

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

PH0699721

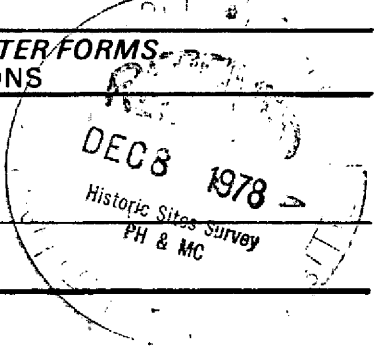
FOR NPS USE ONLY  
RECEIVED FEB 14 1979  
DATE ENTERED  
JAN 6 1979

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY -- NOMINATION FORM

SEE INSTRUCTIONS IN HOW TO COMPLETE NATIONAL REGISTER FORMS  
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC  
Pennsylvania Railroad Bridge at Trenton over Delaware River  
AND/OR COMMON



2 LOCATION

Spans Delaware River

STREET & NUMBER  
CITY, TOWN Trenton  
Morrisville  
STATE New Jersey Pennsylvania  
VICINITY OF 34 CODE 42  
COUNTY Mercer Bucks  
CODE 021 017  
CONGRESSIONAL DISTRICT 4th  
NOT FOR PUBLICATION

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input type="checkbox"/> DISTRICT	<input type="checkbox"/> PUBLIC	<input checked="" type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> BUILDING(S)	<input type="checkbox"/> PRIVATE	<input type="checkbox"/> UNOCCUPIED	<input type="checkbox"/> MUSEUM
<input checked="" type="checkbox"/> STRUCTURE	<input checked="" type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> COMMERCIAL
<input type="checkbox"/> SITE	<input type="checkbox"/> PUBLIC ACQUISITION	<input type="checkbox"/> ACCESSIBLE	<input type="checkbox"/> EDUCATIONAL
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input checked="" type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> ENTERTAINMENT
	<input type="checkbox"/> BEING CONSIDERED	<input type="checkbox"/> YES: UNRESTRICTED	<input type="checkbox"/> GOVERNMENT
		<input type="checkbox"/> NO	<input type="checkbox"/> INDUSTRIAL
			<input checked="" type="checkbox"/> TRANSPORTATION
			<input type="checkbox"/> MILITARY
			<input type="checkbox"/> OTHER:

4 OWNER OF PROPERTY

NAME Mr. W. P. Houwen, National Railroad Passenger Corporation  
STREET & NUMBER 1617 J. F. Kennedy Boulevard  
CITY, TOWN Philadelphia  
STATE Pennsylvania  
VICINITY OF  
19103

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC. Mercer County Courthouse  
STREET & NUMBER  
CITY, TOWN Trenton  
STATE New Jersey

6 REPRESENTATION IN EXISTING SURVEYS

TITLE Historic American Engineering Record Inventory  
DATE 1977  
DEPOSITORY FOR SURVEY RECORDS Office of Archeology and Historic Preservation  
CITY, TOWN Washington  
STATE D.C.

# 7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input checked="" type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input checked="" type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED      DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

---

## DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Completed in 1903 the Trenton Pennsylvania Railroad bridge over the Delaware River is constructed of rock-faced massive Clearfield stone. The bridge is 1080 feet in length and has 18 spans, each with a 60 foot arch with a rise of 12 feet. The bridge is askew at an angle of 71 degrees, <sup>30 minutes</sup>. The construction is characteristic of Pennsylvania Railroad Engineering at the turn of the century.

The piers are stone masonry with blocks of stone 24 inches in thickness and the rings of the arches are 39 inches in height. Each ring consists of 38 stones, 21 1/2 inches in thickness at the outer line and twenty inches at the inner, making a total length of 71 feet <sup>4</sup>/<sub>8</sub> inches for the extrados and 66 feet 2 inches for the intrados. The width from out to out coping is 55 feet accomodating four tracks.

