NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Gilbert Bridge
other names/site number Hall Estate Bridge

2. Location

street & number Bishop Road/Gilbert Road and Yellow Breeches Creek n/a not for publication
city, town Monaghan Township and Upper Allen Township n/a vicinity
state Pennsylvania code PA county Cumberland code 041 zip code 17019
York 133

3. Classification

Ownership of Property
- [ ] private
- [x] public-local
- [ ] public-State
- [ ] public-Federal

Category of Property
- [ ] building(s)
- [ ] district
- [ ] site
- [x] structure
- [ ] object

Number of Resources within Property

Contributing	Noncontributing	
		buildings
		sites
1		structures
		objects
1	0	Total

Name of related multiple property listing: N/A

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this
[X] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.
In my opinion, the property [X] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of certifying official — Date 3/16/89

Dr. Brent Glass, Pennsylvania Historical & Museum Commission
State or Federal agency and bureau

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

- [ ] entered in the National Register.
  - [ ] See continuation sheet.
- [ ] determined eligible for the National Register. [ ] See continuation sheet.
- [ ] determined not eligible for the National Register.
- [ ] removed from the National Register.
- [ ] other, (explain:) _____

Signature of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)
TRANSPORTATION/road-related

Current Functions (enter categories from instructions)
TRANSPORTATION/road-related

7. Description

Architectural Classification
(enter categories from instructions)

OTHER: Pratt through truss

Materials (enter categories from instructions)

foundation STONE/limestone
walls N/A
roof N/A
other METAL/steel

Describe present and historic physical appearance.

Except for graded, macadam approaches and a remodeled deck, the moderate span, Pratt through truss bridge probably looks today much like it first appeared when constructed in 1899.

Crossing in a northeast-southwest direction, the Gilbert Bridge sits nearly perpendicular to the Yellow Breeches Creek in a shallow ravine. The stream, which has a 222 square mile drainage area,[1] is roughly 90 feet wide at the bridge site under normal flow. In nearly a straight alignment the creek, which is generally a meandering stream, flows southeast at the bridge site. Stony Run tributary from the southwest empties into the creek on the upstream side of the bridge. A bluff runs along the edge of the creek on the northeast (Cumberland County) side of the ravine. The land on the southwest (York County) side is flood plain area. The bridge serves a rural area on each side of the creek.

From the bridge the Cumberland approach roadway curves right in approximately a 60-degree turn on a short radius. The road continues nearly on tangent ascending the bluff in a moderate grade. The York approach roadway is on tangent with the bridge for a short distance and descends onto the flood plain in a steep grade. Then the roadway bears left in a flat curve.

The structure is a simple span, single lane, highway, through Pratt truss bridge crossing a medium size creek, resting on abutment substructures. The trusses are early steel, pin connected, eye-bar and laced member, determinate construction. The abutments are gravity type, stone masonry construction.

In size the bridge is 102 feet long from end pins to end pins and approximately 18 feet wide overall. The clearance from the underside of the floor beams to the creek bed is approximately 12 feet.[2]

Laterally, the trusses are on 17-foot centers. The top and bottom chord bracing consists of trussed systems of rods and struts with the floor beams acting as struts in the bottom system. Vertically, the truss chords are, also, on 17-foot centers. Each truss consists of 6 panels 17 feet in length.

A 16-foot wide deck is supported on a system of stringers and floor beams. Five floor beams are supported from the trusses at their lower interior panel points. At the portals the 5 lines of stringers rest on the abutment backwalls.

[x] See continuation sheet

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N/A

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Signature of certifying official — Date

Dr. Brent Glass, Pennsylvania Historical & Museum Commission
State or Federal agency and bureau

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

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Signature of the Keeper — Date of Action

7. Description (continued)

Except for the deck, curb angles, guide rails and roadway stringers the metal material in the superstructure is the original steel. The roadway deck is a modern, open, steel grid. All of those elements replaced with the deck are, also, steel.

