	1.47	2.69		165	0.00	G	30	+0.03	0.6	WADING	CLEAR
185	1983-07-27	M	100	90.3	1.09	2.47		98.2	0.00	G	30	0.00	0.6	WADING	CLEAR
184	1983-06-08	M	103	155	1.81	2.92		280	0.00	G	31	0.00	0.7	WADING	CLEAR
183	1983-04-20	M	101	194	2.81	3.27		545	0.00	G	31	-0.01	0.8	WADING	CLEAR
182	1983-03-25	M	101	143	2.26	2.87		323	0.00	G	31	0.00	0.6	WADING	CLEAR
181	1983-03-02	M	95.0	107	1.48	2.58		158	0.00	G	30	0.00	0.6	WADING	CLEAR
180	1983-01-13	M	144	341	2.61	3.75		890	0.00	G	34	0.00	1.1		CLEAR

179	1982-11-17	M	104	104	1.25	2.53		130	0.00	G	30	0.00	0.6	WADING	CLEAR
178	1982-10-13	S/C	88.0	79.2	0.76	2.24		60.2	0.00	G	31	0.00	0.6	WADING	LGT DEBRIS
177	1982-10-06	M	87.0	58.6	0.70	2.07		41.4	0.00	F	31	0.00	0.8	WADING	CLEAR
176	1982-07-28	M	96.0	94.8	1.30	2.49		123	0.00	G	30	0.00	0.6	WADING	CLEAR
175	1982-06-09	M	147	336	2.53	3.67		849	0.00	G	32	0.00	1.0		CLEAR
174	1982-05-11	M	90.0	72.2	1.13	2.40		81.8	0.00	G	32	0.00	0.8	WADING	CLEAR
173	1982-04-22	M	106	164	2.52	2.96		413	0.00	G	30	0.00	0.6	WADING	CLEAR
172	1982-02-24	W	119	272	2.43	3.39		662	0.00	F	31	-0.02	1.2	WADING	CLEAR
171	1981-11-04	N	111	169	1.79	2.89		302	0.00	G	34	0.00	0.9	WADING	CLEAR
170	1981-09-16	M	99.0	132	1.92	2.82		254	0.00	G	30	0.00	0.7	WADING	
169	1981-09-01	M	102	109	1.45	2.62		158	0.00	G	30	0.00	0.7	WADING	CLEAR
168	1981-07-29	S	116	221	2.65	3.39		586	0.00	G	33	-0.01	0.8	WADING	CLEAR
2E	1981-06-25	P	146	321	2.36	3.46		753	0.00	G	33	0.00	1.3		CLEAR
167	1981-06-03	M	102	113	1.66	2.62		188	0.00	G	30	0.00	0.6	WADING	CLEAR
166	1981-04-15	N	157	340	2.69	3.70		914	0.00	G	32	-0.06	1.0		CLEAR
165	1981-02-26	W	146	415	2.82	4.03		1170	0.00	F	33	-0.01	1.0		CLEAR

164	1981-01-15	M	99.0	141	2.24	2.89		316	0.00	G	30	-0.01	0.6	WADING	
163	1980-12-04	N	122	254	2.69	3.51		683	0.00	G	32	-0.01	0.9	WADING	CLEAR
162	1980-10-22	S/W	95.0	83.3	0.86	2.38		71.4	-0.15	G	31	0.00	0.5	WADING	MOD DEBRIS
161	1980-09-11	N	106	104	1.30	2.56		135	0.00	G	34	0.00	0.8		CLEAR
160	1980-07-09	M	104	150	2.07	3.00		310	0.00	G	30	-0.01	0.6		CLEAR
159	1980-05-29	N	107	80.1	0.81	2.13		64.8	0.00	G	31	0.00	0.9		CLEAR
158	1980-04-09	S/A	118	291	2.99	3.68		871	0.00	G	31	-0.01	0.8		CLEAR
157	1980-02-20	M/M	100	119	1.86	2.59		221	0.00	G	31	0.00	0.5		CLEAR
1E	1980-01-24	P	147	351	2.28	3.49		801	0.00	G	32	0.00	1.8		CLEAR
156	1980-01-08	M/A	109	245	2.99	3.42		732	0.00	G	32	-0.01	0.6		CLEAR
155	1979-11-08	N	107	166	2.30	3.11		381	0.00	G	30	0.00	0.8		CLEAR
154	1979-08-15	M	95.0	85.8	1.57	2.39		135	0.00	G	30	0.00	0.8	WADING	CLEAR
153	1979-06-26	C/S	107	102	1.30	2.39		133	0.00	G	32	0.00	0.6	WADING	CLEAR
152	1979-05-02	N	109	193	2.92	3.16		563	0.00	G	34	0.00	0.8	WADING	
151	1979-03-23	S	108	208	2.56	3.18		533	0.00		30	0.00	0.7	WADING	CLEAR

