NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100112 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED LONG BRIDGE ROAD (CR 613) OVER PEQUEST RIVER **FACILITY** LONG BRIDGE ROAD (CR 613)

TOWNSHIP ALLAMUCHY TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 39 ft **WIDTH** 26 ft

CONSTRUCTION DT 1938 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located in a rural wooded area with scattered houses and farms. It carries a two-lane county route over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge bears on concrete abutments with flared wingwalls. The encased stringers support a concrete deck that is flanked by well-detailed concrete balustrades. The posts have Moderne detailing. The span is one of over 65 extant pre-World War II stringer bridges in Warren County, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 184:16-18 (08/92) REVISED BY (DATE): QUAD: Tranquility

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100113 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED LONG BRIDGE ROAD (CR 613) OVER PEQUEST RIVER **FACILITY** LONG BRIDGE ROAD (CR 613)

TOWNSHIP ALLAMUCHY TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 39 ft **WIDTH** 26.2 ft

CONSTRUCTION DT 1939 **ALTERATION DT** **SOURCE** INSCRIPT, CO.RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located in a rural area with working farms and scattered houses. It carries a two-lane county route over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge bears on concrete abutments with flared wingwalls. The encased stringers support a concrete deck that is enclosed by well-detailed concrete balustrades. The posts have Moderne stepped detailing. The span is a representative example of a common bridge type, and is one of over 65 pre-World War II stringer bridges in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 184:14-15 (08/92) REVISED BY (DATE): QUAD: Tranquility

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100302 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED PROSPECT STREET OVER PEQUEST RIVER **FACILITY** PROSPECT STREET

TOWNSHIP BELVIDERE TOWN

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 155 ft **WIDTH** 25 ft

CONSTRUCTION DT 1912 **ALTERATION DT** 1971 **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** HENNESY CONTRACTOR

SETTING / CONTEXT The bridge is located within the Belvidere Historic District. The town is historic due to its layout and development from 1825 through 1900. Several buildings near the bridge fall within the period of significance of the district. The bridge was built after the main development of the town, and it replaces a bow string truss bridge. It carries a two-lane street and a sidewalk over a river.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Listed. Belvidere Historic District. 10/03/1980. Noncontributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The reinforced concrete deck arch bridge has a shallow rise. In 1971 the bridge was rehabilitated with the application of mortar on each face of the bridge and on the intrados. New fencing is set in a low concrete parapet. The 155'long bridge is a large example of its type, but it has the appearance of a 1970s span, and is thus no longer technologically or historically distinguished. It was also constructed outside the period of significance of the historic district.

INFOR MATION

PHOTO: 29:9A-11A (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100303 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SPRING STREET OVER POPHANDUSING CREEK **FACILITY** SPRING STREET

TOWNSHIP BELVIDERE TOWN

TYPE STRINGER **DESIGN** **MATERIAL** Steel

 # SPANS 1 **LENGTH** 42 ft **WIDTH** 14.8 ft

CONSTRUCTION DT 1900 **ALTERATION DT** 1986 **SOURCE** INSCRIPTION

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The one-lane bridge crosses a small stream. It is located on the southwest limit of residential development in Belvidere. The housing stock consists of primarily altered late-20th century single-family residences.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The steel stringer bridge rests on old rubble-stone abutments with wingwalls. In 1986 new concrete caps were placed on the abutments, and a concrete toe wall was placed along the north abutment. The steel grid deck is bounded by beam guiderails, with outriggers supporting the posts. The bridge has been severely altered, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 29:14A-15A (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100304 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED MANSFIELD STREET OVER POPHANDUSING CREEK **FACILITY** MANSFIELD STREET

TOWNSHIP BELVIDERE TOWN

TYPE STRINGER **DESIGN** **MATERIAL** Steel

 # SPANS 1 **LENGTH** 29 ft **WIDTH** 24 ft

CONSTRUCTION DT 1920 **ALTERATION DT** 1987 **SOURCE** COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge carries a two-lane road over a minor stream on the southern edge of the residential area in Belvidere. Altered late-19th century dwellings are adjacent to the north side of the bridge. The area to the south is agricultural.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The stringer bridge sits on rubble stone abutments with a concrete toe wall at the northwest corner. The stringers support a glued laminated deck with railings that were placed in 1987. Pipe railings are set in the wingwalls at three corners of the bridge. The structure has been significantly altered, and is not a technologically or historically distinguished bridge because it is a common type.

INFOR MATION

PHOTO: 29:16A-17A (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100416 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED JACKSONBURG ROAD SOUTH OVER JACKSONBURG CREEK **FACILITY** JACKSONBURG ROAD SOUTH

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 39 ft **WIDTH** 16 ft

CONSTRUCTION DT 1920 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT WARREN COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a settlement of several 19th century residences and businesses. A lumber yard uses some barns for its facilities. The buildings have been altered, so there is no historic district potential. The one-lane bridge carries a two-lane rural road over a minor stream. The bridge is scheduled for replacement in 1992.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span encased stringer bridge bears on ashlar abutments. The bottom flanges of the otherwise encased stringers are exposed. The railing is composed of concrete posts and two metal pipe rails. The bridge is an unaltered representative example of a common bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 166:20-21 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100417 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED JACKSONBURG ROAD NORTH OVER JACKSONBURG BROOK **FACILITY** JACKSONBURG ROAD

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 32 ft **WIDTH** 16 ft

CONSTRUCTION DT 1920 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT WARREN COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located adjacent to a well-preserved 19th century mill with its wheel and head race in place. 19th and 20th century residences surround the bridge. The one-lane bridge carries a two-lane road as it curves to cross a minor creek. The bridge is scheduled for replacement in 1992.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge rests on ashlar abutments. The stringers are encased in concrete, with the exception of the bottom flanges. The railings are composed of concrete posts with two metal pipe rails. The bridge is not technologically or historically distinguished, but it is a representative example of a common type in Warren County.

INFOR MATION

PHOTO: 166:18-19 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100451 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 5.7

NAME & FEATURE INTERSECTED VAIL ROAD (CR 655) OVER PAULINS KILL **FACILITY** VAIL ROAD (CR 655)

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 3 **LENGTH** 132 ft **WIDTH** 30 ft

CONSTRUCTION DT 1933 **ALTERATION DT** **SOURCE** PLAQUE

DESIGNER/PATENT HENRY VETTER, COUNTY ENGINEER **BUILDER** JOSEPH W. ROGERS

SETTING / CONTEXT The bridge is located in a wooded area with sparse development. It carries a two-lane county route with narrow shoulders over a wide stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span stringer bridge is supported by a concrete substructure. The abutments and cutwater piers are scored. The stringers are encased in concrete, with the fascia encasement paneled. The concrete balustrade is flanked at the approaches by beam guiderails. The bridge is a representative example of a common bridge type. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 166:13-14 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100453 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED MILLBROOK ROAD (CR 602) OVER BLAIRS CREEK **FACILITY** MILLBROOK ROAD (CR 602)

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE DECK ARCH **DESIGN** BARREL **MATERIAL** Steel

 # SPANS 2 **LENGTH** 43 ft **WIDTH** 30 ft

CONSTRUCTION DT 1940 **ALTERATION DT** **SOURCE** PLAQUE/COUNTY RECRDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located just north or above the village of Blairstown. Altered 19th-century residences are near the bridge, but the area does not have historic district potential. The bridge carries a two-lane county route over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span deck arch bridge is composed of arches with corrugated steel liners and rubble-coursed spandrel walls. Plans show that it was built in 1940. The stone face is buttressed at the piers, with a concrete footing at the springing line of the arches. The ringstones are gauged. The roadway has a vertical crest curve over the structure. The custom bridge was designed to blend with the historic character of the community, but it is not historically or technologically distinguished.

INFOR MATION

PHOTO: 166:26-28 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100501 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED BIEDLEMAN ROAD OVER POHATCONG CREEK **FACILITY** BIEDLEMAN ROAD

TOWNSHIP FRANKLIN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 44 ft **WIDTH** 14 ft

CONSTRUCTION DT 1917 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a sparsely developed, wooded area, with an altered ca. 1850 house on an adjacent property. The span carries a winding one-lane road over a creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge sits on concrete abutments with stone wingwalls on the west side and concrete on the east. The encased stringers have exposed bottom flanges. The railings are composed of concrete posts and metal pipe rails, a common county-designed railing for the early-20th century. The bridge is a representative example of a common bridge type, and is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 173:34A-36A (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100530 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED WILLOW GROVE ROAD OVER POHATCONG CREEK **FACILITY** WILLOW GROVE ROAD

TOWNSHIP FRANKLIN TOWNSHIP

TYPE STRINGER **DESIGN** JACK ARCH (CONCRETE) **MATERIAL** Steel

 # SPANS 2 **LENGTH** 63 ft **WIDTH** 18.1 ft

CONSTRUCTION DT 1914 **ALTERATION DT** 1982, 1984 **SOURCE** PLANS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded area with scattered 20th-century houses. The one-lane bridge carries the winding road over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span stringer bridge is supported by concrete abutments and a cutwater pier. Concrete jack arches remain in the outer bays in both spans, but in the center bays the jack arches were removed when portions of the deck were replaced in 1982 and 1984. The railing has concrete posts and metal pipe rails except for one quadrant where beam guiderail has replaced it. The bridge is an altered example of a common county bridge type, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 173:25A-27A (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100546 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED LIMEKILN ROAD OVER MUSCONETCONG RIVER **FACILITY** LIMEKILN ROAD

TOWNSHIP FRANKLIN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 68 ft **WIDTH** 18 ft

CONSTRUCTION DT 1915ca **ALTERATION DT** 1960ca **SOURCE** STYLE/COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a rural area of woods and active farms, with scattered 20th century housing. The one-lane bridge carries a narrow, winding road over the Musconetcong River. The waterway is the boundary between Warren and Hunterdon Counties.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span encased stringer bridge bears on earlier rubble-coursed stone abutments and a cutwater pier. The substructure has concrete toe walls. The encased stringers support a concrete deck and railings of steel posts and channel rails with a beam guiderail added across the span. The structure is a representative example of a common bridge type, one of over 65 remaining stringer bridges in the county. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 173:23A-24A (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100580 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED MAPLE AVENUE OVER TRIBUTARY TO MUSCONETCONG RIVER **FACILITY** MAPLE AVENUE

TOWNSHIP FRANKLIN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 24 ft **WIDTH** 23 ft

CONSTRUCTION DT 1923 **ALTERATION DT** 1984 **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER. COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded setting adjacent to active farms. It carries a two-lane road over a small stream. The span is adjacent to the intersection of two narrow roads.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge bears on concrete abutments with wingwalls. The original stringers are encased with exposed bottom flanges. The bridge was widened on the upstream side with exposed rolled stringers in 1984. The deck is lined with one railing of concrete posts and metal pipe rails and with one beam guiderail on the widened side. The bridge is an altered example of a common pre-World War II bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 174:28-29 (07/92) REVISED BY (DATE): QUAD: High Bridge

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100582 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 4.75

NAME & FEATURE INTERSECTED CR 632 OVER TRIBUTARY TO MUSCONETCONG RIVER **FACILITY** CR 632

TOWNSHIP FRANKLIN TOWNSHIP

TYPE SLAB **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 26 ft **WIDTH** 33.4 ft

CONSTRUCTION DT 1911 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** S. H. SHIELDS

SETTING / CONTEXT The bridge carries a 2-lane road and shoulders over a small stream in the village center of Asbury, a crossroads community with altered 19th and 20th century buildings. The area does not have historic district potential.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The skewed one-span slab bridge sits on concrete abutments. The concrete slab deck is reinforced with shallow steel I-sections encased in the concrete. Simple pipe railings are set in the curbs at each edge of the bridge. Two storm sewer pipes outlet at the downstream face of the abutments. The bridge is a representative example of a common bridge type, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 174:22-23 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100587 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED EDISON ROAD (CR 633) OVER POHATCONG CREEK **FACILITY** EDISON ROAD (CR 633)

TOWNSHIP FRANKLIN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 63 ft **WIDTH** 26 ft

CONSTRUCTION DT 1926 **ALTERATION DT** **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** BECK BROS. & BECK

SETTING / CONTEXT The bridge is located in a rural area, adjacent to pastures. It carries a two-lane road over a wide creek. The road links the center of New Village and the Edison Cement Plant (ca.1900). According to county records, the Edison Cement Company furnished the broken stone that was used for the coarse aggregate. No evidence was found that Edison provided the cement. This bridge replaced a half-hip Pratt pony truss with a stringer approach span.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span encased stringer bridge sits on a masonry substructure that was widened with concrete in 1926. The stringers, with exposed bottom flanges, are from 1926. They support a concrete deck with a concrete post and metal pipe railing. The bridge is a well-preserved and representative example of a common type, but it is not a technologically or historically distinguished structure. County records revealed no historical association of the concrete in the span with Edison's nearby plant.

INFOR MATION

PHOTO: 173:28A-31A (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100606 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED JOHNSONBURG-ALLAMUCHY ROAD (CR 612) OVER BEAR CREEK **FACILITY** JOHNSONBURG-ALLAMUCHY ROAD (CR 612)

TOWNSHIP FRELINGHUYSEN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 25 ft **WIDTH** 29.9 ft

CONSTRUCTION DT 1928 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a rural wooded area with scattered 19th and 20th century residences. It carries a two-lane county route over a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single-span stringer bridge is set on concrete abutments with wingwalls. The stringers are encased except for the bottom flanges. The deck is enclosed by concrete post and metal pipe railings that were a standard county design. The span is one of over 65 extant pre-World War II stringer bridges in Warren County, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 184:19-20 (08/92) REVISED BY (DATE): QUAD: Tranquility

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100707 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED STEWARTSVILLE ROAD (CR 637) OVER MERRILLS CREEK **FACILITY** STEWARTSVILLE ROAD (CR 637)

TOWNSHIP GREENWICH TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 28 ft **WIDTH** 30 ft

CONSTRUCTION DT 1911 **ALTERATION DT** 1939, 1991 **SOURCE** CO. RECORDS/INSCRIPT

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located at the edge of the mid- to late-19th century village of Stewartsville that is composed of mostly altered 19th and 20th century houses. A farming area adjoins the village on the east side of the creek which is crossed by the two-lane bridge. The structure carries a two-lane county road at a bend in the road.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge sits on stone and concrete abutments. The original structure consisted of rubble-stone abutments with encased stringers, and remains as the eastern part of the bridge. In 1939 and again in 1991 the western side of the bridge was widened with stringers on concrete abutment extensions. The eastern railing is original, but the western guide rail and concrete curb are from 1991. The bridge is not historically or technologically distinguished.