The truss material is as follows:

Top chords and end diagonals	2 channels 7" x 9.8 lb., 1 cov. pl. 12" x ¼" and 1 3/4" x ¼" lacing bars
Bottom chords	2 eye-bars 2" x 3/4" or 3" x 3/4"
Vertical posts	2 channels 4" x 5.4 lb. and 1¼" x ¼" lacing bars
Hangers in end panels	1 eye-bar 1¼" square
Diagonals	2 eye-bars 2" x 3/4" or 7/8" square
Counters	1 eye-bar 7/8" square

The floor system material consists of a 5-inch deep grid deck, W10" x 25 lb. stringers and S15" x 42.9 lb. floor beams covered with 5" x 3/8" plates top and bottom. The floor beams have six patch plates on the York County side of their webs which indicate that a previous stringer system framed to the webs.

The fasteners in the superstructure are rivets, bolts, inverted U-shaped hangers, turnbuckles and 2½-inch diameter pins.

To retain the traffic and the approach fill the York County abutment has two wing walls which are parallel to the longitudinal direction of the bridge and which are each 38 feet long. Similarly, the Cumberland County abutment has an east wing wall which is flared to the bridge and which is curved to conform with the bend in the approach roadway. That wing wall is, also, 38 feet long.

In 90 years of use the bridge has had only minor alterations. The floor system was altered in 1955 by replacing the deck (probably timber plank) and the stringers with the present floor system. Curb angles and channel guide rails were, also, added to the roadway thus reducing its width to 15 feet.

Except for modification of the stringer bridge seats and the backwalls, which are monolithic concrete, the abutments and wing walls are the original stonework, probably native limestone. Little dressing has been performed on the stones which have been laid into coursed, rubble masonry. The bridge seats for the trusses are heavy, stone slabs. All of the joints of the stonework are visible. Except at the face of the York County abutment the joints appear to have been pointed regularly over the years.

7. Description (continued)

Presently, the bridge is posted for a 10-ton weight limit. It is carrying an average daily traffic (ADT) of 65[3] passenger and commercial vehicles, some weighing as much as 10 tons.

End Notes

1. York county (Pa.), Board of Commissioners, "York County Bridge No. 248, Cumberland County Y10, T-892 Bishop Road Across Yellow Breeches Creek, Monaghan Township and Cumberland County," by C.S. Dividson, Inc., 38 North Duke Street, York, Pennsylvania, March 15, 1985, page 1.

2. Ibid., page D-488FA, sheet 1.

3. Ibid., page 2 of 6.

8. Statement of Significance (continued)

of the site where the Yellow Breeches Creek loops back across the Bishop Road. Bishop's operation was enormous, consisting of milling and farming land on each side of the road. Along the road near Bowmansdale the Lauck Mill (also known as the Goodhart Mill) existed on the Monaghan side of the creek. That mill had a long history of improvements. In 1899 it was powered by two thirty-inch, turbine wheels and had a daily capacity of 1200 bushels of grain.[3]

On August, 9, 1899, the Commissioners of York and Cumberland Counties contracted with the Wrought Iron Bridge Company of Canton, Ohio, to build an iron bridge over the Yellow Breeches Creek at the Gilbert Ford. The court approved the reviewers' report that the bridge was completed in accordance with the plans and the contract on March 10, 1900.

From a small beginning the Wrought Iron Bridge Company was started at Canton, Ohio, in 1864 and was incorporated in 1871.[4] With steady growth over the years, the new company took its place in the forefront of the country's bridge builders. "Its business grew from $200,000 in 1871, to $400,000 in 1872, and $500,000 in 1873, at which point it continued consistently into the 1880's.[5] By 1881 the company employed 270 men. Bridges had been erected in twenty-five states, some as far away as the State of Colorado and the Dominion of Canada. In 1889 the company secured a $135,000 contract for a steel viaduct for the Denver City Cable Railway Co.