						Inside	**Outside**								

Number	Date	Made By	Width (ft)	Area (ft^2)	Mean Vel (ft/s)	Gage Height (ft)	Gage Height (ft)	Stream flow (ft^3/s)	Shift Adj (ft)	MS Rated	Number of Sections	GH Change (ft)	GH Change (hr)	MS Type	Control
150	1979-02-01	M	101	182	2.96	3.17		539	0.00	G	30	0.00	0.7	WADING	CLEAR
149	1978-12-13	N	108	147	2.25	2.83		331	0.00	G	33	0.00	0.9	WADING	CLEAR
148	1978-10-23	S/M	104	118	1.31	2.51		155	0.00	G	32	0.00	0.6	WADING	CLEAR
147	1978-08-23	M	104	82.4	1.26	2.29		104	0.00	G	30	+0.01	0.8		CLEAR
146	1978-07-11	N	103	80.2	1.36	2.32		109	0.00	G	34	+0.01	1.0		LGT DEBRIS
145	1978-05-24	F	109	211	3.19	3.45		673	0.00	G	32	0.00	0.7		CLEAR
144	1978-03-29	N/F	106	167	2.68	3.10		447	0.00	G	36	0.00	0.7	WADING	LGT DEBRIS
143	1977-11-15	F	110	188	1.94	3.09		364	0.00	G	31	0.00	0.5		MOD DEBRIS
142	1977-09-27	M	150	346	2.72	3.97		940	0.00	G	30	0.00	1.2		
141	1977-09-07	F	103	175	2.55	3.25		446	0.00	G	32	0.00	0.7		LGT DEBRIS
140	1977-07-20	C/M	44.0	474	2.53	4.36		1200	0.00	G	31	0.00	1.3		CLEAR
139	1977-05-24	F	103	105	1.28	2.40		134	0.00	G	35	0.00	0.7		CLEAR
138	1977-02-15	S	112	221	1.97	3.55		436	0.00	G	23	+0.03	1.0		ICE COVER
137	1977-01-04	M	90.0	96.9	1.61	2.63		156	0.00	G	28	0.00	0.5		SHORE ICE
	1976-														LGT

136	11-18	S	149	356	2.33	3.63		829	0.00	G	35	0.00	1.9		DEBRIS
135	1976-09-20	M	100	86.7	1.67	2.53		151	0.00	G	30	0.00	0.5		CLEAR
134	1976-08-03	F	93.0	89.8	0.96	2.27		86.0	0.00	G	30	0.00	0.7		CLEAR
133	1976-06-17	D	126	102	1.11	2.32		113	0.00	G	30	0.00	0.8		CLEAR
132	1976-05-11	F	103	120	1.11	2.42		133	0.00	G	34	+0.01	0.6		CLEAR
131	1976-03-29	D	136	253	2.13	3.21		541	0.00	F	30	0.00	0.8		CLEAR
130	1976-02-19	JF	175	768	3.26	5.72		2500	0.00	G	30	-0.12	1.5	BRG CRANE	CLEAR
129	1976-01-16	W/F	165	478	2.85	4.17		1360	0.00	G	34	-0.03	1.1		CLEAR
128	1975-11-25	F/M	111	113	1.66	2.60		188	0.00	G	33	0.00	1.2		CLEAR
127	1975-10-06	S	110	117	1.09	2.50		128	-0.05	G	31	0.00	0.7		MOD DEBRIS
126	1975-08-26	S/L	113	125	1.22	2.56		153	-0.05	G	33	+0.03	0.7	WADING	
125	1975-07-07	S/W	104	126	1.31	2.52		165	0.00	G	33	-0.05	0.9	WADING	CLEAR
124	1975-05-28	D	111	124	1.27	2.55		158	0.00	G	29	-0.01	0.7	WADING	CLEAR
123	1975-04-28	S	111	138	1.52	2.61		210	0.00	G	29	0.00	0.7	WADING	CLEAR
122	1975-03-10	M	134	283	2.77	3.43		783	0.00	G	32	0.00	0.6	WADING	CLEAR
121	1975-01-28	S	113	214	2.66	3.23		570	0.00	G	31	0.00	0.8	WADING	CLEAR