INFOR MATION

PHOTO: 169:43,185:12-13 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100718 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CHURCH STREET OVER MUSCONETCONG RIVER **FACILITY** CHURCH STREET

TOWNSHIP GREENWICH TOWNSHIP

TYPE THRU TRUSS **DESIGN** PRATT **MATERIAL** Steel

 # SPANS 1 **LENGTH** 105 ft **WIDTH** 17.2 ft

CONSTRUCTION DT 1892 **ALTERATION DT** 1936, 1993 **SOURCE** PLAQUE/COUNTY RECRDS

DESIGNER/PATENT W.R. LITTLE **BUILDER** TOLEDO BRIDGE COMPANY

SETTING / CONTEXT The bridge is located in a potential historic district in the town of Bloomsbury. It carries a main street over the Musconetcong River, the boundary between Warren and Hunterdon Counties. The bridge has two lanes for traffic and two sidewalks. Both sides of the river have 19th century residences and commercial structures that contribute to the district, as does the bridge.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible. North Bloomsbury Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 3/3/93 12/09/99.

SUMMARY The pin-connected Pratt thru-truss bridge sits on stone abutments, the southern one with a concrete toe wall. The verticals and top chords are built-up members, while the diagonals and the bottom chords are eyebars. 1936 alterations include weld-connected bars strengthening some of the members. In 1994 the bridge was widened. It is one of four thru truss bridges in the county. The bridge is individually eligible for listing in the National Register of Historic Places under Criterion C. In addition, the bridge is eligible under Criteria A and C as a contributing element of the North Bloomsbury Historic District

INFOR MATION

Bibliography:
Darnell, Victor. Directory of American Bridge Building Companies, 1840-1900. Washington, DC: 1984.
Industrial Directory of New Jersey. 1906-1930.
Sanborn Insurance Maps; Bloomsbury. 1909-1923.
Wacker, Peter. The Musconetcong Valley of New Jersey. 1968.

Physical Description: The skewed 6-panel pin-connected Pratt thru truss bridge is supported on an ashlar substructure. Although it was strengthened in 1936 with additional members welded to the original trusses, the span retains much of its original fabric and configuration, including cantilevered sidewalks with metal lattice-pattern railings. The inclined end posts and top chord are built-up members of channel with cover plate and laced stiffening. The verticals are toe-out channels with lacing on each face, and the diagonals and bottom chord are eye bars, some of which have stamped eyes and some of which have looped forged eyes. Each braced portal brace with lattice infill is topped by a bridge plaque. The floor beams are rolled. A low lattice railing separates the roadway from the sidewalks. Strengthening is limited to the outside panels, which have additional vertical hangers, diagonals, and a sub diagonals. Such modifications to pin-connected thru truss bridges from the late-19th century are not uncommon.

Historical and Technological Significance: The pin-connected Pratt thru truss bridge was built in 1892, and it is significant on its own merits as oldest and one of the most complete "high" truss bridges in the county (Criterion C). Although the span has been modified, as early as 1936 when it was strengthened by the addition of welded members, most of the original fabric, including railings at both the sidewalks and the truss lines, remains in place, and the span still functions as a pin-connected bridge.

The bridge is also a contributing resource in the North Bloomsbury Historic District. The district is comprised of a late eighteenth/early nineteenth century crossroads village that developed along the New Brunswick turnpike in Hunterdon County. The district includes 14 residences with their associated outbuildings, one small industrial complex, and a bridges, as well as farm fields, pastureland, wood lots, and bottomland of the Musconetcong River. Although this area traditionally supported an agricultural way of life [which continues to the present], historically, a mid-eighteenth century forge was located in the immediate area and the river supported gristmills, distilleries and an early iron industry.

The North Bloomsbury Historic District is significant because it represents a small crossroads community that was developed by and is associated with the locally prominent Smith family, who were successful members of the local agricultural community. It is also significant for its well preserved examples of stylish Georgian and Federal period architecture, which represent some of Warren County's finest early nineteenth century architecture. The period of significance for the district is 1780 to 1900.

Four pin-connected thru truss bridges survive in Warren County (2102307, 2102015, 2160153, 2100718). Three were built by the county, and one was erected by the Lehigh Valley Railroad to carry a local road over its right-of-way. Because of the scarcity of the once-common bridge type in Warren County, all four of the thru trusses bridges were evaluated as significant because they are rare local examples of a structure type that played an important role in the historical development of the county.

The Toledo Bridge Company of Toledo, Ohio fabricated the Church Street bridge. Robert W. Smith of Tippicanoe City, Ohio founded the company in 1867, and in 1869 moved it to Toledo under the name of the Smith Bridge Company specializing in Smith's patented wood and iron bridges. In 1890 Smith sold the company and the new owners changed the name to the Toledo Bridge Company. In 1894 the company had an annual capacity of 6 thousand tons, a respectable but not large figure for the time. In 1901, the company was purchased by the American Bridge Company as part of its multi-company merger.

Boundary Description and Justification: The bridge is individually eligible and it is located within a historic district. The district is bounded by the Musconetcong River on the south, and by an historic tree line along agricultural fields to the north. Eastern and western boundaries are somewhat irregular in order to include specific properties.

PHOTO: 167:23-30 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100725 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 29.4

NAME & FEATURE INTERSECTED CR 519 OVER LOPATCONG CREEK **FACILITY** CR 519

TOWNSHIP GREENWICH TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 40 ft **WIDTH** 30.4 ft

CONSTRUCTION DT 1927 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** AL GEIST

SETTING / CONTEXT The bridge is located in a rural area with scattered mixed-date residences. The two-lane structure carries a county route over a stream. The stream runs where the Morris Canal had run during its existence. The Canal company furnished the steel and paid part of the cost of this bridge as its construction was part of their program of canal abandonment in 1926-27.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span encased stringer bridge bears on concrete abutments that are flanked by wingwalls. Concrete balustrades of standard design cross the bridge, with beam guiderails attached through the rectangular-shaped piercing. The bridge is a representative example of a common pre-World War II bridge type. It is technologically and historically undistinguished.

INFOR MATION

PHOTO: 170:23-24 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100806 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SCHOOLEY'S MOUNTAIN ROAD (CR 517) OVER MUSCONETCONG RIVER **FACILITY** SCHOOLEY'S MT ROAD (CR 517)

TOWNSHIP HACKETTSTOWN TOWN

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 76 ft **WIDTH** 24.5 ft

CONSTRUCTION DT 1919 **ALTERATION DT** **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** DOVER BOILER WORKS

SETTING / CONTEXT The bridge is located in an area of late-20th century commercial development. The bridge carries a two-lane county route over the Musconetcong River, which is the boundary between Warren and Morris Counties. The joint-county bridge was designed by the Warren County Engineer H.W. Vetter, and sent for approval to W. Hopkins, Morris County Engineer. Dover Boiler Works built bridges throughout the northern part of the state, this being a late example of their work.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span stringer bridge is supported by stone abutments and a concrete cutwater pier. Concrete wingwalls flank the abutments and form approach parapets. The stringers are completely encased and they support a concrete deck. The railings are composed of concrete posts with pipe metal rails. The bridge is scheduled for replacement in 1993. It is a representative example of a common bridge type built by a prolific local contractor, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 179:28A-32A (08/92) REVISED BY (DATE): QUAD: Hackettstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100901 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED HESS ROAD OVER PAULINS KILL **FACILITY** HESS ROAD

TOWNSHIP HARDWICK TOWNSHIP

TYPE STRINGER **DESIGN** **MATERIAL** Steel

 # SPANS 2 **LENGTH** 63 ft **WIDTH** 13 ft

CONSTRUCTION DT 1920 **ALTERATION DT** 1988 **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** BALL (CONTRACTOR)

SETTING / CONTEXT The bridge is located in an area of active farms and woods. The one-lane structure carries a two-lane country road over the stream. Two approach spans cross a tributary and the floodplain of the stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span stringer bridge is supported by a rubble stone substructure. The pier has been altered with the addition of a concrete cap at the ends of the pier. The bridge was widened in 1988 with the addition of stringers. Two short spans form the approaches to the bridge over the floodplain of the Paulins Kill. They are the same width as the bridge, with a beam guiderail continuous over all the structures. The bridge is not technologically or historically distinguished.

INFOR MATION

PHOTO: 167:1-4 (07/92) REVISED BY (DATE): QUAD: Flatbrookville

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100902 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SPRING VALLEY ROAD (CR 659) OVER PAULINS KILL **FACILITY** SPRING VALLEY ROAD (CR 659)

TOWNSHIP HARDWICK TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 55 ft **WIDTH** 25 ft

CONSTRUCTION DT 1932 **ALTERATION DT** **SOURCE** INSCRIPT/CNTY RECRDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located in a wooded area with a ca. 1820 stone mill that has been converted to a dwelling at the southeast corner. A stone race runs under the road at the south approach. The bridge carries a two-lane county route over a stream. At the south approach the road curves to cross the waterway.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is supported by rubble stone abutments with concrete toe walls, caps and wingwalls. The encased stringers support a concrete deck and curb, with the railing composed of concrete posts and metal pipe rails. A small concrete post and pipe railing marks one approach. The bridge is a representative example of a common bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 167:5,7;185:29-31 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2100935 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SPRING VALLEY ROAD (CR 659) OVER BLAIR CREEK **FACILITY** SPRING VALLEY ROAD (CR 659)

TOWNSHIP HARDWICK TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 32 ft **WIDTH** 26 ft

CONSTRUCTION DT 1941 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded rural area with late-20th century houses. The bridge carries a two-lane road over a stream. Just upstream from the bridge, a low concrete dam holds back the brook.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge sits on scored concrete abutments with wingwalls. The slightly skewed stringers are encased in concrete, with a plain fascia below a typical county-designed concrete balustrade. The bridge is a representative example of a common bridge type, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 167:42-43,185:32-34 (07/92) REVISED BY (DATE): QUAD: Flatbrookville

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101001 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED ROXBURG STATION ROAD (CR 622) OVER BUCKHORN CREEK **FACILITY** ROXBURG STATION ROAD (CR 622)

TOWNSHIP HARMONY TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 30 ft **WIDTH** 26 ft

CONSTRUCTION DT 1939 **ALTERATION DT** **SOURCE** INSCRIPT/CNTY RECRDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located on a two-lane county road in an active agricultural area. The span crosses a small creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single-span stringer bridge is supported on concrete abutments. The skewed stringers are fully encased, and support a concrete deck. The concrete balustrade has Moderne detailing on the end posts. The bridge is one of over 65 pre-World War II stringer bridges in Warren County, a representative example of a common type and design. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 171:30-32 (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101031 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 31.87

NAME & FEATURE INTERSECTED CR 519 OVER LOPATCONG CREEK **FACILITY** CR 519

TOWNSHIP HARMONY TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 31 ft **WIDTH** 30 ft

CONSTRUCTION DT 1927 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** AL GEIST

SETTING / CONTEXT The bridge carries a two-lane county road over a minor stream in a wooded setting adjacent to a golf course.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The skewed one-span stringer bridge sits on concrete abutments with wingwalls. The encased stringers support a concrete deck that is framed by standard design concrete balustrades. Approach beam guiderails are attached to the end posts of the balustrades, but they do not cross the structure. It is a representative example of a common pre-World War II bridge type, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 171:35-36 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101035 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED HARMONY-MONTANA ROAD (CR 647) OVER LOPATCONG CREEK **FACILITY** HARMONY MONTANA ROAD (CR 647)

TOWNSHIP HARMONY TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 29 ft **WIDTH** 30.3 ft

CONSTRUCTION DT 1933 **ALTERATION DT** **SOURCE** INSCRIPT/CNTY RECRDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located adjacent to an active farm with livestock and corn fields. It carries a two-lane county route over a small stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The small one-span stringer bridge sits on concrete abutments that are flanked by wingwalls. The encased stringers support a concrete deck and balustrades that have paneled posts. Beam guiderails are fastened through the rectangular openings of the balustrade. The bridge is a representative example of a common pre-World War II type, and is one of over 65 remaining stringer spans in the county. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 171:33-34 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 210103A **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED HUTCHINSON ROAD (CR 622) OVER BUCKHORN CREEK **FACILITY** HUTCHINSON ROAD (CR 622)

TOWNSHIP HARMONY TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 30 ft **WIDTH** 28.5 ft

CONSTRUCTION DT 1934 **ALTERATION DT** **SOURCE** INSCRIPT/CNTY RECRDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located in a wooded area with scattered early-19th century houses. It carries a two-lane county route over a small stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span encased stringer bridge bears on concrete abutments. The concrete balustrades have paneled end posts. The span is a representative example of a common type, and it is one of over 65 extant pre-World War II stringer bridges in Warren County. It is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 171:27-28 (07/92) REVISED BY (DATE): QUAD: Bangor

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101107 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 47.03

NAME & FEATURE INTERSECTED CR 519 OVER HONEY RUN **FACILITY** CR 519

TOWNSHIP HOPE TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 29 ft **WIDTH** 29.8 ft

CONSTRUCTION DT 1917 **ALTERATION DT** 1990ca **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a rural area with 19th and 20th century residences. It carries a two-lane county route over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span elliptical reinforced concrete arch bridge has small flared wingwalls at each corner. The downstream face of the bridge was coated with a protective treatment when the concrete curb was replaced on that side (ca.1990). Beam guiderails are set on the curbs, with the top rail and posts of the original metal pipe railing in place on the upstream side. The span is a representative example of a common bridge type, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 183:17-18 (08/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101108 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 45.26

NAME & FEATURE INTERSECTED CR 519 OVER BEAVER BROOK **FACILITY** CR 519

TOWNSHIP HOPE TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 44 ft **WIDTH** 29 ft

CONSTRUCTION DT 1917 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNWON

SETTING / CONTEXT The bridge is located in an active agricultural area midst meadows and woods. It carries a two-lane county route over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced concrete arch bridge is bounded by concrete wingwalls that are flush with the face of the bridge. The plain spandrel walls are topped by a concrete post and metal pipe railing with beam guiderails replacing the lower rail. Concrete parapets are above the wingwalls. The span is a representative example of a common bridge type, and it is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 183:24-26 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101110 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CR 610 OVER TRIBUTARY TO BEAVER BROOK **FACILITY** SWAYZES MILL ROAD (CR 610)

TOWNSHIP HOPE TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 36 ft **WIDTH** 26 ft

CONSTRUCTION DT 1939 **ALTERATION DT** **SOURCE** INSCRIPT/CNTY RECRDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located in a rural area of woods and working farms. It carries a two-lane road over a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is set on concrete abutments with flared wingwalls. The stringers are fully encased, supporting the concrete deck. The well-detailed concrete balustrades have Moderne-style stepped posts. The structure is a representative example of a common type, being one of over 65 extant pre-World War II stringer bridges in Warren County. It is not a technologically or historically distinguished bridge.

INFOR MATION

PHOTO: 183:21-23 (08/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101134 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED MILLBROOK ROAD OVER BEAVER BROOK **FACILITY** MILLBROOK ROAD

TOWNSHIP HOPE TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 27 ft **WIDTH** 18 ft

CONSTRUCTION DT 1929 **ALTERATION DT** **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** M. A. CARTY

SETTING / CONTEXT The bridge is located in the Hope Historic District. The town was built by the Moravians in the 18th century around a mill. The village includes several stone structures including the mill and a brewery. The bridge was built long after the period of significance of the historic district. It carries a two-lane street in the center of the village over a stream which powered the mill.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Listed. Hope Historic District. 07/20/1973. Noncontributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is set on concrete abutments. Stone walls line the channel, forming the wingwalls. A low concrete dam is at the upstream face of the bridge. The stringers are encased except for the bottom flanges. The railings have concrete posts with metal pipe rails. Concrete toe walls were added to the abutments. The span is a representative example of a common type, being one of 65 extant pre-WWII stringer bridges in the county. It is not historically distinguished.