Most likely, all the metal in the superstructure was Pennsylvania steel. Embossed on the rolled shapes in the bridge are the words "Jones & Laughlin," the trade name of Jones and Laughlin Ltd., a Pittsburgh producer of iron and steel in the 1890's and a predecessor of the Jones & Laughlin Steel Corporation. J & L Ltd. began the manufacture of steel and steel products in 1886.[6]

The bridge was named after two prominent Pennsylvania brothers, Lyman D. (1845-1914) and Spencer C. (1849-1924) Gilbert who with their families maintained summer residences on the downstream side adjacent to the bridge in Monaghan Township. Along with other affluent families from Harrisburg, as was customary for that period, the Gilbert families lived approximately half of the year through the summer time in those retreats and commuted to Harrisburg for business reasons by the Reading Railroad from Bowmansdale and Grantham.[7]

Excluding the wooden, covered bridges, which generally do not have their construction dates given in the data, forty-eight metal, moderate span (75 feet to 240 feet), county bridges were built in the period 1884 to 1915 in York County, thirty-one of them by the Wrought Iron Bridge Company.[8] Of that group thirty-two were through Pratt truss bridges, mostly of the eye-bar, pin connected, laced member type. Similarly, it appears that Cumberland County had eleven bridges of moderate span length in the same period,[9&10] although the data is incomplete as compared to the York County data. Eight were probably through Pratt trusses. Three of the bridges, Bishop, Fulling Mill and Etters are in the local area of and downstream from the Gilbert Bridge. Those four bridges have similar truss forms but differ in material.

8. Statement of Significance (continued)

The Gilbert and Bishop superstructures are steel material with laced compression members while the Fulling Mill and Etters superstructures are wrought iron with Phoenix compression members. All four bridges have eye-bars and pin connections. The Etters Bridge was listed on the National Register on February 26, 1986.

Pratt truss bridges came into prominence with the advent of metal material, first wrought iron, then steel, that possessed strength both in tension and compression. However, a compression truss member weighed more than a tension member having the same length and stress. That phenomenon favored through Pratt trusses for economical reasons when moderate span lengths were required. The long diagonal members were in tension and the shorter vertical posts were in compression. The use of pin connected panel points allowed those joints to rotate under load thus freeing the joints of moments. The ingenuity made Pratt trusses statically determinate wherein the engineering analysis of the trusses and the sizing of the members could be made by simple mathematical formulas. Lacing the compression members spread the stress carrying material apart to enhance the member's stiffness.

The steel in the Gilbert Bridge is well preserved. Except on its floor beams deterioration from rust is minimal. For example, on the compression chords the pitch between the stitch rivets is sufficiently small to prevent sizable corrosion build-up between the plies of steel which is often a problem with steel bridges of this type. The 1985 NBIS inspection report states that the bridge is in fair structural condition. It authorizes posting the bridge for a gross ten ton vehicle of an H-truck configuration.

The integrities of the Bishop, Fulling Mill, and Etters bridges are very similar to that of the Gilbert Bridge. All four bridges have remodeled floor systems consisting of open steel grid decks supported on replaced stringers and the original floor beams. All floor beams show some pitting of the metal and loss of cross-sectioned area from corrosion. Otherwise, the deterioration from rust on the Etters Bridge is practically nil. However, the bridge has one truss diagonal repaired with metal bars. The Fulling Mill Bridge has occasional rust build-up between the flanges of the Phoenix ccmpression members and two end diagonals are corroded through in small areas above the shoes. The Bishop Bridge, also, has rust build-up under the cover plates on the compression chord members and numerous rusted areas (some repaired with plates) on the lower ends of its vertical posts.

The Gilbert Bridge retains excellent historic integrity. Although a near-by, downstream dam and mill are gone, the surrounding terrain and the setting of the bridge remain nearly the same as when the bridge was built. While the agricultural industry has declined and the milling business has disappeared, the area around the bridge is still rural. The population and traffic density is probably about the same as in the early years of the bridge. There are no additional dwellings along the Gilbert/Bishop and Stony Roads. Only the type of traffic has changed. Rubber tired passenger vehicles and light weight trucks have replaced horse-drawn conveyances and wagons of commerce. The bridge is serving its community in the same way as it did when the bridge was new. It is a valuable historic resource

8. Statement of Significance (continued)

that should be kept in service and preserved as a monument to the heritage of ninety years ago that the bridge represents.

End Notes

1. Cumberland County (Pa.), Office of Clerk of Courts, Road Docket 5, 262.

2. John Gibson, History of York County, Pennsylvania, (Chicago: F.A. Battey Publishing Co., 1886), 649.

3. Ibid., 648.

4. Victor C. Darnell, Directory of American Bridge Building Companies, (Washington, D.C.: Society for Industrial Archeology, 1984), 48.