120	1974-12-17	H	145	374	2.83	3.84		1060	0.00	G		0.00	1.1		CLEAR
119	1974-11-14	S	119	223	2.74	3.42		611	0.00	G	30	+0.05	0.8	WADING	CLEAR
118	1974-10-10	H	104	104	1.44	2.50		150	0.00	G	30	0.00	0.7	WADING	CLEAR
117	1974-10-01	S	111	144	1.43	2.71		206	0.00	G	30	0.00	0.8	WADING	CLEAR
116	1974-08-24	D	114	104	1.22	2.43		127	0.00	G	32	0.00	0.8	WADING	CLEAR
115	1974-07-18	M	107	89.2	1.22	2.30		109	0.00	G	30	0.00	0.7	WADING	CLEAR
114	1974-06-11	C	104	96.2	1.46	2.36		141	0.00	G	33	0.00	0.6	WADING	CLEAR
113	1974-05-08	S	112	121	1.97	2.61		238	0.00	G	32	0.00	0.7	WADING	CLEAR
112	1974-04-03	M	146	408	3.14	4.05		1280	0.00	G	32	-0.05	1.1		CLEAR
111	1974-02-28	D	117	251	2.66	3.37		668	0.00	G	31	0.00	1.0	WADING	CLEAR
110	1974-01-24	M	156	454	3.19	4.29		1450	0.00	G	33	-0.04	2.7		CLEAR
109	1973-12-06	S	113	167	1.77	2.82		295	-0.05	G	31	0.00	0.7	WADING	CLEAR
108	1973-11-08	M	104	124	2.11	2.69		262	-0.05	G	32	0.00	0.7	WADING	CLEAR
107	1973-10-04	D	119	160	1.42	2.67		228	-0.05	G	32	0.00	1.2	WADING	CLEAR
106	1973-08-23	S	112	131	1.64	2.65		215	-0.05	G	31	0.00	0.8	WADING	CLEAR
105	1973-07-25	D/S	113	105	1.11	2.31		117	-0.05	G	32	+0.01	0.8	WADING	CLEAR

104	1973-06-22	M	101	97.2	1.44	2.36		140	0.00	G	32	0.00	0.7	WADING	CLEAR
103	1973-05-17	S	115	234	3.00	3.38		701	0.00	G	30	0.00	0.8	WADING	CLEAR
102	1973-04-25	S	114	115	1.76	2.53		202	0.00	G	30	0.00	0.8	WADING	CLEAR
101	1973-04-10	S	116	193	2.58	3.09		497	0.00	G	30	+0.01	0.8	WADING	CLEAR

Number	Date	Made By	Width (ft)	Area (ft^2)	Mean Vel (ft/s)	Inside Gage Height (ft)	Outside Gage Height (ft)	Stream flow (ft^3/s)	Shift Adj (ft)	MS Rated	Number of Sections	GH Change (ft)	GH Change (hr)	MS Type	Control
100	1973-03-13	S	116	178	1.76	2.81		314	0.00	G	30	-0.01	0.7	WADING	CLEAR
99	1973-03-07	S	112	216	2.28	3.15		492	0.00	G	33	-0.01	0.8	WADING	CLEAR
98	1973-02-01	M	118	248	3.29	3.45		817	0.00	G	31	0.00	0.7	WADING	CLEAR
97	1973-01-31	M	118	241	3.28	3.42		792	0.00	G	31	0.00	0.8	WADING	CLEAR
96	1973-01-18	H	115	290	2.12	3.31		616	0.00	G	29	0.00	0.8	WADING	CLEAR
95	1972-11-30	S/H	116	292	2.02	3.38		590	-0.17	G	29	-0.01	0.6	WADING	CLEAR
94	1972-10-17	S	115	159	1.52	2.81		242	-0.17	G	31	0.00	0.7	WADING	CLEAR
93	1972-09-14	S	107	165	1.70	2.83		283	-0.10		30	-0.01	0.8	WADING	CLEAR
92	1972-08-02	M	102	85.7	1.08	2.17		92.4	0.00		30	0.00	0.6	WADING	CLEAR
	1972-														