INFOR MATION

PHOTO: 183:11-12 (08/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101141 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED JENNY JUMP ROAD OVER TROUT BROOK **FACILITY** JENNY JUMP ROAD

TOWNSHIP HOPE TOWNSHIP

TYPE STONE ARCH **DESIGN** BARREL **MATERIAL** Stone

 # SPANS **LENGTH** 32 ft **WIDTH** 12.9 ft

CONSTRUCTION DT 1875ca **ALTERATION DT** 1972ca **SOURCE** STYLE

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded area that is sparsely developed. The one-lane structure carries a winding road over a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 03/12/01

SUMMARY The 3-span, 32'-long stone arch bridge of rubble-coursed fieldstone has small, low-rise arches. The stone parapets are topped with replacement concrete capstones. Ca. 1972 the bridge was repointed. This is one of 9 stone arch and 6 multi span stone arch bridges in the county. It is individually eligible for listing in the National Register of Historic Places under Criterion C as a representative example of stone multi arch technology. The essential character defining features remain: the arches, the voussoirs, the rubble-coursed fieldstone spandrel walls and parapets. It is located in a sparsely developed wooded area and therefore maintains integrity of setting and feeling.

INFOR MATION

PHOTO: 183:13-16 (08/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101143 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 45.5

NAME & FEATURE INTERSECTED CR 611 OVER TROUT BROOK **FACILITY** CR 611

TOWNSHIP HOPE TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 27 ft **WIDTH** 23.3 ft

CONSTRUCTION DT 1929 **ALTERATION DT** **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** M. A. CARTY

SETTING / CONTEXT The bridge carries a 2-lane county road over a minor stream in an area dominated by post-World War II residences south of the village of Hope.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is set on concrete abutments with flared wingwalls. The encased stringers have exposed bottom flanges, and support a concrete deck. The railing is composed of concrete posts and metal pipe rails. The bridge is a representative example of a common type, and is one of over 65 pre-World War II stringer bridges in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 183:9-10 (08/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101152 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 2.07

NAME & FEATURE INTERSECTED US 22 WB OVER NJ 57 EB **FACILITY** US 22 WESTBOUND

TOWNSHIP LOPATCONG TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 53 ft **WIDTH** 24 ft

CONSTRUCTION DT 1939 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a residential area of post-World War II construction. It carries two lanes of one-directional traffic and two sidewalks over another two-lane one-way road at the grade-crossing elimination intersection of two highways near Phillipsburg.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge bears on concrete abutments. Stepped Moderne pilasters are at the corners of the abutments and continue into stepped posts of the balustrades. The skewed encased stringer bridge is a representative example of State Highway Department designs from the decade before World War II, when grade crossings were being eliminated. It is not a technologically or historically distinguished bridge.

INFOR MATION

PHOTO: 171:1-2 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101153 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED MORRIS STREET SOUTHBOUND OVER US 22 EASTBOUND **FACILITY** MORRIS STREET SOUTHBOUND

TOWNSHIP PHILLIPSBURG TOWN

TYPE T BEAM **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 58 ft **WIDTH** 24 ft

CONSTRUCTION DT 1945 **ALTERATION DT** **SOURCE** PLANS/INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in an area of altered ca.1900 residences. It carries one lane, a shoulder and two sidewalks over three lanes of one-directional highway traffic at the intersection of the two roads.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span concrete T-beam bridge is supported on concrete abutments that are finished with Moderne detailing. The stepped pilasters at the span limits continue as the stepped posts in the concrete balustrade. The top of the concrete T-beams form the deck. A representative example of what by 1945 was a common bridge type, the span is not technologically or historically distinguished.

INFOR MATION

PHOTO: 172:31-32 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101154 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 2.14

NAME & FEATURE INTERSECTED US 22 EB OVER WASHINGTON SECONDARY RR (CONRAIL) **FACILITY** US 22 EASTBOUND

TOWNSHIP LOPATCONG TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 3 **LENGTH** 129 ft **WIDTH** 24 ft

CONSTRUCTION DT 1939 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area at the edge of a post-World War II residential and commercial area. It carries two-lanes of one-way highway traffic and one sidewalk over one track. The right-of-way was developed by the DL&W RR as its line servicing the area from Washington to Phillipsburg.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span stringer bridge is supported by concrete piers and stub abutments. The piers have four and five columns as the skew of the bridge changes at each bent. The encased stringers support a concrete deck that is enclosed by concrete balustrades with Moderne stepped posts. The structure is a representative example of a common pre-World War II bridge type in New Jersey. It is not a historically or technologically distinguished bridge.

INFOR MATION

PHOTO: 171:40-41,43-44 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101155 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 2.14

NAME & FEATURE INTERSECTED US 22 WB OVER WASHINGTON SECONDARY RR (CONRAIL) **FACILITY** US 22 WESTBOUND

TOWNSHIP LOPATCONG TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 3 **LENGTH** 108 ft **WIDTH** 24 ft

CONSTRUCTION DT 1939 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area at the edge of a post-World War II residential and commercial area. It carries two-lanes of one-way highway traffic and a sidewalk over one track. The railroad right-of-way was developed by the DL&W RR as a spur from Washington to Phillipsburg.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span stringer bridge is supported on concrete bents and stub abutments. Both bents have three columns, set on plinths and with a pier cap below the encased stringers. The concrete balustrade, typical for State-designed bridges, has Moderne stepped posts. The span is representative of a common bridge type, being one of over 65 pre-World War II stringer bridges in Warren County. It is neither technologically nor historically distinguished.

INFOR MATION

PHOTO: 171:38-39,42 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101202 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CEMETERY ROAD OVER PEQUEST RIVER **FACILITY** CEMETERY ROAD

TOWNSHIP INDEPENDENCE TOWNSHIP

TYPE STRINGER **DESIGN** JACK ARCH (CONCRETE) **MATERIAL** Steel

 # SPANS 2 **LENGTH** 53 ft **WIDTH** 17.9 ft

CONSTRUCTION DT 1914 **ALTERATION DT** **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** ABER (CONTRACTOR)

SETTING / CONTEXT The bridge is located in a wooded and agricultural area. It carries a two-lane road over a minor river. 25 yards south of the bridge is a culvert built in 1933 which spans a tributary of the river. The structures are related only by location, not by appearance or physical ties.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span stringer bridge is supported on concrete abutments and a pier. The substructure has toe walls added for scour protection around the base of all components. The stringers are spanned by concrete jack arches, with deteriorating corrugated metal liners. The bridge railings have concrete posts and metal pipe rails. Gabion wingwalls are located along the south bank. The bridge is the only unaltered example of a common county bridge type built 1911 to 1914, of which at least 7 remain.

INFOR MATION

Bibliography:
Warren County Engineer. Bridge Files.

Physical Description: The two-span stringer bridge sits on concrete abutments and a pier, all of which have toe walls. The original steel stringers are spanned by concrete jack arches that have portions of the deteriorating corrugated metal liners remaining in place. Metal pipe rails are supported by pipe posts as well as concrete posts. The bridge is located in an undeveloped area, and carries a winding road over a minor river that crosses Warren County, out letting into the Delaware River at Belvidere.

Historical and Technological Significance: The Cemetery Road bridge is significant as a well-preserved example of a steel stringer and concrete jack arch bridge, a type that is becoming increasingly rare in the county and state (Criterion C). Steel stringers were a common bridge type at the turn of the 20th century and were frequently combined with brick jack arches as a means of supporting flooring systems. In the first decade of the 20th century, concrete jack arches replaced brick jack arches as a transitional step in the movement toward concrete slab decks, which eventually became popular because of their economy and strength. In Warren County, County Engineer F. W. Salmon designed numerous stringer and concrete jack arch bridges in the years leading up to WWI. At least seven bridges from 1911 to 1914 are known to survive (2101306, 2102251, 2102237, 2102204, 2100530, 2101356, 2101202), but the Cemetery Road bridge is the only one that has not been altered by the addition of stringers to one or both faces, or by changes in railing treatment. The subdivided pipe and concrete post railings are a distinctive detail of Warren County bridges from this period.

Boundary Description and Justification: Because it is the span itself that is evaluated as significant, the boundary is limited to the superstructure and substructure of the bridge itself. While the surrounding rural and undeveloped acreage provides an appropriate setting for the bridge, it does not contribute to its significance.

PHOTO: 184:5-7 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
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Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101306 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED DELAWARE ROAD (CR 605) OVER TRIBUTARY TO DELAWARE RIVER **FACILITY** DELAWARE ROAD (CR 605)

TOWNSHIP KNOWLTON TOWNSHIP

TYPE STRINGER **DESIGN** JACK ARCH (CONCRETE) **MATERIAL** Steel

 # SPANS 1 **LENGTH** 35 ft **WIDTH** 24.2 ft

CONSTRUCTION DT 1913 **ALTERATION DT** 1983 **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** HOFFMAN & COMPANY

SETTING / CONTEXT The bridge is located in an area of scattered 19th-century homes. The structure carries a two-lane road over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The 1913 stringer bridge with concrete jack arches is supported on rubble stone abutments. In 1983 the bridge was widened with the addition of steel stringers on concrete abutment extensions. The railings are composed of concrete posts with metal pipe rails. The bridge is 1 of at least 7 surviving early 1910s steel stringer bridges with concrete jack arches in the county. The altered example is not historically or technologically distinguished and better preserved examples survive (2101202).

INFOR MATION

PHOTO: 164:7-9 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101311 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED BRUGLER ROAD OVER PAULINS KILL **FACILITY** BRUGLER ROAD

TOWNSHIP KNOWLTON TOWNSHIP

TYPE STONE ARCH **DESIGN** BARREL **MATERIAL** Stone

 # SPANS 6 **LENGTH** 183 ft **WIDTH** 16 ft

CONSTRUCTION DT 1860ca **ALTERATION DT** 1915, 1990 **SOURCE** STYLE/ONJH

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a rural area with woods and working farms. A two-lane winding country road turns sharply to cross the one-lane bridge over a river.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Individually Listed. Listed. Warrington Stone Bridge. 12/16/1977.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The six-span stone arch bridge is reportedly the largest stone arch roadway bridge in New Jersey. The overall length of the bridge is 183'-3", and it is 16' wide. The spans vary from about 17' to over 23'in length. It is a significant example of masonry arch technology because of its length, number of spans, and condition. The bridge was built by unidentified local craftsmen according to the National Register nomination.

INFOR MATION

PHOTO: 165:37-39 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
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Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101312 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED STATION ROAD OVER PAULINS KILL **FACILITY** STATION ROAD

TOWNSHIP KNOWLTON TOWNSHIP

TYPE PONY TRUSS **DESIGN** PRATT **MATERIAL** Steel

 # SPANS 1 **LENGTH** 85 ft **WIDTH** 14.6 ft

CONSTRUCTION DT 1896 **ALTERATION DT** 1925, 1935, 1990 **SOURCE** PLAQUE/COUNTY RECRDS

DESIGNER/PATENT UNKNOWN **BUILDER** HAVANA BRIDGE WORKS, NY

SETTING / CONTEXT The bridge is located in a wooded, sparsely developed area, near the junction of a state route and a local road. The bridge carries the one-lane local road over a river. Another pony truss bridge is located 100' to the south. The Havana Bridge Works was in business from 1896 and was an outgrowth of W. H. Shepard's Sons Bridge Company and the predecessor of Rochester Bridge and Construction Company. Havana Bridge Works was located in Montour Falls, New York, which was once Havana, NY.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The well-preserved pin-connected Pratt pony truss sits on one field stone abutment and one concrete abutment. The slightly skewed bridge is composed of built-up rolled section members, batten plates and lacing bars. Eyebars form the bottom chords and the diagonals. The plaque of Havana Bridge Works and uncommon open-face finials are fixed to the top chord. The span ranks as one of the oldest and most complete pony trusses in the county. It is also significant due to its documented fabricator.

INFOR MATION

Bibliography:
Darnell, Victor. Directory of American Bridge-Building Companies 1840-1900. 1984.

Physical Description: The 6-panel pin-connected Pratt pony truss bridge stands in a remarkable state of preservation, complete with its mid-top chord bridge plaques. The top chord and inclined end posts are composed of toe-out angles with top cover plated and batten stiffeners. The verticals are angle section set back-to-back with a lattice web. The diagonals, counters, and bottom chords are eye bars. The verticals are attached to the upper chord by an L-shaped strap through which the pin passes. The detail is not unusual or a patented feature. The most distinctive detail is the open-face ball finial set at each of the top chord corners. They have not been identified on any other metal truss bridge in the state. The floor beams are rolled I section and are fitted with lateral bracing. Any original railings have been replaced by modern but compatible wood railings.

Alterations to the bridge include in 1925 replacing the original west ashlar abutment with a concrete abutment and raising the west end of the truss by 18 inches; in 1935 strengthening and repairing the bridge with welded members including subdiagonals attached at the lower panel points by welded plates, outriggers, and repairs to the lower portions of the inclined end posts; and, in 1990 installing a glue-laminated wood deck. The alterations do not compromise the truss's integrity of design.

Historical and Technological Significance: The Pratt pin-connected pony truss bridge erected in 1896 by the Havana Bridge Works is a locally significant example of its type (Criterion C). It ranks as the best preserved metal truss bridge in the county, and in addition to representing the important structure type, the span chronicles the history of a small regional bridge fabricating firm whose history is not unlike other 19th-century fabricators who saw prosperity in manufacturing metal bridges and who distributed their products through a network of agents who worked with county freeholders. The Havana Bridge Company was established as W.H. Shepard's Sons Bridge Company in Havana, later Montour Falls, New York in 1891. It was reorganized and restyled the Havana Bridge Works in 1896, according to Victor Darnell, and it was the predecessor to the Rochester Bridge and Construction Company. The 1898 bridge plaque identifies Havana Bridge Works as being located in Elmira, New York, not in Montour Falls.

Boundary Description and Justification: Because the bridge is individually significant, it is the span alone (substructure including wingwalls and superstructure) that is evaluated as significant.

PHOTO: 166:42-44,1-5 (07/92) REVISED BY (DATE): QUAD: Portland

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101313 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED STATION ROAD OVER BRANCH OF PAULINS KILL **FACILITY** STATION ROAD

TOWNSHIP KNOWLTON TOWNSHIP

TYPE PONY TRUSS **DESIGN** WARREN **MATERIAL** Steel

 # SPANS 1 **LENGTH** 63 ft **WIDTH** 15.8 ft

CONSTRUCTION DT 1902 **ALTERATION DT** 1934, 1990 **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** CANTON BRIDGE COMPANY

SETTING / CONTEXT The bridge is located in a wooded area that is sparsely developed. It carries a one-lane road over an intermittent stream that is a branch of Paulins Kill. Another pony truss bridge (2101313) is located 100' to the north, carrying the same one-lane road over Paulins Kill.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The rivet-connected Warren pony truss bridge is supported on one ashlar abutment with a concrete cap and one concrete abutment. Many of the original riveted members have been strengthened with the addition of welded plates, but not the top chord. The bottom chord has been strengthened with an additional angle section. Outriggers have been welded to the chords and at the midpoint of the verticals. The bridge is a relatively well-represented type, and it has been significantly altered.