Each arch is made up of 12 rings, or ribs, which are fastened to each other with wrought-iron clamps at the keystone and at each of three voussoirs on each side of the keystone. The base of rail is about 42 feet above mean low water level and the spring of the arch about 22 feet above the same line (1903). There is a conduit for telegraph lines.

Work began on the bridge in October, 1901 with excavation for the west abutment. The first stone was not laid until a month later because of constant flooding which delayed preparation of derricks, engines, and working plant.

The foundation caused unexpected trouble owing to the depth to which it was necessary to go. The earlier bridge 1500 feet to the north needed only shallow excavations before finding bedrock, but as this structure approached the New Jersey shore it was necessary to go to great depths. Even so, compromises were made as about half of pier 14 is upon solid rock while the other half is upon a bed of concrete 10 feet in depth. Piers 16 and 17 and the east abutment are also built on beds of concrete.

The cements used were Grant, Atlas, Alpha, and Valcanite Portland.

Yardage of stonework in the bridge is approximately 45,000 cubic yards.

Chief Engineer - William H. Brown  
Assistant Engineers - W. A. Pratt  
James F. Cullen

Contractors - Chas A. Sims & Company, Philadelphia  
James F. Brogan, Supt.

Still in operation for both freight and commuter service, the bridge has had virtually no structural changes since its construction.

# 8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input checked="" type="checkbox"/> TRANSPORTATION
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)
		<input type="checkbox"/> INVENTION		

SPECIFIC DATES

1903

BUILDER/ARCHITECT

William H. Brown, Chief Engineer

STATEMENT OF SIGNIFICANCE

## Engineering/Transportation

The railroad bridge across the Delaware River at Trenton, New Jersey is an excellent example of the monumental stone arch bridges erected by the Pennsylvania Railroad Company at the turn of the century as a result of their coordinated bridge improvement program.

In the last quarter of the 19th century railroad bridge failures increased significantly. Probably the result of the heavier train engines being developed railroad companies grew suspicious of metal bridge construction.

Consequently, these companies began seeking a more dependable bridge building material. From the aspect of design and engineering the result was conventional - the use of an ancient form, the semicircular stone arch - but it reflected the enormous wealth and monumentality of the empires which built them.

The Pennsylvania Railroad probably undertook the most ambitious stone masonry bridge building program in the United States. Starting in 1887 with the Johnstown, Pennsylvania bridge, which by withstanding the ravages of the disastrous flood two years later and thereby convincing advocates and skeptics alike of the strength of stone arch bridges, the Railroad constructed stone bridges for two decades.

By the time the improvement program was completed, the line had erected some of the longest stone bridges ever built.

Built by the Pennsylvania Railroad and designed by William H. Brown, the longest stone arch rail bridge in the world is the Rockville Bridge (1901) across the Susquehanna, just north of Harrisburg, Pennsylvania. Certainly of lesser scale, the Trenton bridge, also designed by Brown, is the only operating stone arch railway bridge across the Delaware River in New Jersey. It is, further, the second longest stone railroad bridge in the state (New Brunswick Viaduct is the longest with 21 spans.)

Costing some \$3 1/2 million to construct in 1903 (bridge - \$1 million, approaches - \$2 1/2 million) this stone arch bridge "said to be the only one in the world, with the exception of the one at New Brunswick, where four tracks run parallel "eliminated two bad curves and cut off some twenty minutes of travel time to Philadelphia when completed" (New York Times, August 23, 1903).

# 9 MAJOR BIBLIOGRAPHICAL REFERENCES

New York Times. August 23, 1903.

(p.11) col. 3

Engineering News. January 30, 1902. p. 86

Railway Age. March 20, 1903.

Alexander, Edwin. The Pennsylvania Railroad: A Pictorial History. W.W. Norton & Co., Inc. New York: 1947. (pp 49-50, photos 58-61).