91	07-11	S	150	354	2.88	3.78		1020	0.00		35	-0.01	2.0		CLEAR
90	1972-06-05	W/M	108	104	1.24	2.33		129	0.00	G	29	0.00	0.6	WADING	CLEAR
89	1972-05-05	M	143	312	2.53	3.49		788	0.00	G	40	0.00	1.3		CLEAR
88	1972-03-30	S/S	114	158	1.87	2.73		297	0.00	G	31	0.00	0.5	WADING	CLEAR
87	1972-03-01	M	146	308	3.22	3.71		994	0.00	G	36	+0.20	1.0		CLEAR
86	1972-01-20	M	117	236	2.71	3.30		640	0.00		29	0.00	0.5	WADING	CLEAR
85	1971-12-15	Z	164	544	3.25	4.66		1770	0.00	G	35	+0.01	1.9		LGT DEBRIS
84	1971-11-17	S	113	143	1.59	2.72		227	-0.19		32	0.00	0.8	WADING	LGT DEBRIS
83	1971-11-07	Z	106	141	1.61	2.70		228	-0.18	G	30	0.00	1.2	WADING	CLEAR
82	1971-10-08	Z	102	97.5	1.45	2.41		142	-0.12	G	30	0.00	3.8	WADING	CLEAR
81	1971-09-02	Z	82.0	135	1.02	2.27		139	0.00	G	30	0.00	1.3	WADING	CLEAR
80	1971-07-29	S/Z	90.0	124	1.10	2.25		136	0.00	G	30	0.00	0.6		CLEAR
79	1971-07-02	C	82.0	135	0.97	2.20		130	+0.02	G	31	0.00	0.7	WADING	CLEAR
78	1971-06-22	C	110	130	1.49	2.41		194	+0.02	G	31	0.00	0.6	WADING	CLEAR
77	1971-05-19	S	117	104	1.48	2.36		154	0.00	G	31	0.00	0.7	WADING	CLEAR
76	1971-04-14	M	109	184	2.64	2.97		486	0.00	G	31	0.00	0.6	WADING	CLEAR

75	1971-03-10	W	112	169	2.08	2.78		352	0.00	G	32	-0.03	0.9	WADING	CLEAR
74	1971-02-02	M/W	100	132	1.36	3.07		179	0.00	G	32	0.00	0.7	WADING	
73	1971-01-14	S	117	155	2.25	2.78		349	0.00	G	33	+0.03	0.8	WADING	CLEAR
72	1970-12-01	M	149	340	2.71	3.59		922	0.00	G	35	-0.02	1.5		CLEAR
71	1970-10-29	S	112	196	2.18	2.96		427	-0.08	G	30	0.00	0.8	WADING	CLEAR
70	1970-10-23	C	115	221	2.42	3.14		535	-0.08	G	32	0.00	0.7	WADING	LGT DEBRIS
69	1970-09-24	M	112	168	1.87	2.72		314	0.00	G	32	0.00	1.1	WADING	LGT DEBRIS
68	1970-08-12	S	106	131	1.63	2.53		214	0.00	G	32	0.00	0.8	WADING	CLEAR
67	1970-07-09	M	105	130	1.80	2.53		234	0.00	G	32	0.00	0.7	WADING	CLEAR
66	1970-05-28	S	113	125	1.43	2.41		179	0.00	G	31	0.00	0.8	WADING	CLEAR
65	1970-04-28	S	114	119	1.42	2.36		169	0.00	G	29	0.00	0.8	WADING	CLEAR
64	1970-03-25	M	105	181	2.96	3.06		536	0.00	G	30	-0.01	0.6	WADING	CLEAR
63	1970-03-11	G	112	148	1.82	2.56		269	0.00	G	32	0.00	0.8	WADING	CLEAR
62	1970-03-04	S	154	462	3.40	4.16		1570	0.00	G	37	+0.46	1.5		CLEAR
61	1970-02-18	S	115	191	2.42	2.99		462	0.00	G	32	+0.06	0.8	WADING	CLEAR
60	1970-01-19	M	113	195	1.81	2.95		353	0.00	G	30	-0.02	1.0	WADING	SHORE ICE