INFOR MATION

PHOTO: 166:7-10 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101351 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED STONY BROOK ROAD OVER STONY BROOK (BILLINGS BRIDGE) **FACILITY** STONY BROOK ROAD (BILLINGS BRIDGE)

TOWNSHIP KNOWLTON TOWNSHIP

TYPE STRINGER **DESIGN** **MATERIAL** Steel

 # SPANS 4 **LENGTH** 75 ft **WIDTH** 11.7 ft

CONSTRUCTION DT 1920 **ALTERATION DT** 1967 **SOURCE** NJDOT/COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a sparsely developed wooded area that has 20th century houses set back from winding roads. It carries a one-lane road over a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The four-span stringer bridge is supported by concrete abutments and piers, and has rubble stone wingwalls. The exposed stringers are simply supported, and they support a timber plank deck. A metal railing is welded to the fascia stringers. An invert slab was placed in the stream bed in 1967 after a flood. The piers were also repaired and the deck replaced at that time. The bridge is a common type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 165:28-30 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101356 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED HAINESBURG RIVER ROAD OVER STONY BROOK **FACILITY** HAINESBURG RIVER ROAD

TOWNSHIP KNOWLTON TOWNSHIP

TYPE STRINGER **DESIGN** JACK ARCH (CONCRETE) **MATERIAL** Steel

 # SPANS 2 **LENGTH** 68 ft **WIDTH** 14 ft

CONSTRUCTION DT 1914 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded area that is sparsely developed with late-20th century houses. The one-lane bridge carries a winding road over a creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span stringer bridge is supported on a concrete substructure with rubble stone wingwalls. The interior stringers have concrete jack arches between them, with some of the corrugated metal forms remaining in place. There are no tie rods visible. The span is enclosed by beam guiderails along both faces. The bridge, one of at least 7 remaining in the county built prior to 1915, is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 165:26-27 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101413 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED LAKESIDE DRIVE WEST OVER MOUNTAIN LAKE BROOK **FACILITY** LAKESIDE DRIVE WEST

TOWNSHIP LIBERTY TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 33 ft **WIDTH** 26.8 ft

CONSTRUCTION DT 1941 **ALTERATION DT** **SOURCE** INSCRIPT/CNTY RECRDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located in a rural, wooded area with a 1920s residence nearby. It carries a two-lane road with narrow shoulders over a stream. Adjacent to the bridge is the intersection of the road with another two-lane road.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The skewed one-span encased stringer bridge is set on concrete abutments. The concrete balustrade is a standard-design for ca. 1940 county bridges. It has Moderne-styled stepped posts. The span is a representative example of a common pre-World War II bridge type. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 183:19, 186:10-11 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101417 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED PEQUEST ROAD OVER PEQUEST RIVER **FACILITY** PEQUEST ROAD

TOWNSHIP LIBERTY TOWNSHIP

TYPE PONY TRUSS **DESIGN** PRATT **MATERIAL** Steel

 # SPANS 1 **LENGTH** 88 ft **WIDTH** 17.3 ft

CONSTRUCTION DT 1902 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT **BUILDER**

SETTING / CONTEXT The bridge is located at the edge of Townsbury, a small village with altered 19th century residences along the main street. The one-lane structure carries a winding road over a minor river. An abandoned railroad right-of-way once had a grade crossing at the south end of the bridge. The signal posts remain in place along the roadway. The bridge is scheduled for replacement in 1992.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The five-panel skewed Pratt pony-truss bridge sits on concrete abutments. The pin-connected truss has been altered with the addition of welded bars strengthening the diagonals and the bottom chord. The angle and lattice verticals have been repaired with new sections and bolts instead of rivets. The built-up top chord has an added cover plate. Outriggers have been welded to the rolled floorbeams. The undocumented bridge has been extensively altered, and is not historically noteworthy.

INFOR MATION

PHOTO: 178:17-23 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101506 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 30.0

NAME & FEATURE INTERSECTED CR 519 OVER LOPATCONG CREEK **FACILITY** CR 519

TOWNSHIP LOPATCONG TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 39 ft **WIDTH** 30.2 ft

CONSTRUCTION DT 1928 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** AL GEIST

SETTING / CONTEXT The bridge is located in a rural area of working farms. The intersection of a federal and a county route is approximately 100' south of the bridge, with an early-20th century restaurant on one corner. The bridge carries the two-lane county route over a small stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single-span stringer bridge rests on concrete abutments with wingwalls. The encased stringers support a concrete deck that is flanked by concrete balustrades. Approach guiderails are bolted to the end posts. The span is a representative example of a common bridge type, being one of over 65 extant pre-World War II stringer bridges in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 170:21-22 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101606 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED STEPHENSBURG ROAD OVER MUSCONETCONG RIVER **FACILITY** STEPHENSBURG ROAD

TOWNSHIP MANSFIELD TOWNSHIP

TYPE STONE ARCH **DESIGN** ELLIPTICAL **MATERIAL** Stone

 # SPANS 3 **LENGTH** 58 ft **WIDTH** 26.1 ft

CONSTRUCTION DT 1875ca **ALTERATION DT** 1939 **SOURCE** STYLE/INSCRIPTION

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded area that has scattered modular homes. It carries a two-lane road over the Musconetcong River, which is the boundary between Warren and Morris Counties. A 1768 mill is located along the east bank of the river upstream from the bridge. The village of Stephensburg is in Morris County to the south of the bridge.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span stone arch bridge was widened in 1939 with corrugated metal plate liners. Both spandrel walls are constructed with rubble-coursed stone, with ringstones. The parapets are capped with stones held with staples, though most are missing. The arch intrados have a thin gunite coating in spots. The bridge repointing does not conform to generally accepted preservation standards. The structure is not historically distinguished, and is one of 9 extant stone arch bridges in Warren County.

INFOR MATION

PHOTO: 179:40A-43A (08/92) REVISED BY (DATE): QUAD: Hackettstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101607 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED STEPHENSBURG ROAD OVER MUSCONETCONG RIVER **FACILITY** STEPHENSBURG ROAD

TOWNSHIP MANSFIELD TOWNSHIP

TYPE STONE ARCH **DESIGN** ELLIPTICAL **MATERIAL** Stone

 # SPANS 3 **LENGTH** 81 ft **WIDTH** 15 ft

CONSTRUCTION DT 1860 **ALTERATION DT** 1984 **SOURCE** PLAQUE

DESIGNER/PATENT **BUILDER** J. A.SKINNER & J.C.MILLER

SETTING / CONTEXT The bridge is located on the well-preserved Miller Farmstead. The ca.1830 property includes the original house and barn, along with other outbuildings. Cattle pastures surround the bridge, which carries a two-lane road over the Musconetcong River. The waterway divides Warren and Hunterdon Counties at this point. The bridge is listed as a contributing structure to the multiple-county farmstead.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Individually Eligible. Listed. Miller Farmstead. 09/11/1989. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span stone arch bridge remains, for the most part, as it was constructed. The spandrel walls have been repointed. The parapets were capped with mortar in 1984. The cutwater piers are reinforced with iron tie-rods attached at each face and supporting the spring lines of the arches. The 1860 marble builder's plaque remains at the center of the downstream parapet. The bridge enjoys integrity of setting and design, and is individually eligible and a contributing resource to the National Register-listed historic district.

INFOR MATION

PHOTO: 179:44A,1A-2A (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101625 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED TUNNEL HILL ROAD (CR 650) OVER POHATCONG CREEK **FACILITY** TUNNEL HILL ROAD (CR 650)

TOWNSHIP MANSFIELD TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 50 ft **WIDTH** 31 ft

CONSTRUCTION DT 1916 **ALTERATION DT** **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** SALMON BROS.

SETTING / CONTEXT The bridge is located in a wooded area that has scattered 20th century residences. It carries a two-lane county route with shoulders across a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced concrete deck arch bridge is framed by concrete wingwalls. The spandrel panels have a brush hammer finish. Pipe railings are present at both faces of the bridge, which is an unaltered but undistinguished example of its type. The bridge is a representative example of a common early-20th century bridge type, and is one of over 15 reinforced concrete deck arches extant in Warren County.

INFOR MATION

PHOTO: 178:24-25 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101638 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED JACKSON VALLEY ROAD OVER POHATCONG CREEK **FACILITY** JACKSON VALLEY ROAD

TOWNSHIP MANSFIELD TOWNSHIP

TYPE STONE ARCH **DESIGN** BARREL **MATERIAL** Stone

 # SPANS 2 **LENGTH** 30 ft **WIDTH** 16.5 ft

CONSTRUCTION DT 1900 **ALTERATION DT** 1984 **SOURCE** COUNTY ENGINEER

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded setting surrounded by well-maintained 19th and 20th century houses scattered along the road. A 1828 property with a house reworked in the Colonial Revival mode and well-preserved barn are on the north side of the bridge. The one-lane bridge carries a quiet, winding road over a small stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span rubble-coursed stone arch bridge with ringstones was rehabilitated in 1984 when the spandrel walls were rebuilt/repointed and concrete caps were added atop the parapets. The intrados of the arches remain uncooked and void of mortar. The 1900 bridge is the smallest of 9 stone arch bridges in Warren County, and it has been rehabilitated extensively. It is not historically or technologically distinctive.

INFOR MATION

PHOTO: 178:38-40 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101708 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED PEQUEST ROAD OVER FURNACE BROOK **FACILITY** PEQUEST ROAD

TOWNSHIP OXFORD TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 27 ft **WIDTH** 26.1 ft

CONSTRUCTION DT 1920 **ALTERATION DT** 1945ca **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** J. C.SEARLES/COUNTY FORCES

SETTING / CONTEXT The bridge is located in a rural area with corn fields, a ca.1800 rubble-coursed stone farm house and barn complex, and a municipal water treatment facility. The structure carries a two-lane road over a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is seated on concrete abutments that were altered ca. 1945 when the bridge was almost doubled in width with steel stringers. The original stringers are encased except for the bottom flanges. The railings have concrete posts with metal pipe rails. The bridge is an altered example of a common pre-World War II type in the state, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 177:40-41 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101719 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED WASHINGTON AVENUE (CR 631) OVER FURNACE BROOK **FACILITY** WASHINGTON AVENUE (CR 631)

TOWNSHIP OXFORD TOWNSHIP

TYPE STRINGER **DESIGN** **MATERIAL** Steel

 # SPANS 1 **LENGTH** 30 ft **WIDTH** 28 ft

CONSTRUCTION DT 1910ca **ALTERATION DT** Demolished **SOURCE** STYLE/COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in the Oxford Industrial Historic District on a 19th century residential street with altered houses. The Oxford Furnace is one block to the north of the bridge. The span carries a two-lane street with sidewalks over a creek that runs through the historic town. The period of significance of the district is 1741-1930. County records indicate that the bridge was built prior to 1914.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Bridge was Not Individually Eligible. Listed. Oxford Industrial Historic District 08/27/1992. Contributed.

CONSULT DOCUMENTS SHPO Letter 06/30/95 03/12/01.

SUMMARY The one-span stringer bridge bears on ashlar abutments. The stringers are exposed steel, with the top flanges embedded in the concrete deck. The railings on the bridge faces and at the curb are well-preserved original metal lattice work with finials on the end posts. The bridge is significant due to its location within the historic district in Oxford, and it contributes to its character. By itself, the bridge is not technologically distinguished.

INFOR MATION

Bibliography:
Oxford Historic District Nomination. 1976.
Warren County Engineer. Bridge Files.

Physical Description: The single-span steel stringer rests on ashlar abutments. The top flanges of the stringers are imbedded in the concrete deck. The railings on the bridge faces and at the sidewalk curb are well-preserved original metal lattice work with finials on cast iron end posts.

Historical and Technological Significance: The c.1910 steel stringer bridge is within the boundaries of the Oxford Industrial Historic District and fits within the historic themes of the district's areas of significance that include industry, community development, and transportation (Criterion A and C). The bridge is not individually eligible but is a contributing resource within the district's period of significance (1741-1930). Oxford began in 1741 as an iron furnace and grew into a technologically and historically significant factory town in the mid-19th century in part as a result of the construction of the Warren Railroad. In the late-19th century the town declined as the iron industry moved further west, and operations ceased in the 1920s. The district is significant because its architecture and landscape reflect the rise and decline of a regionally important industry. The bridge carries the town's historic primary north-south thorofare over Furnace Brook, and until the arrival of the railroad this route carried the products of the iron furnace to market.

County records indicate the present Washington Avenue bridge was in place in 1914. No original plans were located, but the railings and concrete deck, which appear to be original, stylistically date the bridge to c.1910. Furnace Brook passes through the center of town and the bridge is one of two crossings (the other is 2111154, NJ 31/Mill Street over Furnace Brook) that allowed for development on both sides of the stream. The surrounding structures are 19th-century residences. The simply-supported steel stringer bridge was a common early-20th century bridge type that was used widely in Warren County.

Boundary Description and Justification: The bridge is within the boundaries of the Oxford Industrial Historic District as delineated in the USGS Quad Maps accompanying the National Register nomination. The bridge was not rated in the original historic district nomination. The boundaries of the district include both sides of the stream surrounding the bridge.

PHOTO: 177:33-34,185:22 (08/92 JPH (5/96)) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101903 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SOUTH MAIN STREET OVER LOPATCONG CREEK **FACILITY** SOUTH MAIN STREET

TOWNSHIP PHILLIPSBURG TOWN

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 49 ft **WIDTH** 49.2 ft

CONSTRUCTION DT 1927 **ALTERATION DT** 1934, 1968 **SOURCE** PLAQUE/COUNTY RECRDS

DESIGNER/PATENT CORNELIUS C. VERMEULE,CONS.ENG **BUILDER** F. H. CLEMENT & COMPANY

SETTING / CONTEXT The bridge is located adjacent to a T intersection. The bridge carries a busy two-lane road over a stream that was the r-o-w of the Morris Canal. The construction of the bridge in 1927 was funded by the Morris Canal and Banking Company, as part of the canal abandonment program. The area once used water from the creek to power industrial buildings.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Listed. Morris Canal. 10/01/1974. Noncontributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The skewed one-span encased stringer bridge sits on concrete abutments with wingwalls. County forces added a sidewalk on the upstream face in 1934. The bridge was widened again in 1968 by the addition of prestressed box beams and widened abutments. A new railing encloses the bridge on the widened face, opposite a paneled concrete parapet on the original face. The altered bridge is an example of two common bridge types, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 172:15-17 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2101905 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED LOCK STREET OVER LOPATCONG CREEK **FACILITY** LOCK STREET

TOWNSHIP PHILLIPSBURG TOWN

TYPE PONY TRUSS **DESIGN** PRATT HALF HIP **MATERIAL** Steel

 # SPANS 1 **LENGTH** 74 ft **WIDTH** 15.8 ft

CONSTRUCTION DT 1900ca **ALTERATION DT** 1937 **SOURCE** STYLE/COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge carries one lane of a quiet country road over a minor stream that is the boundary of the town of Phillipsburg. One end of the bridge also appears to be adjacent to the NR-listed Morris Canal R-O-W. The area surrounding the bridge does not appear to have historic district potential because of several modern, intrusive dwellings, but architecturally significant 18th- and 19th-century houses are within sight of the span.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The half-hip Pratt pony truss bridge sits on an ashlar substructure with concrete toe walls at the south abutment. The span has been significantly altered. In 1937 welded plates and bars were added to nearly every member. These modifications and the loss of original railings alter how the bridge functions and severely compromise its technologically or historically significance. It is an altered example of a common bridge type. The ca.1900 date is based on construction details.