5. E.T. Heald, The Stark County Story, (Canton: WHBC-WHBCFM Broadcast, 1948), 629, Vol I.

6. Charles Genecker, "Jones & Laughlin Steel Corporation in the Services of the Country for Almost a Century," Blast Furnace and Steel Plant, (August, 1941), 859.

7. Interview with Mrs. Sarah Gilbert Tuten, Homemaker, July 25, 1988.

8. York County (Pa.) Archives, York County Bridges, Books Nos. 1 & 2, all pages.

9. Photograph Album of Cumberland County Bridges, Benatech Associates (Camp Hill Pa.).

10. Historical Papers, Hamilton Library, Annual Report, Cumberland County Historical Society (Carlisle, Pa.), Vol. I, Paper 18.

9. Major Bibliographical References

Annual Report of Hamilton Library, Historical Papers, Cumberland County (Pa.) Historical Society (1905).

Blast Furnace and Steel Plant, Jones & Laughlin Steel Corporation in the Services of the Country for Almost a Century, (August, 1941).

Darnell, Victor C., Directory of American Bridge Building Companies, (Washington, D.C.: Society for Industrial Archeology, 1984).

Gibson, John, History of York County, Pennsylvania (Chicago: F.A. Battey Publishing Co., 1886).

Heald, E.T., The Stark County Story, (Canton: WHBC-WHBCFM Broadcast, 1948).

NBIS Inspection Report, York County (Pa.) Bridge No. 248, (York: C.S. Dividson, Inc., 1985).

[X] See continuation sheet

Previous documentation on file (NPS):

[n/a] preliminary determination of individual listing (36 CFR 67) has been requested
[ ] previously listed in the National Register
[ ] previously determined eligible by the National Register
[ ] designated a National Historic Landmark
[ ] recorded by Historic American Buildings Survey # _____
[ ] recorded by Historic American Engineering Record # _____

Primary location of additional data:

[X] State historic preservation office
[ ] Other State agency
[ ] Federal agency
[ ] Local government
[ ] University
[ ] Other

Specify repository: _____

10. Geographical Data

Acreage of property less than one acre

UTM References

	Zone	Easting	Northing
A	18	331150	4446475
B			
C			
D			

[ ] See continuation sheet

Verbal Boundary Description

Beginning at the southwest end of the northwesterly wing wall at the southwest end of the bridge, proceed 23.3 feet southeast to the southwest end of the southwesterly wing wall; then proceed 178.9 feet northeast and east along the south side of the bridge superstructure and the curved wing wall at the northeast end of the bridge to the east end of the curved wing wall; then proceed northeast 23.7 feet to a point

[X] See continuation sheet

Boundary Justification

The boundary includes only the bridge superstructure, abutments and wing walls, which comprise the contributing structure.

[ ] See continuation sheet

11. Form Prepared By

name/title Herbert D. Versaw, Civil Engineer
organization Herbert D. Versaw, Civil Engineer date January 13, 1989
street & number 123 Oak Drive telephone 717-737-2524
city or town Camp Hill state Pennsylvania zip code 17011

8. Statement of Significanc

Certifying official has considered the significance of this property in relation to other properties:
☐ nationally ☐ statewide ☒ locally

Applicable National Register Criteria ☒ A ☐ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G N/A

Areas of Significance (enter categories from instructions)
Transportation
Engineering

Period of Significance
1899

Significant Dates
1899

Cultural Affiliation
N/A

Significant Person
N/A

Architect/Builder
Wrought Iron Bridge Company, Canton, Ohio

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

Built in 1899 the Gilbert Bridge has been an important link in the local transportation system for nearly ninety years. Eliminating the climatic uncertainty of fording the creek near its location the new bridge immediately became essential to near-by residents, farms, mills and businesses. A fast disappearing type of bridge it is continuing as a significant transportation facility in its community. The use of pin-connected, steel eye-bar and laced member construction in combination with Pratt trusses represents bridge engineering that was in vogue for moderate span, all-metal, truss bridges in the late nineteenth and early twentieth centuries. The Gilbert Bridge is a well preserved example of this type of engineering in the local area.