59	1969-12-12	M	151	359	2.87	3.70		1030	0.00	G	38	-0.06	2.1		CLEAR
58	1969-11-18	M	107	147	2.30	2.79		338	-0.05	G	32	0.00	0.6	WADING	CLEAR
57	1969-11-05	M	114	156	1.79	2.69		279	-0.05	G	33	0.00	0.6	WADING	CLEAR
56	1969-10-06	S	114	147	1.80	2.62		265	0.00	G	31	0.00	0.8	WADING	CLEAR
55	1969-08-27	G	108	102	1.06	2.14		108	0.00	G	35	0.00	0.8	WADING	CLEAR
54	1969-07-28	M	114	216	2.48	3.09		536	0.00	G	31	+0.02	1.3	WADING	CLEAR
53	1969-06-19	S	109	88.3	0.90	2.02		80.1	0.00	G	30	0.00	0.8	WADING	CLEAR
52	1969-05-15	M	105	129	1.89	2.54		244	0.00	E	34	0.00	1.3	WADING	CLEAR
51	1969-04-10	M	110	166	1.82	2.67		303	0.00	G	31	0.00	0.6	WADING	CLEAR

Number	Date	Made By	Width (ft)	Area (ft^2)	Mean Vel (ft/s)	Inside Gage Height (ft)	Outside Gage Height (ft)	Stream flow (ft^3/s)	Shift Adj (ft)	MS Rated	Number of Sections	GH Change (ft)	GH Change (hr)	MS Type	Control
50	1969-03-12	G	101	82.8	1.02	2.02		84.4	0.00	G	32	0.00	1.1	WADING	
49	1969-03-05	G	108	98.3	1.28	2.18		126	0.00	G	33	0.00	1.1	WADING	CLEAR
48	1969-01-17	S/C	114	222	2.48	3.08		547	0.00	G	31	0.00	0.8	WADING	CLEAR
47	1969-01-13	M	114	216	2.50	3.07		540	0.00	G	33	0.00	1.4	WADING	CLEAR
	1968-														

46	11-21	C	117	226	2.81	3.27		634	-0.08	G	33	0.00	0.8	WADING	CLEAR
45	1968-10-16	M	104	74.7	0.95	2.11		71.1	-0.15	G	32	-0.02	0.6	WADING	CLEAR
44	1968-09-11	D	110	201	2.42	3.00		486	0.00	G	30	0.00	0.8	WADING	CLEAR
43	1968-08-07	G	102	68.0	0.86	1.90		58.3	0.00	G	31	0.00	1.0	WADING	CLEAR
42	1968-07-09	J/M	100	56.8	0.78	1.80		44.2	0.00	G	28	0.00	1.0	WADING	CLEAR
41	1968-07-02	C	100	61.5	0.89	1.84		54.6	0.00	G	31	0.00	0.8	WADING	CLEAR
40	1968-06-05	D	104	93.1	1.17	2.15		109	0.00	G	30	0.00	0.8	WADING	CLEAR
39	1968-04-23	M	102	87.3	1.02	2.05		89.2	0.00	G	28	0.00	1.3	WADING	CLEAR
38	1968-03-13	M	112	142	1.64	2.52		233	0.00	G	30	0.00	0.5	WADING	CLEAR
37	1968-02-14	M	113	245	2.96	3.36		724	0.00	G	32	-0.01	1.3	WADING	CLEAR
36	1968-01-30	MBC	180	1170	3.72	8.60		4330	0.00	G	32	+0.08	1.2	BRG CRANE	CLEAR
34	1968-01-16	C	107	220	2.67	3.42		588	0.00	G	33	+0.01	0.6	WADING	CLEAR
33	1967-12-19	M/O	148	378	2.88	3.71		1090	0.00	G	39	-0.02	1.8		CLEAR
32	1967-12-13	M	155	352	2.84	3.61		1000	0.00	G	37	-0.02	2.7		CLEAR
31	1967-11-02	G	113	212	2.50	3.10		538	0.00	G	33	+0.03	0.9	WADING	CLEAR
30	1967-09-22	D/O	109	139	1.73	2.55		241	0.00	G	32	0.00	0.8	WADING	CLEAR