INFOR MATION

PHOTO: 171:5-8,172:8- (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102001 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED RAVINE ROAD OVER POHATCONG CREEK **FACILITY** RAVINE ROAD

TOWNSHIP POHATCONG TOWNSHIP

TYPE PONY TRUSS **DESIGN** PRATT **MATERIAL** Steel

 # SPANS 1 **LENGTH** 54 ft **WIDTH** 12.3 ft

CONSTRUCTION DT 1938 **ALTERATION DT** **SOURCE** PLAQUE/COUNTY RECRDS

DESIGNER/PATENT UNKNOWN **BUILDER** WELDING ENGNRS INC, PHILA

SETTING / CONTEXT The bridge is located in a wooded area with scattered residences. The one-lane bridge carries a winding road over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 03/12/01

SUMMARY The one-span welded pony truss bridge is set on stone abutments, one of them with a later concrete buttress. The truss is composed of rolled I-sections welded together with gusset plates. The floorbeams are built-up with flange angles riveted to the web plates. Rolled stringers support a timber deck. The bridge replaces a pin-connected Pratt pony truss. It is one of three welded pony trusses crossing the same creek in Pohatcong Township. Although the bridge conveys the concept of the truss design, it no longer retains integrity of materials or design and is not individually eligible for listing in the National Register of Historic Places, nor does it currently contribute to an identified historic district.

INFOR MATION

PHOTO: 169:29-33 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102002 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED STILL VALLEY ROAD OVER POHATCONG CREEK **FACILITY** STILL VALLEY ROAD

TOWNSHIP POHATCONG TOWNSHIP

TYPE PONY TRUSS **DESIGN** PRATT HALF HIP **MATERIAL** Steel

 # SPANS 1 **LENGTH** 56 ft **WIDTH** 15.8 ft

CONSTRUCTION DT 1900ca **ALTERATION DT** 1936 **SOURCE** STYLE/COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a well-preserved mill complex dating to the early-19th century and including a mill with its machinery and the miller's dwelling. The bridge contributes to the historic character of the National Register-listed complex. The one-lane bridge carries a narrow road over a stream.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Listed. Hixson/Skinner Mill Complex. 12/02/1982. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span pony truss is set on concrete abutments with stone wingwalls along the south abutment. The truss is built-up of channel sections, lacing, batten and cover plates and eyebars, with some additional welded bars to the diagonals and bottom chord from 1936. At the ends of the top chord, decorative plates cover the end of the rectangular section. Despite the alterations, the bridge is sited well enough between the mill and the miller's house to be a contributing element to the district.

INFOR MATION

PHOTO: 169:34-39 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102008 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 25.2

NAME & FEATURE INTERSECTED CR 519 OVER POHATCONG CREEK **FACILITY** CR 519

TOWNSHIP POHATCONG TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 97 ft **WIDTH** 30 ft

CONSTRUCTION DT 1930 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** NJ ASPHALT & PAVING CO.

SETTING / CONTEXT The bridge is located in a residential area of single family dwellings from the 19th and 20th centuries. Some small-scale commercial structures are also nearby. The structure carries a two-lane county route with narrow shoulders over a creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span stringer bridge is supported by a concrete substructure. The abutments are flanked by concrete wingwalls, and the cutwater pier extends a few feet beyond each face of the bridge. The concrete balustrade is of standard design. The bridge is a representative example of a common pre-World War II type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 170:25-26 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102010 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED WINTERS ROAD OVER POHATCONG CREEK **FACILITY** WINTERS ROAD

TOWNSHIP POHATCONG TOWNSHIP

TYPE PONY TRUSS **DESIGN** WARREN **MATERIAL** Steel

 # SPANS 1 **LENGTH** 57 ft **WIDTH** 13.9 ft

CONSTRUCTION DT 1938 **ALTERATION DT** Demolished **SOURCE** PLAQUE/CO. RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** WELDING ENGNRS INC. PHILA

SETTING / CONTEXT The bridge is located in a wooded area of sparse 19th and 20th century residences. The one-lane structure carries a winding road over a creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Bridge was Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 03/12/01

SUMMARY This historic bridge has been demolished. The welded Warren pony truss bridge which was at this location sat on earlier ashlar abutments. The members were rolled I-sections with the exception of the bottom chord, which had toe-out angles with batten plates, and the first vertical, which was a channel section. The floorbeams were large I-sections, supporting rolled stringers and outriggers for the truss. The structure was one of three similar welded bridges over this creek.

INFOR MATION

PHOTO: 170:27-29 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102011 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CREEK ROAD OVER POHATCONG CREEK **FACILITY** CREEK ROAD

TOWNSHIP POHATCONG TOWNSHIP

TYPE PONY TRUSS **DESIGN** WARREN **MATERIAL** Steel

 # SPANS 1 **LENGTH** 61 ft **WIDTH** 20 ft

CONSTRUCTION DT 1936 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT **BUILDER** WELDING ENGNRS INC. PHILA

SETTING / CONTEXT The bridge is located in an area of scattered residential structures from the 19th century. The two-lane bridge carries a winding road over a stream near the intersection of two roads. The bridge was constructed by Welding Engineers Inc., of Philadelphia, who built three similar bridges over this creek. This is the earliest and largest of the three bridges. It replaced a 1882 pin-connected pony truss bridge that was built by Dean and Westbrook.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Potential rural historic district, May contribute.

CONSULT DOCUMENTS SHPO Letter 03/12/01

SUMMARY The welded Warren pony truss bridge sits on stone abutments. The south abutment has concrete toe walls and wingwalls. Most of the members are rolled I-sections, but the bottom chord is built of two toe-out angles with batten plates and the end verticals are channels. The floorbeams and stringers are rolled sections as are the outriggers and railings. The bridge is one of at least 10 pre-1946 welded truss bridges in the state, and one of 3 over the same creek. The bridge is not technologically distinguished and is therefore not individually eligible for listing in the National Register of Historic Places. The bridge may be a contributing element of an historic district.

INFOR MATION

PHOTO: 170:30-33 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102015 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0
NAME & FEATURE INTERSECTED RIVER ROAD OVER POHATCONG CREEK **FACILITY** RIVER ROAD
TOWNSHIP POHATCONG TOWNSHIP
TYPE THRU TRUSS **DESIGN** PRATT **MATERIAL** Steel
 # SPANS 1 **LENGTH** 118 ft **WIDTH** 17 ft
CONSTRUCTION DT 1901 **ALTERATION DT** 1936, 1995 **SOURCE** COUNTY RECORDS
DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a rural area, adjacent to working farms. The one-lane bridge carries a winding local road over a creek. The Belvidere-Delaware RR has a bridge crossing the creek just downstream.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes
CONSULT STATUS Individually Eligible.
CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The pin-connected Pratt thru-truss bridge is supported on ashlar abutments with stone wingwalls. The south abutment has a toe wall. The members are composed of toe-out channels with lacing and cover plates, and eyebars, a few with welded bars from 1936. A sub-diagonal was welded in the end panels, built of channel sections and batten plates, and welded railings were added. The bridge is a significant, well-preserved example of its type. It is one of 4 noteworthy thru truss spans in the county.

INFOR MATION

Bibliography:
Warren County Engineer: Bridge File.

Physical Description: The 118'-long 6-panel half-hip Pratt thru truss bridge with pinned field connections is supported on ashlar abutments with concrete toe walls. While the end panels have been strengthened with welded additional members (hangers, diagonals, chords, and subdiagonals) and corner bracing has been welded to the upper lateral braces at the verticals, the trusses are otherwise relatively complete. The inclined end posts and top chord are built up box members composed of channels and cover plate while the verticals are toe-out laced channels. The diagonals and counters are bar stock with both looped and stamped eyes. The bridge exhibits no unusual or patented construction details, but it is a complete example of a traditionally composed pin-connected span with integrity of setting.

Historical and Technological Significance: The pin-connected Pratt half hip thru truss bridge is a late and altered example of its design, but it is one of only two (2100718 is the other example) that remain in the county, and it is thus significant as a rare survivor of a once-common type (Criterion C). County records indicate that it was erected in 1901, but the fabricator is not known. Alterations are limited primarily to the end panels where additional members were welded to the original hangers and diagonals to strengthen the span. A subdiagonal was also added. This work was done in 1936.

A total of four (2 Pratts, 2 double-intersection Warrens), thru truss bridges survive in Warren County (2102307, 2102015, 2160153, 2100718). Three were built by the county, and one was erected by the Lehigh Valley Railroad to carry a local road over its right-of-way. Because of the scarcity of these once common bridge types in Warren County, all four of the thru truss bridges were evaluated as significant because they are rare local examples of a structure type that played an important role in the historical development of the county. The Pratt truss became the most popular of the many truss designs that were experimented with in the 1870s. It was favored because of its overall simplicity, economy of material, ease of fabrication, and strength. The Pratt truss played a significant role in the general acceptance of metal truss bridges for highway use in the last quarter of the 19th century, and by 1900, it was the most common pin-connected bridge type in the nation in both the high and low truss designs.

Boundary Description and Justification: Because it is the span itself that is evaluated as significant, the boundary is limited to the superstructure and substructure of the bridge itself. While the surrounding rural and undeveloped acreage provides an appropriate setting for the bridge, it does not contribute to its significance.

PHOTO: 170:34-39 (07/92) REVISED BY (DATE): QUAD: Riegelsville

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.
Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102032 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CYPHERS ROAD OVER MUSCONETCONG RIVER **FACILITY** CYPHERS ROAD

TOWNSHIP POHATCONG TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 87 ft **WIDTH** 16 ft

CONSTRUCTION DT 1931 **ALTERATION DT** **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** J. F. HIGH

SETTING / CONTEXT The bridge carries a two-lane road over the Musconetcong River. It is located adjacent to a paper mill that is one of many along the Musconetcong. It was originally the Hughesville plant of the Riegel Paper Company. The plant was constructed as a water-powered mill, though it no longer functions that way. The river is the boundary between Warren and Hunterdon Counties. The bridge replaced a double-intersection riveted Warren pony truss structure that was built in 1876.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span encased stringer bridge rests on ashlar abutments that have concrete caps and a concrete cutwater pier. Stone wingwalls flank the abutments. The fascia encasement is plain below the railing of concrete posts and metal pipe rails. The structure is a representative example of a common bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 170:41-42 (07/92) REVISED BY (DATE): QUAD: Riegelsville

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102039 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 6.2

NAME & FEATURE INTERSECTED CR 627 OVER CANAL TO MUSCONETCONG RIVER **FACILITY** CR 627

TOWNSHIP POHATCONG TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 48 ft **WIDTH** 30 ft

CONSTRUCTION DT 1930 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** FREMAN & ZELLERS

SETTING / CONTEXT The bridge is located in a wooded area. It carries a two-lane county route over a power canal right-of-way that flows southwest into the Musconetcong River.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is supported by concrete abutments with wingwalls. The skewed stringers are encased in concrete, with a plain fascia stringer below a standard design concrete balustrade. The bridge is a representative example of a common pre-World War II bridge type. It is one of over 65 stringer bridges in Warren County, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 185:5-7 (07/92) REVISED BY (DATE): QUAD: Riegelsville

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102040 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CR 627 OVER MUSCONETCONG RIVER **FACILITY** CR 627

TOWNSHIP POHATCONG TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 87 ft **WIDTH** 31.1 ft

CONSTRUCTION DT 1930 **ALTERATION DT** **SOURCE** PLAQUES

DESIGNER/PATENT VETTER(WARREN) & DAVIS(HNTRDN) **BUILDER** HENRY SICAFOOS

SETTING / CONTEXT The bridge is located at the edge of a residential area with 19th and 20th century single family dwellings. It carries a two-lane county route over the Musconetcong River, the boundary between Warren and Hunterdon Counties.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced concrete deck arch bridge has concrete wingwalls at both approaches. Concrete balustrades are located only over the span, with paneled concrete parapets above the approach wingwalls. The bridge is a well-preserved example of its type, and is one of over 15 pre-World War II reinforced concrete deck arches in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 171:18-20 (07/92) REVISED BY (DATE): QUAD: Riegelsville

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102046 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CR 519 OVER MUSCONETCONG RIVER **FACILITY** CR 519

TOWNSHIP POHATCONG TOWNSHIP

TYPE BOX BEAM **DESIGN** **MATERIAL** Prestressed Concrete

 # SPANS 2 **LENGTH** 117 ft **WIDTH** 35 ft

CONSTRUCTION DT 1920 **ALTERATION DT** 1976 **SOURCE** COUNTY RECRDS/PLAQUE

DESIGNER/PATENT W.E. ROBERTS, HUN CO. ENG. **BUILDER** M.A.CARTY/UNDERGRND UTIL.

SETTING / CONTEXT The bridge is located adjacent to a service drive to the Riegel Paper mill, established in the mid-1800s as a water-powered mill. The bridge carries a two-lane county route over the Musconetcong River, the boundary between Warren and Hunterdon Counties. The 1920 bridge was designed by the Hunterdon County Engineer and approved by the Warren County Engineer.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span prestressed box beam superstructure was built in 1976, and it incorporates a concrete substructure that dates to 1920. The concrete abutments and cutwater pier were coated with a protective application. The bridge is not technologically distinguished, and the superstructure is not old enough to be evaluated as a historically significant structure.

INFOR MATION

PHOTO: 170:40 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102101 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SOUTH WANDLING AVENUE OVER SHABBECONG CREEK **FACILITY** SOUTH WANDLING AVENUE

TOWNSHIP WASHINGTON BOROUGH

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 28 ft **WIDTH** 24.5 ft

CONSTRUCTION DT 1918 **ALTERATION DT** 1983 **SOURCE** COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** J. C. SEARLES

SETTING / CONTEXT The bridge is located on a residential street with post-World War II homes. The two-lane structure crosses a small creek that is lined with trees.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge rests on concrete abutments with wingwalls. The northeast wingwall was reconstructed in 1983 to redirect the stream under the bridge. The encased stringers have exposed bottom flanges. The deck is enclosed by railings composed of concrete posts and metal pipe rails. The bridge is a representative example of a common bridge type, and is one of over 65 extant pre-World War II stringer spans in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 177:17-18 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102154 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 2.85

NAME & FEATURE INTERSECTED US 22 OVER LOPATCONG CREEK **FACILITY** US 22

TOWNSHIP LOPATCONG TOWNSHIP

TYPE RIGID FRAME **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 3 **LENGTH** 41 ft **WIDTH** 91.6 ft

CONSTRUCTION DT 1938 **ALTERATION DT** 1954 **SOURCE** PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in an agricultural farming area with some late-20th century commercial structures along the highway. It carries a busy four-lane divided highway with a grassy median over a creek. The bridge is noticeable along the highway only by the structure identification marker.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The reinforced concrete rigid frame bridge is continuous over the three spans. The 1938 structure was widened in 1954 with a similar three-span continuous frame which extended the width by 55'. The altered bridge is not technologically innovative nor is it historically distinguished.