The concept for the Gilbert Bridge began in 1897, when petitioners favoring the bridge, petitioned the Cumberland County Quarter Sessions Court "for a Joint Bridge over the Yellow Breeches Creek where the public road from Bowmansdale to the York Road Crosses the same in Upper Allen Township at Dares Clover Mill Ford."[1] On April 19, 1898, the court appointed viewers reported "that in their opinion a Bridge is necessary and locate site at Gilbert's ford 426 feet up the stream from Dares Clover Mill Road." On September 13 and 15, 1898, respectively, the court and grand jury approved the report of the viewers.

At that time, the commerce in the area of the bridge site was agriculture, horticulture and milling. The Gilbert/Bishop Road, which connected with the York Road near Bowmansdale, was the chief transportation artery of the region west of Siddonsbu for trade with the mills and the railroad terminal at Bowmansdale. Numerous orchards, vineyards and plots of blackberries, raspberries and strawberries existed in the region. From the orchards apples, peaches, pears and apricots were marketed. In small fruit as nearly as could be ascertained in 1884 by canvass 2280 bushels of strawberries, 1246 bushels of raspberries, 3000 quarts of blackberries and seven tons of grapes were marketed from Monaghan Township.[2]

There were several mills along the Gilbert/Bishop Road. The court record speaks of a clover mill near the bridge site. An 1876 map shows a woolen factory (carpets and fancy dyeing) at the same location. The Bishop Mill was one-half mile northeast

☒ See continuation sheet

9. Major Bibliographical References (continued)

Photograph Album, Cumberland county (Pa.) Bridges (Camp Hill, Pa.: Benatech Associates, 1988).

Photograph Albums, York County (Pa.) Bridges (York, Pa.: York County Archives, 1926).

Road Docket 5, Office of Clerk of Courts, Cumberland County (Pa.), 1897.

10. Geographical Data (continued)

on the north side of T-612 directly across from the east end of the curved wing wall; then proceed 188.8 feet west and southwest along the north side of T-612 and the northwest side of the bridge and northwest wing wall to the point of beginning.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Photographs
Section number _____ Page 1

Information that is the same for all photographs:

1. Gilbert Bridge
2. Between Grantham and Siddonsburg, Pennsylvania
3. Francis J. Nicholson, Jr., (Photograph No. 2)
   Herbert D. Versaw, (Other Photographs)
4. Negative is in Engineer's File

Information that is different for each photograph:

Photograph No. 1

4. April 1, 1988
6. Environment and context of bridge from Stony Run showing flood plain in foreground and bluff in background.

Photograph No. 2

4. February 16, 1987
6. Northeast portal of bridge showing remodeled deck, curb, guide rail and parapet wall. Photograph taken from bluff.

Photograph No. 3

4. June 29, 1988
6. Patch plates on floor beam web and lower panel point connecting links. Photograph taken from southeast creek bank.