29	1967-08-23	D	102	120	1.52	2.40		182	0.00	G	32	0.00	0.9	WADING	CLEAR
28	1967-07-19	G	106	82.8	1.08	2.03		89.1	0.00	G	35	0.00	1.1	WADING	CLEAR
27	1967-06-15	D	83.0	119	0.58	1.91		68.5	0.00	G	33	0.00	1.0	WADING	CLEAR
26	1967-06-07	D	106	82.0	0.93	2.00		76.4	0.00	G	45	0.00	1.3	WADING	CLEAR
25	1967-05-12	MBC/DR	161	590	3.70	5.30		2180	0.00	G	37	-0.05	1.0	BRG CRANE	CLEAR
23	1967-05-10	M	144	310	2.76	3.60		861	0.00	G	34	-0.02	1.0		CLEAR
22	1967-03-29	G/C	154	441	3.33	4.21		1470	0.00	G	34	-0.02	1.1		CLEAR
21	1967-02-22	M	108	148	1.80	2.69		266	0.00	G	33	0.00	0.6	WADING	
20	1967-01-16	C	107	148	2.20	2.71		325	0.00	G	30	0.00	0.6	WADING	CLEAR
19	1966-12-09	C	145	353	2.89	3.72		1020	0.00	G	41	-0.04	1.1		CLEAR
18	1966-11-16	D	110	111	1.34	2.29		149	0.00	G	32	0.00	0.8	WADING	CLEAR
17	1966-10-06	S/C	107	124	1.37	2.35		170	0.00	G	34	0.00	0.8	WADING	CLEAR
16	1966-08-31	M	110	118	1.45	2.38		171	0.00	G	31	0.00	0.6		CLEAR
15	1966-07-27	D	108	113	1.53	2.36		173	0.00	G	34	0.00	0.8		CLEAR
14	1966-06-23	J	112	108	1.21	2.23		131	0.00	G	33	0.00	0.8	WADING	CLEAR
13	1966-05-18	S	111	117	1.35	2.32		158	0.00	G	30	+0.01	0.8	WADING	CLEAR

12	1966-04-26	S	113	192	2.31	2.91		444	0.00	G	31	-0.02	1.2		CLEAR
11	1966-04-25	S	149	321	2.83	3.55		909	0.00	G	34	-0.03	1.8	WADING	CLEAR
10	1966-04-13	D	212	127	1.50	2.40		190	0.00	G	35	0.00	0.8	WADING	CLEAR
9	1966-03-08	M	118	210	2.52	3.05		530	0.00	G	31	0.00	0.7		CLEAR
8	1966-03-04	D/R	120	250	2.55	3.26		638	0.00	E	34	+0.01	0.8	WADING	CLEAR
7	1966-02-16	M	146	337	2.87	3.68		973	0.00	G	39	+0.06	1.2	WADING	CLEAR
6	1966-02-08	M	113	193	2.20	2.90		425	0.00	G	30	0.00	0.6	WADING	CLEAR
5	1966-01-12	D	112	218	2.30	3.14		501	0.00	G	34	0.00	0.9	WADING	
4	1965-12-01	C	105	128	2.34	2.65		299	0.00	G	31	+0.02	0.6	WADING	CLEAR
3	1965-10-19	M	111	124	1.36	2.43		169	-0.08	G	31	0.00	0.5	WADING	CLEAR
2	1965-10-12	M	110	141	1.65	2.60		232	-0.08	G	34	0.00	0.8	WADING	CLEAR
1	1965-08-19	A/D	94.0	139	1.17	2.29		162	+0.03	G	31	+0.01	1.3	WADING	CLEAR

Questions about data?
Feedback on this web site
Surface Water for USA: Streamflow Measurements
http://waterdata.usgs.gov/nwis/measurements?

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