INFOR MATION

PHOTO: 171:37 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102204 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED MINE HILL ROAD OVER POHATCONG CREEK **FACILITY** MINE HILL ROAD

TOWNSHIP WASHINGTON TOWNSHIP

TYPE STRINGER **DESIGN** JACK ARCH (CONCRETE) **MATERIAL** Steel

 # SPANS 1 **LENGTH** 26 ft **WIDTH** 17.5 ft

CONSTRUCTION DT 1914 **ALTERATION DT** 1932 **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** S. H. SHIELDS

SETTING / CONTEXT The bridge is located in an area of modern residential subdivision development with a few 19th century dwellings interspersed. It carries a two-lane road over a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single-span stringer bridge sits on a rubble-coursed stone abutment and a concrete abutment, both of which have stone wingwalls. The stringers are spanned by concrete jack arches. Vertical tie rods from the crown of the arches connect to channel sections welded to the bottom flanges of the stringers for added lateral stability. The bridge was widened in 1932, and the new stringers do not have jack arches. The altered bridge is not technologically or historically distinguished.

INFOR MATION

PHOTO: 178:34-37 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102215 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.1

NAME & FEATURE INTERSECTED CR 623 OVER POHATCONG CREEK **FACILITY** CR 623

TOWNSHIP WASHINGTON TOWNSHIP

TYPE STONE ARCH **DESIGN** BARREL **MATERIAL** Stone

 # SPANS 2 **LENGTH** 31 ft **WIDTH** 47.2 ft

CONSTRUCTION DT 1875ca **ALTERATION DT** 1934, 1955 **SOURCE** STYLE/COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN/COUNTY FORCES

SETTING / CONTEXT The bridge is located in a late-20th century industrial area. It carries a two-lane county route with sidewalks and shoulders over a creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The undocumented two-span stone arch bridge was widened in 1934 with multiple plate arches, and again in 1955 with a two-span continuous concrete slab on concrete abutments and a pier. The masonry has been repointed with wide joints in the spandrel walls and the fascia ringstones. The low stone parapet has stapled capstones, while the opposite railing has concrete posts with metal pipe railings. The extensively altered structure is not technologically or historically distinguished.

INFOR MATION

PHOTO: 177:19-24 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102223 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 1.05

NAME & FEATURE INTERSECTED CR 632 OVER TRIBUTARY TO MUSCONETCONG RIVER **FACILITY** CR 632

TOWNSHIP WASHINGTON TOWNSHIP

TYPE SLAB **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 2 **LENGTH** 42 ft **WIDTH** 25.4 ft

CONSTRUCTION DT 1942 **ALTERATION DT** **SOURCE** INSCRIPT/CNTY RECRDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located at the intersection of a county route with a local road. Around the intersection are 19th century houses and corn fields, as well as a wooded area. The bridge carries the two-lane county road over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The skewed two-span slab bridge is simply-supported over concrete abutments and a pier. The railing is a nicely-detailed Moderne-style concrete balustrade with stepped posts and circular-headed piercing. The bridge is a representative example of a common type and design, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 174:30-31 (07/92) REVISED BY (DATE): QUAD: High Bridge

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102224 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED NEW HAMPTON ROAD OVER MUSCONETCONG RIVER **FACILITY** NEW HAMPTON ROAD

TOWNSHIP WASHINGTON TOWNSHIP

TYPE STRINGER **DESIGN** **MATERIAL** Steel

 # SPANS 4 **LENGTH** 90 ft **WIDTH** 13.7 ft

CONSTRUCTION DT 1910 **ALTERATION DT** 1960ca **SOURCE** NJDOT

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded, undeveloped setting. The one-lane structure carries a quiet, rural road over the river that forms the boundary between Warren and Hunterdon Counties.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The four-span stringer bridge sits on stone piers and abutments to which concrete buttressing has been added. The exposed stringers support a steel grid deck. The ca.1960 welded post-and-rail railings are bolted to the fascia stringers. The bridge has been significantly altered since its original construction. It is one of over 65 extant pre-World War II stringer bridges in the county, and is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 174:32-33 (07/92) REVISED BY (DATE): QUAD: High Bridge

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102225 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SHODDY MILL ROAD OVER MUSCONETCONG RIVER **FACILITY** SHODDY MILL ROAD

TOWNSHIP WASHINGTON TOWNSHIP

TYPE PONY TRUSS **DESIGN** PRATT **MATERIAL** Wrought or Cast Iron

 # SPANS 1 **LENGTH** 85 ft **WIDTH** 16.2 ft

CONSTRUCTION DT 1868 **ALTERATION DT** 1992 **SOURCE** INSCRIPTION

DESIGNER/PATENT F. LOWTHROP **BUILDER** WM. COWIN, LAMBERTVILLE

SETTING / CONTEXT The bridge is located in a wooded setting on the northwest edge of the village of New Hampton. It is adjacent to poorly maintained 19th century buildings. Ruins of a mill are on the property adjacent to the bridge. The bridge carries one lane of a rural road over the Musconetcong River, the boundary between Warren and Hunterdon Counties.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Individually Listed. Listed. New Hampton Pony Pratt Truss Bridge. 07/26/1977.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The cast and wrought iron Pratt pony truss bridge is one of the most technologically significant spans in the state. The 8-panel truss represents the transition from wood to metal truss spans, and it is the design of noted engineer F. Lowthorp and foundryman W. Cowin of Lambertville. It is the earliest of 3 similar spans in the area. In 1991 the north end post suffered severe impact damage, but it was sensitively repaired, preserving the integrity of the structure. The bridge is well-preserved.

INFOR MATION

PHOTO: 174:34-36 (07/92) REVISED BY (DATE): QUAD: High Bridge

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102227 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CR 628 OVER POHATCONG CREEK **FACILITY** CR 628

TOWNSHIP WASHINGTON TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 30 ft **WIDTH** 15.8 ft

CONSTRUCTION DT 1926 **ALTERATION DT** **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** BECK BROS. & BECK

SETTING / CONTEXT The bridge is located in a rural area with late-19th century houses and active farms. The one-lane bridge carries a two-lane county route over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single-span stringer bridge is supported by stone abutments that have concrete toe walls. The encased stringers have exposed bottom flanges. The bridge railing is a typical county design of concrete posts with metal pipe rails. The bridge is a representative example of a common pre-World War II type, being one of over 65 remaining stringer spans in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 177:25-27 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102231 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 1.1

NAME & FEATURE INTERSECTED CR 623 OVER BRASS CASTLE CREEK **FACILITY** CR 623

TOWNSHIP WASHINGTON TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 29 ft **WIDTH** 29.2 ft

CONSTRUCTION DT 1939 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** COUNTY FORCES

SETTING / CONTEXT The bridge is located in a wooded area that has inactive stone industrial buildings along the stream. The structure carries a two-lane county route over a stream that runs through a stone-retaining-wall lined channel.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The skewed encased stringer bridge sits on stone abutments with concrete bridge seats. The abutments are part of the retaining walls that line the channel. The stringers support a concrete deck that is enclosed by concrete balustrades with stepped Moderne posts. Beam guiderails are attached through the piercings of the balustrade. The bridge is a representative example of a common pre-World War II type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 177:31-32 (08/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102237 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 6.3

NAME & FEATURE INTERSECTED CR 632 OVER TRIBUTARY TO MUSCONETCONG RIVER **FACILITY** CR 632 (ASBURY-ANDERSON ROAD)

TOWNSHIP WASHINGTON TOWNSHIP

TYPE STRINGER **DESIGN** JACK ARCH (CONCRETE) **MATERIAL** Steel

 # SPANS 1 **LENGTH** 28 ft **WIDTH** 29.4 ft

CONSTRUCTION DT 1911 **ALTERATION DT** 1985ca **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** S. H. SHIELDS

SETTING / CONTEXT The bridge is located in an area of farms with modern houses scattered along the roads. It carries a two-lane county route over a small stream. A local road intersects the county route adjacent to the bridge.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is supported on concrete abutments with flared wingwalls. The stringers are spanned by concrete jack arches with rusting corrugated metal forms. The bridge has been widened on the downstream face by 5' with the addition of two prestressed box beams. That side has a railing of concrete posts with metal pipe rails, but the other side has only a beam guiderail set in the concrete curb. The bridge is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 174:25-27 (07/92) REVISED BY (DATE): QUAD: High Bridge

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102251 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED MEADOW BREEZE LANE OVER BRASS CASTLE CREEK **FACILITY** MEADOW BREEZE LANE

TOWNSHIP WASHINGTON TOWNSHIP

TYPE STRINGER **DESIGN** JACK ARCH (CONCRETE) **MATERIAL** Steel

 # SPANS 1 **LENGTH** 26 ft **WIDTH** 25.7 ft

CONSTRUCTION DT 1914ca **ALTERATION DT** 1974 **SOURCE** STYLE/COUNTY RECORDS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a rural location with fields and a recreational area. An early-20th century house is located on an adjacent property. The bridge carries a two-lane road over a small creek. The bridge is stylistically dated to ca. 1914, when County Engineer F. W. Salmon designed several bridges of this type.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge bears on concrete abutments that have been extended. The bridge was widened with the addition of 5' slabs to each side of the original stringers, which have concrete jack arches between them. The railings have concrete posts and metal pipe rails, as is common on county bridges from the 1910s. The altered bridge is one of at least 7 concrete jack arch spans built by the county between 1910-14, and it is not technologically or historically distinguished structure.

INFOR MATION

PHOTO: 177:28,30;185:14-15 (08/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102302 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SAREPTA ROAD OVER BEAVER BROOK **FACILITY** SAREPTA ROAD

TOWNSHIP WHITE TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 43 ft **WIDTH** 24.3 ft

CONSTRUCTION DT 1913 **ALTERATION DT** **SOURCE** PLAQUE/COUNTY RECRDS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** M.IRVING DEMAREST, CONTR.

SETTING / CONTEXT The bridge is located in a wooded area, near the intersection of Sarepta Road with busy US 46. The bridge carries the two-lane local road over a stream.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The well-proportioned reinforced concrete deck arch bridge is bounded by concrete wingwalls on the south bank and rubble-course stone wingwalls on the north side. The railings are concrete posts with metal pipe rails. Over the wingwalls are panelled concrete parapets. The roadway rises in a crest curve over the arch bridge. The span ranks among the earliest and most handsome of the 15 deck arch bridges in the county and is a well-preserved, representative example of the important bridge type.

INFOR MATION

Bibliography:
Musti, M. Warren County New Jersey 1931. 1931.
Warren County Engineer. Bridge Files.

Physical Description: The well-proportioned 43'-long reinforced concrete elliptical deck arch bridge has plain spandrel walls. The roadway rises in a crest curve over the arch, and the clear span is marked by a metal and concrete railing composed of plain concrete posts and pipe rails. The bottom level of the pipe railing is subdivided. The approaches are marked by paneled parapets. Those at the T-intersection are curved which adds to the graceful appearance of the well-preserved bridge.

Historical and Technological Significance: The well proportioned and well preserved elliptical-shape deck arch bridge built in 1913 ranks as the most distinguished example of the bridge type that was commonly used by the county engineer in the 1910s (Criterion C). Designed by county engineer F. W. Salmon, the Sarepta Road arch, the earliest non-railroad related reinforced concrete deck arch bridge remaining in the county, reflects the trend of early-20th century county engineers to increasingly turn to reinforced concrete as the strong and economical replacement of earlier stone and metal truss bridges that were proving too light for 20th-century load requirements. The Sarepta Road bridge, one of eight built in the 1910s that remain in service today, is also locally significant in that it embodies details that are typical of 1910s and 1920s Warren County bridge. The railing, with concrete posts and nicely detailed pipe rails, is a type frequently seen on county-designed bridges as is the paneled concrete parapet used to mark the approaches. It is a fine summation of the county principle of "an achievement in design that has been the beauty of structure without sacrifice of strength or increase of cost" (Musti, p. 38).

Boundary Description and Justification: Because it is the technical and historical importance of the bridge that is significant, the boundary is limited to the structure itself. This includes the sub and superstructure as well as the wingwalls and approach parapets.

PHOTO: 164:41-43 (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102303 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 41.92

NAME & FEATURE INTERSECTED SOUTH BRIDGEVILLE ROAD (CR 519) OVER PEQUEST RIVER **FACILITY** SOUTH BRIDGEVILLE ROAD (CR 519)

TOWNSHIP WHITE TOWNSHIP

TYPE STONE ARCH **DESIGN** BARREL **MATERIAL** Stone

 # SPANS 9 **LENGTH** 152 ft **WIDTH** 25.1 ft

CONSTRUCTION DT 1836ca **ALTERATION DT** 1934 **SOURCE** STYLE/COUNTY RECORDS

DESIGNER/PATENT UNKNOWN / H.W. VETTER, CO ENG **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a ca.1900 residential area that does not have historic district potential. The structure carries a two-lane county route over a river.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The center three arches of the nine-span bridge have metal plate lining while the other six have been coated with gunite. The bridge was widened on the west face in 1934 with metal plate and reinforced concrete arch additions. The western spandrel wall was reconstructed of stone, but laid randomly, not carefully coursed as the original eastern spandrel walls are. The bridge is an extensively altered example of stone arch technology.

INFOR MATION

Bibliography:
Leferts, H. Leedom, Jr., and David R. Piefer. Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.
Mustin, M. Warren County, New Jersey, 1931. Camden, NJ: 1931.

Physical Description: The 9-span stone arch bridge is set in a residential area and has been widened to accommodate modern traffic concerns. The intrados of the widened portions of the structure are lined with metal plates at the 3 central spans, and are constructed of concrete at the 3 spans on each end. The original arches have been coated with gunite on the intrados. The eastern spandrel wall is neatly constructed of coursed rubble, but the western spandrel was randomly rebuilt. The ringstones are neatly gauged at both faces of the structure. The parapets with replacement concrete coping stones are low in comparison with the leveled roadway, approximately one foot high at the ends of the structure.

Historical and Technological Significance: The South Bridgeville Road bridge (1836) has been significantly altered and no longer retains its original design. In 1934 the bridge was widened with concrete and metal arch additions to meet modern traffic concerns. The west stone spandrel wall and parapets with concrete coping were rebuilt in a method not conforming to modern preservation standards. Although the bridge is the oldest and longest-span stone arch surviving in the county, better preserved examples exist to illustrate the type of stone arch bridge technology that was used in the county throughout the 19th century. The Historic Bridge Survey evaluated at least nine surviving stone arch bridges in Warren County including the historically and technologically significant Brugler Road over Paulins Kill (2101311, c.1860, Knowlton Township) and Stephensburg Road over Musconetcong River (2101607, 1860, Mansfield Township). The latter is rated a contributing structure to the National Register listed Miller Farmstead.