Photograph No. 4

4. June 29, 1988
6. Top view of lower panel point connecting links. Photograph taken from roadway deck.

Photograph No. 5

4. July 11, 1988

6. Upper panel point joint showing built-up members and bracing. Photograph taken from above the roadway deck.

Photograph No. 6

4. June 29, 1988

6. Bridge plaque mounted on northeast portal, and hip joint. Photograph taken from northeast wing wall.

Photograph No. 7

4. June 29, 1988

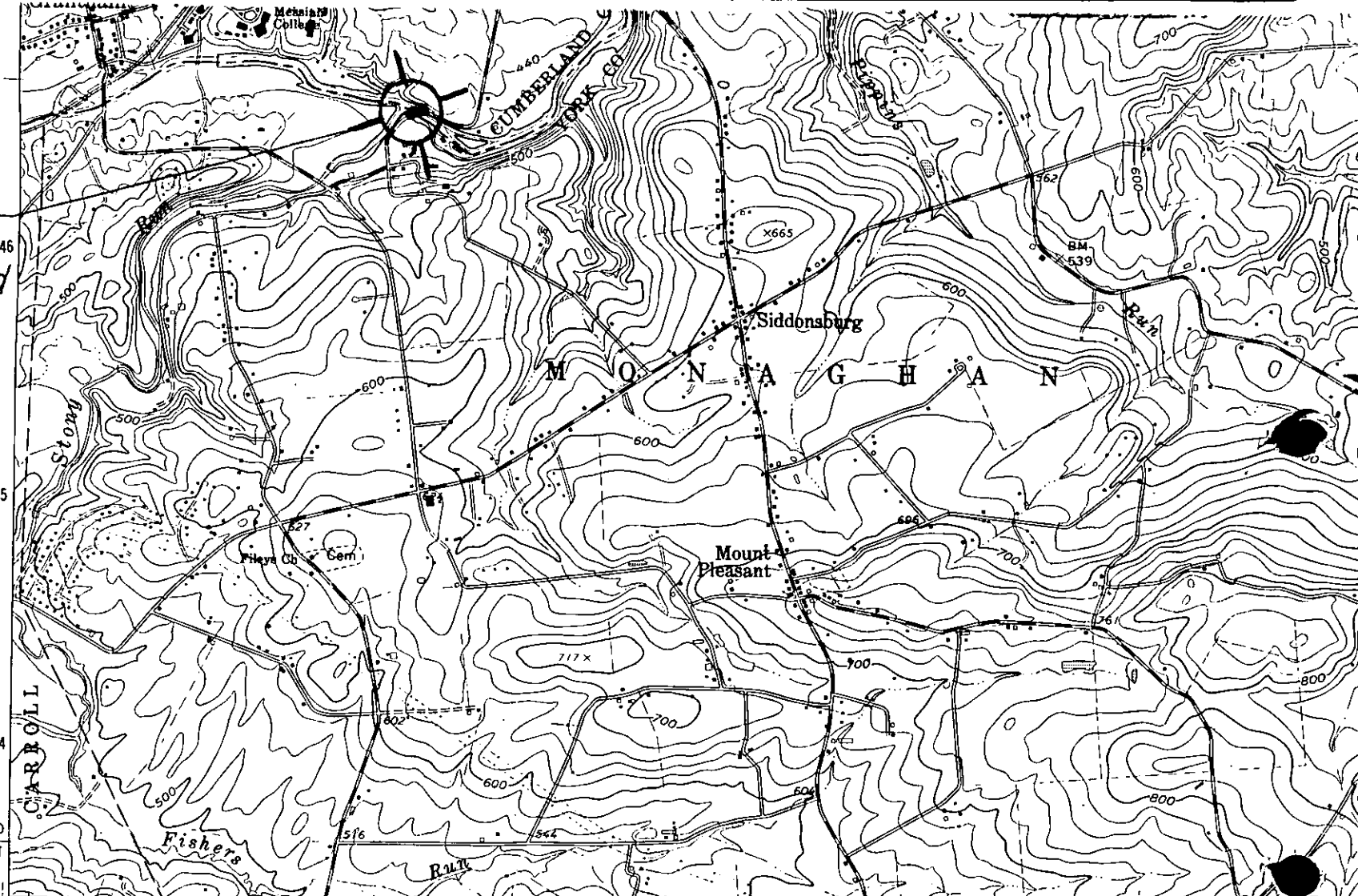
6. Face of southwest abutment showing dry rubble courses and stone slab bridge seats for the trusses. Photograph taken from downstream edge of creek.

Photograph No. 8

4. April 1, 1988

6. Downstream wing wall at Monaghan approach showing stone courses and their pointed joints. Photograph taken from downstream side.

Gilbert Bridge
Cumberland and
York Counties
Lemoyne Quad
USGS Zone 18
E 331150
N 4446475



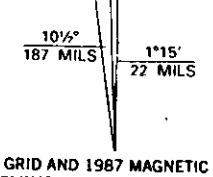
Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1961. Field checked 1963

Polyconic projection. 1927 North American datum
10,000-foot grid based on Pennsylvania coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in blue
To place on the predicted North American Datum 1983, move the projection lines 6 meters south and 27 meters west as shown by dashed corner ticks

There may be private inholdings within the boundaries of the National or State reservations shown on this map



UTM GRID AND 1987 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:

1 0 1000 0 1000 2000 3000

1 .5 0

CONTOUR INTER
NATIONAL GEODETIC VERT

THIS MAP COMPLIES WITH NATIO
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVE
A FOLDER DESCRIBING TOPOGRAPHIC MAPS