# 10 GEOGRAPHICAL DATA *1080 ft. long*

ACREAGE OF NOMINATED PROPERTY \_\_\_\_\_

UTM REFERENCES

A | 18 | 519640 | 4450500 |  
 ZONE EASTING NORTHING

B | 18 | 519900 | 4450740 |  
 ZONE EASTING NORTHING

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

# 11 FORM PREPARED BY

NAME/TITLE

Terry Karschner, Historian-Curator

ORGANIZATION

Office of Historic Preservation, Dept. of Environmental Protection April, 1977.

DATE

STREET & NUMBER

109 West State Street

TELEPHONE

(609) 292-2028

CITY OR TOWN

Trenton, New Jersey

STATE

# 12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL \_\_\_\_\_

STATE X

LOCAL \_\_\_\_\_

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

Deputy STATE HISTORIC PRESERVATION OFFICER SIGNATURE

*Terry Karschner*

11-27-78

TITLE

Deputy Commissioner, N.J. Dept. Environmental Protection

DATE

FOR NPS USE ONLY		Director, Office of Historic Preservation, Pennsylvania
I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER		
<i>Charles K. Keabe</i>		<i>Ed Weigtraub</i>
DIRECTOR, OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION		DATE
ATTEST	<i>Ed Weigtraub</i>	DATE
KEEPER OF THE NATIONAL REGISTER		KEEPER OF THE NATIONAL REGISTER

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

**NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY -- NOMINATION FORM**

FOR NPS USE ONLY  
RECEIVED FEB 14 1979  
DATE ENTERED JUN 6 1979

Pennsylvania Railroad Bridge over Delaware River at Trenton  
Trenton Morrisville  
Mercer County Bucks County  
New Jersey 021 Pennsylvania 042

CONTINUATION SHEET #1 ITEM NUMBER #9 PAGE

Schotter, H. W. The Growth and Development of the Pennsylvania Railroad Company. 1927. (pp. 97-98, 299).

Alexander, Edwin P. On the Main Line: The Pennsylvania Railroad in the 19th Century. Bramhall House, New York: 1971.

Wm. H. Shank, Historic Bridges of Pennsylvania. York: Pennsylvania, 1974 (p. 50).

Plowden, David, Bridges: Spans of North America, New York, 1974 (p. 31)

FHR-8-300A  
(11/78)

UNITED STATES DEPARTMENT OF THE INTERIOR  
HERITAGE CONSERVATION AND RECREATION SERVICE

FOR HCRS USE ONLY
RECEIVED <b>MAY 21 1979</b>
DATE ENTERED

## NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

Pennsylvania Railroad Bridge  
Trenton, Mercer County, New Jersey  
Morrisville, Bucks County, Pennsylvania

CONTINUATION SHEET

ITEM NUMBER

PAGE

### Addenda.

The boundaries of the Pennsylvania Railroad Bridge are delineated to include, in addition to the arches over the Delaware River, the arches and abutment walls on Mill Street on the Pennsylvania side and Route 29 North and South on the New Jersey side.

Beginning at a point along the curb of Mill Street (Pennsylvania), 30 feet north of the wall of the bridge proceed 20 feet west parallel to the bridge. Thence, proceed south 120 feet parallel to Mill Street. Thence, proceed east parallel to the bridges to the New Jersey bank. Thence, proceed past the arch over Route 29 South and the arch over Route 29 North to a point 20 feet east of the east curb of Route 29 North. Thence, proceed North 120 feet (parallel to this curb). Thence, proceed west parallel to the bridge to the point of beginning.

T. Karschner  
5/1979

MORRISVILLE  
BUCKS COUNTY  
PENNA

MILL ST.

PENNSYLVANIA RAILROAD BRIDGE  
MORRISVILLE, PA.  
TRENTON, NJ

DELAWARE RIVER

F. Karschner  
5/1979

ROUTE 29 South

ROUTE 29 North

TRENTON  
MERCER COUNTY  
NJ