PHOTO: 164:35-37 (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102307 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED BUTTZVILLE ROAD OVER PEQUEST RIVER **FACILITY** BUTTZVILLE ROAD

TOWNSHIP WHITE TOWNSHIP

TYPE THRU TRUSS **DESIGN** DOUBLE INTERSECTION WARREN **MATERIAL** Steel

 # SPANS 1 **LENGTH** 108 ft **WIDTH** 17.6 ft

CONSTRUCTION DT 1902 **ALTERATION DT** 1934 **SOURCE** PLAQUE/COUNTY RECRDS

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in an area of altered late-19th century structures used for residential and commercial purposes. The one-lane bridge carries a two-lane street of local traffic over a river. NJ 46 is located 500' north of the bridge.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The double-intersection Warren thru-truss bridge is supported by gunite-coated abutments with wingwalls. The riveted truss is built of angles and batten plates for diagonals and the bottom chord, with channels and cover plates for the top chord and posts. In 1934, some diagonals were strengthened with welded channels. There are also bolted repairs. Despite the modifications, the span retains much of its original fabric, including handsome railings and is a rare example of an uncommon truss type.

INFOR MATION

Bibliography:
Leferts, H. Leedom, Jr., and David R. Piefer. Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.
Mustin, M. Warren County, New Jersey, 1931. Camden, NJ: 1931.

Physical Description: The 9-span stone arch bridge is set in a residential area and has been widened to accommodate modern traffic concerns. The intrados of the widened portions of the structure are lined with metal plates at the 3 central spans, and are constructed of concrete at the 3 spans on each end. The original arches have been coated with gunite on the intrados. The eastern spandrel wall is neatly constructed of coursed rubble, but the western spandrel was randomly rebuilt. The ringstones are neatly gauged at both faces of the structure. The parapets with replacement concrete coping stones are low in comparison with the leveled roadway, approximately one foot high at the ends of the structure.

Historical and Technological Significance: The South Bridgeville Road bridge (1836) has been significantly altered and no longer retains its original design. In 1934 the bridge was widened with concrete and metal arch additions to meet modern traffic concerns. The west stone spandrel wall and parapets with concrete coping were rebuilt in a method not conforming to modern preservation standards. Although the bridge is the oldest and longest-span stone arch surviving in the county, better preserved examples exist to illustrate the type of stone arch bridge technology that was used in the county throughout the 19th century. The Historic Bridge Survey evaluated at least nine surviving stone arch bridges in Warren County including the historically and technologically significant Brugler Road over Paulins Kill (2101311, c.1860, Knowlton Township) and Stephensburg Road over Musconetcong River (2101607, 1860, Mansfield Township). The latter is rated a contributing structure to the National Register listed Miller Farmstead.

PHOTO: 29:34-,164:22- (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102309 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 37.73

NAME & FEATURE INTERSECTED CR 519 (BELVIDERE-PHILLIPSBRG) OVER BUCKHORN CREEK **FACILITY** CR 519 (BELVIDERE-PHILLIPSBURG ROAD)

TOWNSHIP WHITE TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 26 ft **WIDTH** 30 ft

CONSTRUCTION DT 1928 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** GOLDEN CONTRACTING COMPNY

SETTING / CONTEXT The bridge is located in a rural area of active farming. The structure carries a two-lane county road over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single span stringer bridge is seated on low-rise concrete abutments. The encased stringers support a concrete deck that is flanked by concrete balustrades. Beam guiderails are attached to the balustrades. The bridge is a representative example of a common type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 29:23A-24A (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102313 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 40.25

NAME & FEATURE INTERSECTED CR 519 (SOUTH BRIDGEVILLE RD) OVER POPHANDUSING CREEK **FACILITY** CR 519 (SOUTH BRIDGEVILLE ROAD)

TOWNSHIP WHITE TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 32 ft **WIDTH** 32 ft

CONSTRUCTION DT 1929 **ALTERATION DT** 1985ca **SOURCE** PLANS/COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** CLAUDE CRARRUP

SETTING / CONTEXT The bridge is located in rural area, with working agricultural and livestock farms. The structure carries a two-lane county route over a creek. The intersection of two county roads is a few hundred feet away.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single span stringer bridge is supported on stone and concrete abutments. The original stringers are encased in concrete and are on stone abutments. The bridge was widened ca.1985 with exposed stringers on concrete abutment extensions. The bridge railing has concrete posts and two metal pipe rails on the original side and a beam guiderail at the other. The bridge is a representative example of a common bridge type. It is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 29:25A-26A (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102335 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED HOPE-CROSSING ROAD OVER BEAVER BROOK **FACILITY** HOPE-CROSSING ROAD

TOWNSHIP WHITE TOWNSHIP

TYPE PONY TRUSS **DESIGN** WARREN **MATERIAL** Steel

 # SPANS 1 **LENGTH** 56 ft **WIDTH** 15.1 ft

CONSTRUCTION DT 1902 **ALTERATION DT** 1937 **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNKNOWN **BUILDER** WYNKOOP & BRALY CO., NY

SETTING / CONTEXT The bridge is located in a wooded setting, with scattered 20th century houses. The one-lane bridge crosses a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The rivet-connected Warren pony-truss bridge is supported on concrete abutments. Some of the built-up diagonal members have been strengthened with welded cover plates, as have the rolled floorbeams. The bottom chord has been replaced with angle sections and welded batten plates, bolted to the gusset plates at the panel points. A lattice railing is welded to the truss. The bridge is an altered example of a type that is common in the region, and is not technologically distinguished.

INFOR MATION

PHOTO: 164:3-6 (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102336 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED SAREPTA ROAD OVER BEAVER BROOK **FACILITY** SAREPTA ROAD

TOWNSHIP WHITE TOWNSHIP

TYPE STONE ARCH **DESIGN** BARREL **MATERIAL** Stone

 # SPANS 3 **LENGTH** 66 ft **WIDTH** 12.9 ft

CONSTRUCTION DT 1875ca **ALTERATION DT** 1955, 1988 **SOURCE** CO. RECORDS/INSCRIPT

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in an area of modern single family dwellings. It carries one lane over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span stone arch bridge has been extensively altered. Ca. 1955 the piers were encased in concrete, forming cutwater piers at the upstream face. In 1988 the stone spandrel walls were insensitively repointed, and metal pipe weep holes were installed through the stone parapets at deck level. A concrete cap was added to the top of the parapets. The bridge is one of nine stone arch bridges in the county, but it is not well-preserved.

INFOR MATION

PHOTO: 164:44,1-2 (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102354 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED QUARRY ROAD OVER POPHANDUSING CREEK **FACILITY** QUARRY ROAD

TOWNSHIP WHITE TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 37 ft **WIDTH** 16 ft

CONSTRUCTION DT 1922 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded area with early-20th century homes nearby. The one-lane structure carries a dead-end road over a stream. The 1922 bridge replaced a lattice girder bridge built by the Wrought Iron Bridge Company of Canton Ohio.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single-span stringer bridge is supported by rubble-stone abutments with wingwalls that are capped with concrete. The stringers are encased except for the bottom flanges, and carry a concrete deck. The railings are metal pipe rails with concrete posts. The bridge is a representative example of a common bridge type, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 29:31A-32A (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2102365 **CO** WARREN **OWNER** COUNTY **MILEPOINT** 5.2

NAME & FEATURE INTERSECTED BRASS CASTLE ROAD (CR 623) OVER TRIBUTARY POPHANDUSING CREEK **FACILITY** BRASS CASTLE ROAD (CR 623)

TOWNSHIP WHITE TOWNSHIP

TYPE STONE ARCH **DESIGN** BARREL **MATERIAL** Stone

 # SPANS 1 **LENGTH** 27 ft **WIDTH** 32 ft

CONSTRUCTION DT 1875ca **ALTERATION DT** 1924, 1930 **SOURCE** COUNTY RECORDS

DESIGNER/PATENT UNK./H.W.VETTER, COUNTY ENGNR **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge carries a two-lane roadway over a stream. The surrounding structures are predominantly early-20th century residences, with a few outbuildings.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The short, skewed bridge is composed of a stone arch that spans less than 15' flanked by slab structures on concrete abutments built in 1924 and 1930. The skew of the bridge to the roadway centerline makes the span longer than 20'. The arch is visible only from the stream bed. The railings of the bridge are concrete posts with pipe metal rails. The bridge, including the undocumented arch section, is not a historically or technologically distinguished structure.

INFOR MATION

PHOTO: 29:27A-30A,186:9 (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2103152 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 1.31

NAME & FEATURE INTERSECTED NJ 173 OVER POHATCONG CREEK **FACILITY** NJ 173

TOWNSHIP GREENWICH TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 90 ft **WIDTH** 34.8 ft

CONSTRUCTION DT 1914 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded area with scattered residences. The structure carries a two-lane state highway with narrow shoulders over a creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced concrete deck arch bridge has concrete wingwalls. The joint line below the spandrel walls accents the arch. The spandrels are finished with a concrete curb, to which the posts of the beam guiderails are bolted on the outside face. Sandbags have been placed at the bases of the arch to protect the structure from scour. The structure is a common county bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 169:40-42 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2103153 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 3.15

NAME & FEATURE INTERSECTED NJ 173 OVER MUSCONETCONG RIVER **FACILITY** NJ 173

TOWNSHIP GREENWICH TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 3 **LENGTH** 152 ft **WIDTH** 30 ft

CONSTRUCTION DT 1925 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area at the edge of a small cluster of mixed-20th century single family dwellings. The structure carries a two-lane state highway with narrow shoulders over the Musconetcong River, the boundary between Warren and Hunterdon Counties.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span stringer bridge is supported on concrete abutments and cutwater piers. Each span of encased stringers is skewed to the others to accommodate the horizontal curve of the roadway. The concrete balustrade is of standard State Highway Department design. The bridge is a representative example of a common pre-World War II bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 185:8-11 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2105152 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 1.5

NAME & FEATURE INTERSECTED NJ 57 OVER LOPATCONG CREEK **FACILITY** NJ 57

TOWNSHIP LOPATCONG TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 48 ft **WIDTH** 30 ft

CONSTRUCTION DT 1921 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge carries a two-lane state highway over a minor stream in a rural agricultural area with scattered development. Adjacent to the bridge is a mid-20th century restaurant/recreational area complex.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge bears on concrete abutments. The encased stringers support a concrete deck with standard-design concrete balustrades. A beam guiderail crosses the bridge inside the north balustrade, attached through the rectangular openings. The bridge is a representative example of the most common pre-World War II bridge type in New Jersey. It is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 170:19-20 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2105154 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 2.6

NAME & FEATURE INTERSECTED NJ 57 OVER BRANCH OF POHATCONG CR (MERRILLS BROOK) **FACILITY** NJ 57

TOWNSHIP GREENWICH TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 37 ft **WIDTH** 29 ft

CONSTRUCTION DT 1921 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a rural area with active stock farms. It carries a two-lane state highway over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge sits on concrete abutments with wingwalls and is finished with typical state-designed concrete balustrades. Beam guiderails cross the bridge inside the balustrades. The bridge is a representative example of a common pre-World War II bridge type, being one of over 65 in the county. It is a technologically and historically undistinguished structure.

INFOR MATION

PHOTO: 170:17-18 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2105159 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 6.45

NAME & FEATURE INTERSECTED NJ 57 OVER BRANCH POHATCONG CREEK **FACILITY** NJ 57

TOWNSHIP FRANKLIN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 36 ft **WIDTH** 30 ft

CONSTRUCTION DT 1922 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a rural area, adjacent to a ca.1800 homestead with a handsome stone building that may have been a mill. Some newer buildings are also nearby. The bridge carries a two-lane state route over a small stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge bears on concrete abutments with stone wingwalls on the downstream side. The encased stringers support a concrete deck that is framed by typical State Highway Department-design concrete balustrades. Beam guiderails cross in front of the balustrades. The bridge is a representative example of a common pre-World War II type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 173:32A-33A (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2105163 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 8.81

NAME & FEATURE INTERSECTED NJ 57 OVER BRASS CASTLE CREEK **FACILITY** NJ 57

TOWNSHIP WASHINGTON TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 26 ft **WIDTH** 30 ft

CONSTRUCTION DT 1921 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a rural area with mixed-age residential structures from the 20th century. It carries a two-lane state route with narrow shoulders across a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is set on concrete abutments with wingwalls. The encased stringers support a concrete deck with concrete balustrades that are a typical State Highway Department design. Beam guiderails have been added along the inside faces of the balustrades. The structure is a representative example of the most common pre-World War II bridge type in the state. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 173:37A-38A (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2106150 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 66.84

NAME & FEATURE INTERSECTED OLD ROAD BRANCH RR (HAMPTON BRANCH) OVER NJ 57 **FACILITY** OLD ROAD BRANCH RAILROAD

TOWNSHIP WASHINGTON BOROUGH

TYPE ARCH **DESIGN** ELLIPTICAL **MATERIAL** Concrete

 # SPANS 1 **LENGTH** 59 ft **WIDTH** 75 ft

CONSTRUCTION DT 1907 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a residential area dating to the late-19th century. It crosses a two-lane state highway, carrying a two-track right-of-way at the narrowing of the line from several tracks down to one track. The line was developed as the Warren Railroad and was used as the main line of the Delaware Lackawanna & Western in New Jersey prior to the construction of the New Jersey Cutoff.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible. Delaware, Lackawanna & Western Railroad Old Main Line Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 09/24/96, Letter 03/12/01.

SUMMARY The 1-span deck arch bridge has skewed wingwalls retaining fill that was used to elevate the line through the urban area. It has low curbs at the top of the spandrel walls to prevent ballast from leaving the deck. Built by the DL&W Railroad in 1907, this structure can be seen as a significant precursor of the DL&W New Jersey Cutoff, built 1907 - 1911. The DL&W was important in the adaptation and acceptance of the application of concrete technology to railroad usage. Railroad usage of concrete technology initially lagged behind roadway usage because engineers were uncertain about the material's properties -- specifically how it would react under the enormous stresses that occur where a massive dynamic load (train) crosses a structure. This bridge is individually eligible for listing in the National Register of Historic Places under Criterion C as an early example of the use of concrete arch technology by the railroad industry, and as a contributing element of the Old Main Delaware Lackawanna & Western Historic District under Criteria A and C.

INFOR MATION

PHOTO: 177:10-13 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2106151 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 11.11

NAME & FEATURE INTERSECTED NJ 57 OVER SHABBACONG CREEK **FACILITY** NJ 57

TOWNSHIP WASHINGTON BOROUGH

TYPE CULVERT, STRINGER **DESIGN** **MATERIAL** Concrete, Steel

 # SPANS 2 **LENGTH** 27 ft **WIDTH** 44 ft

CONSTRUCTION DT 1907 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a late-19th century residential area with altered buildings. The bridge continues as a culvert below a 40' wide two-lane state route with a shoulder and a sidewalk and an intersecting two-lane residential street with one sidewalk. The structure carries the state road over a creek and under a railroad bridge.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span reinforced concrete culvert bridge curves below the roadway, and is joined by a one-span stringer bridge at its outlet. The inlet of the skewed culvert is marked by a concrete parapet along the sidewalk of NJ 57. The skewed stringer span outlet has a metal railing along the sidewalk. The exposed stringers sit on concrete abutments. The bridge is not technologically or historically distinguished.

INFOR MATION

PHOTO: 177:14,16;185:20-21 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2106153 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 12.15

NAME & FEATURE INTERSECTED NJ 57 OVER CONRAIL (DL&W RR WASHINGTON SECONDARY) **FACILITY** NJ 57

TOWNSHIP WASHINGTON TOWNSHIP

TYPE RIGID FRAME **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 34 ft **WIDTH** 173 ft

CONSTRUCTION DT 1934 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge carries a 2-lane state highway with shoulders and sidewalks over a single active track of ConRail's Washington Secondary. The line was developed by the Morris and Essex Railroad around 1865, and was taken over by the Delaware Lackawanna & Western RR on January 1, 1869, providing them with access to Hoboken ports on the Hudson River. The bridge is located in Port Colden, on the Morris Canal right-of-way. The structure is not historically related to the canal or the village.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Delaware, Lackawanna & Western Railroad Old Main Line Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 09/24/96, Letter 03/12/01.

SUMMARY The one-span reinforced concrete rigid frame bridge is flanked by scored concrete wingwalls. The skew of the structure necessitated sawtooth design cantilevered slabs at each end of the span. Standard design concrete balustrades are at each face of the structure. The bridge is a representative example of common pre-World War II technology, and it is not historically distinguished. The state highway dept. was building rigid frame bridges as early as 1932. The bridge is not individually eligible for listing in the National Register of Historic Places, but is a contributing element of the Old Main Delaware Lackawanna & Western Railroad Historic District under Criteria A and C, and is in or abutting but not contributing to the Morris Canal Historic District.

INFOR MATION

PHOTO: 178:28-29,31 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2106156 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 13.96

NAME & FEATURE INTERSECTED NJ 57 OVER BRANCH OF MUSCONETCONG RIVER **FACILITY** NJ 57

TOWNSHIP MANSFIELD TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 25 ft **WIDTH** 30 ft

CONSTRUCTION DT 1924 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a residential area where 20th century houses now predominate over a cluster of 19th century ones in the village of Anderson. The bridge carries NJ 57, a two-lane road with narrow shoulders over a stream that drains into the Musconetcong River.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge bears on concrete abutments with flared wingwalls. The stringers are encased completely in concrete. The balustrades are typical of State Highway Department designs, with a beam guiderail attached to it. The short span is a representative example of a common bridge type, and is one of over 65 extant pre-World War II stringer bridges in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 178:32-33 (07/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2106158 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 15.53

NAME & FEATURE INTERSECTED NJ 57 OVER BRANCH OF MUSCONETCONG RIVER **FACILITY** NJ 57

TOWNSHIP MANSFIELD TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 25 ft **WIDTH** 30 ft

CONSTRUCTION DT 1924 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in an area of 19th and 20th century residences that line NJ 57. It carries the two-lane state route over a creek that drains into the Musconetcong River.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is set on concrete abutments. The encased stringers support a concrete deck that is framed by concrete balustrades. The standard-design railings have beam guiderails across the bridge. The structure is a representative example of the most common pre-World War II bridge type in New Jersey. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 179:3A-4A (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2106164 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 18.12

NAME & FEATURE INTERSECTED NJ 57 OVER HANCES BROOK **FACILITY** NJ 57

TOWNSHIP MANSFIELD TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 25 ft **WIDTH** 30 ft

CONSTRUCTION DT 1924 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a rural area, with fields and trees along a stream, and a few residences along NJ 57. The span carries the two-lane state route over a stream that outlets into the Musconetcong River.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The short one-span stringer bridge rests on concrete abutments. The encased stringers carry the concrete deck and the standard-design concrete balustrades. Beam guiderails have been bolted to the balustrades. The bridge is a representative example of a common bridge type, and is one of over 65 extant pre-World War II stringer bridges in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 179:36A-37A (08/92) REVISED BY (DATE): QUAD: Hackettstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2106165 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 20.44

NAME & FEATURE INTERSECTED NJ 57 OVER TROUT BROOK **FACILITY** NJ 57

TOWNSHIP MANSFIELD TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 24 ft **WIDTH** 30 ft

CONSTRUCTION DT 1924 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with 19th and 20th century residences lining NJ 57. It carries the two-lane state route over a creek that outlets into the Musconetcong River.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The stringer bridge is supported on concrete abutments with wingwalls. The stringers are completely encased, with a plain fascia below standard State Highway Department-designed concrete balustrades. Beam guiderails are fastened to the inside face of the balustrades. The structure is a representative example of its type, and is one of over 65 extant pre-World War II stringer bridges in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 179:33A-35A (08/92) REVISED BY (DATE): QUAD: Hackettstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2107150 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 80.46

NAME & FEATURE INTERSECTED OLD ROAD BRANCH RR RIGHT-OF-WAY OVER US 46 **FACILITY** OLD ROAD BRANCH RR RIGHT-OF-WAY

TOWNSHIP KNOWLTON TOWNSHIP

TYPE SLAB **DESIGN** CONTINUOUS **MATERIAL** Reinforced Concrete

 # SPANS 4 **LENGTH** 106 ft **WIDTH** 29 ft

CONSTRUCTION DT 1932 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge carries an abandoned right-of-way wide enough for two tracks over a two-lane highway with shoulders. The surrounding area has sparse post-World War II commercial development. The right-of-way was developed by the Delaware Lackawanna & Western RR in the early 1850s as the Warren Railroad. It served as their connection from the Delaware River to the CNJ in Hampton, and after 1868 to the Morris & Essex Railroad in Washington.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The four-span concrete slab bridge bears on concrete piers and abutments. The pier bents have four columns and arched struts. The slab deck is covered with ballast, and is flanked by concrete parapets that have been detailed to look like the typical State-designed concrete balustrades of the 1930s and early 1940s. The bridge is not technologically or historically distinguished, as it is a type commonly used for railroad overpasses.

INFOR MATION

PHOTO: 164:10-11,13 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2107154 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 7.3

NAME & FEATURE INTERSECTED US 46 WB OVER BEAVER BROOK **FACILITY** US 46 WESTBOUND

TOWNSHIP WHITE TOWNSHIP

TYPE THRU GIRDER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 72 ft **WIDTH** 30 ft

CONSTRUCTION DT 1924 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area, with some late-20th century commercial structures along the busy highway. The bridge carries two lanes of one-directional traffic over a stream. An adjacent, newer structure carries traffic in the opposite direction.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The thru-girder bridge sits on reinforced concrete abutments that were extended to support the more recent eastbound bridge. The encased girder forms the parapet, with beam guiderails crossing the bridge at the curblines. The floorbeams are also encased. The structure is a representative example of a common bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 164:38-40 (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2107156 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 0.72

NAME & FEATURE INTERSECTED US 46 OVER PAULINS KILL **FACILITY** US 46

TOWNSHIP KNOWLTON TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 3 **LENGTH** 174 ft **WIDTH** 91.2 ft

CONSTRUCTION DT 1933 **ALTERATION DT** 1952 **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area, undeveloped except for the highway interchange north of the river. The structure carries a four-lane highway with a mountable median, two shoulders and two sidewalks over Paulin's Kill, a wide, rocky waterway.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span stringer bridge is supported by concrete abutments and piers. The western, original half has encased stringers, but the eastern half, which was placed in 1952, has exposed stringers. When the bridge was widened, the original concrete balustrade was replicated at the new face. The bridge is not technologically or historically distinguished, being a representative example of a common pre-World War II bridge type.

INFOR MATION

PHOTO: 165:8-9 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2108151 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 10.16

NAME & FEATURE INTERSECTED US 46 OVER BRANCH OF PEQUEST RIVER **FACILITY** US 46

TOWNSHIP WHITE TOWNSHIP

TYPE SLAB **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 51 ft **WIDTH** 40 ft

CONSTRUCTION DT 1927 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located adjacent to an early-20th century structure now used as a restaurant. Other residential buildings are nearby. The bridge carries a two-lane highway over a stream discharging into the Pequest River about 50' downstream from the bridge.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span concrete slab bridge is supported by scored concrete abutments with wingwalls. The bridge has an encased stringer at each fascia supporting the standard design concrete balustrades. It is a representative example of a common bridge type. It is not a technologically or historically distinguished structure, being one of over 10 pre-World War II slab bridges in the county.

INFOR MATION

PHOTO: 164:31-32 (07/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2108155 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 16.55

NAME & FEATURE INTERSECTED US 46 OVER HUDSON BRANCH (CONRAIL) **FACILITY** US 46

TOWNSHIP INDEPENDENCE TOWNSHIP

TYPE THRU GIRDER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 3 **LENGTH** 199 ft **WIDTH** 30 ft

CONSTRUCTION DT 1924 **ALTERATION DT** 1952 **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located adjacent to a well-rehabilitated ca.1885 Stick Style railroad station (SR,NR) that serviced Great Meadows. It carries a sidewalk and a 2-lane US highway that curves to cross a single inactive track of the Lehigh & Hudson RR. The line was developed in the 1880s as a connecting route for Lehigh Valley railroads of eastern Pennsylvania to the Hudson River. The line followed the Pequest valley through Warren County, and met with the Sussex Railroad in Sussex County.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Finding 05/07/91

SUMMARY The three-span encased thru-girder bridge is supported by concrete stub abutments and pier columns which are set on plinths. The encased floorbeams directly support the concrete deck. The sidewalk was added in 1952, with connection brackets welded and bolted to the exposed top flange of a girder. The pedestrian barrier is corrugated metal fixed to angles, and the thru girders line the roadway. The bridge is a representative example of a common pre-WWII type and is not distinguished.

INFOR MATION

PHOTO: 184:44,1-4 (08/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2108157 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 17.2

NAME & FEATURE INTERSECTED US 46 OVER PEQUEST RIVER **FACILITY** US 46

TOWNSHIP INDEPENDENCE TOWNSHIP

TYPE THRU GIRDER **DESIGN** PARTIALLY ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 112 ft **WIDTH** 30 ft

CONSTRUCTION DT 1923 **ALTERATION DT** 1962 **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located at the west edge of the village of Vienna, which is dominated by altered 19th century homes. The structure carries a two-lane US highway with narrow shoulders and a sidewalk over a river.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS DOE 10/03/90

SUMMARY The two-span thru-girder bridge is supported by scored and slightly skewed concrete abutments and piers. The floorbeams and the bottom flanges of the girders are encased in concrete. The girders extend just a few inches above the deck, and beam guiderails line the roadway between concrete end posts. The cantilevered sidewalk was added in 1962, and is connected to the stiffeners of the girder, and a chain link fence is the pedestrian barrier. The bridge is a common type, and is not distinguished.

INFOR MATION

PHOTO: 184:8,185:23-26 (08/92) REVISED BY (DATE): QUAD: Washington

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NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2108162 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 21.8

NAME & FEATURE INTERSECTED US 46 OVER MUSCONETCONG RIVER **FACILITY** US 46

TOWNSHIP HACKETTSTOWN TOWN

TYPE THRU GIRDER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 127 ft **WIDTH** 30 ft

CONSTRUCTION DT 1924 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a commercial area of 19th and 20th century buildings in Hackettstown. It carries a busy two-lane US highway and one sidewalk over the Musconetcong River, the boundary between Warren and Morris Counties.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span concrete encased thru-girder bridge bears on scored concrete abutments and a cutwater pier. The floorbeams and sidewalk brackets are also encased, as are the longitudinal diaphragm at the center of the bridge and the sidewalk stringers. The original railing is metal, with concrete posts at the floorbeams. The structure is a representative example of a common pre-World War II bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 179:25A-27A (08/92) REVISED BY (DATE): QUAD: Hackettstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2110154 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 67.0

NAME & FEATURE INTERSECTED WASHINGTON SECONDARY RR OVER NJ 31 **FACILITY** WASHINGTON SECONDARY OF DL&W RR

TOWNSHIP WASHINGTON BOROUGH

TYPE SLAB **DESIGN** CONTINUOUS **MATERIAL** Reinforced Concrete

 # SPANS 4 **LENGTH** 95 ft **WIDTH** 29.5 ft

CONSTRUCTION DT 1931 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in an urban area of post-World War II commercial development and a late-20th century bulk material handling plant. It carries one track in a two-track right-of-way over a four-lane state highway. The line was developed around 1865 by the Morris & Essex Railroad as an extension of their line from Hackettstown to Phillipsburg. It was later leased by the DL&W, who took full control on January 1, 1869.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The four-span concrete slab bridge is continuous over the two roadway spans, with short spans on each end. The slabs are supported by concrete abutments and three-column bents with arched struts. A concrete parapet with chamfered-top posts encloses the ballasted deck that is wide enough for two sets of tracks. The structure is one of over 10 pre-World War II slab bridges in Warren County, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 176:39A-41A (08/92) REVISED BY (DATE): QUAD: Washington

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NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2110155 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 42.82

NAME & FEATURE INTERSECTED NJ 31 OVER SHABBECONG CREEK **FACILITY** NJ 31

TOWNSHIP WASHINGTON BOROUGH

TYPE SLAB **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 39 ft **WIDTH** 119 ft

CONSTRUCTION DT 1930 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a post-World War II commercial area along a busy four-lane state highway. The bridge carries the highway and two sidewalks over a creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The skewed one-span slab bridge sits on concrete abutments. Flared concrete wingwalls are at all four corners of the structure. The plain fascias are marked only by the inscribed date, with posts carrying the double beam guiderail set in the concrete. The structure is one of over 10 extant pre-World War II slab bridges in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 185:16-17 (08/92) REVISED BY (DATE): QUAD: Washington

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2111150 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 67.02

NAME & FEATURE INTERSECTED OLD ROAD BRANCH RR (HAMPTON BRANCH) OVER NJ 31 **FACILITY** OLD ROAD BRANCH RR (HAMPTON BRANCH)

TOWNSHIP WASHINGTON BOROUGH

TYPE SLAB **DESIGN** CONTINUOUS **MATERIAL** Reinforced Concrete

 # SPANS 4 **LENGTH** 148 ft **WIDTH** 28.9 ft

CONSTRUCTION DT 1931 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT **BUILDER**

SETTING / CONTEXT The bridge is located in an area of 20th century commercial development. The bridge crosses the Washington's main thoroughfare, a four-lane state highway. It carries one inactive track in a right-of-way wide enough for two tracks. The line was developed in the 1850s by the Delaware Lackawanna & Western RR as the Warren Railroad, its connection from the Delaware River to the CNJ and after 1868 to the Morris & Essex.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The four-span slab bridge is set on three concrete pier bents and abutments. The bents have four columns each, with arched struts between them, and a cornice across the top. The slab is continuous over the two center spans, with the short end spans simply supported. Concrete parapets enclose the ballasted deck. The structure is not a technologically innovative structure, being one of over 10 pre-World War II slab bridges in Warren County. It is not historically distinguished.

INFOR MATION

PHOTO: 177:6-8 (08/92) REVISED BY (DATE): QUAD: Washington

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2111151 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 44.51

NAME & FEATURE INTERSECTED NJ 31 OVER POHATCONG CREEK **FACILITY** NJ 31

TOWNSHIP OXFORD TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 32 ft **WIDTH** 40 ft

CONSTRUCTION DT 1930 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with scattered residential and commercial structures along the highway. It carries a busy two-lane state route with shoulders over a minor stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge is seated on concrete abutments with flared wingwalls. The stringers are encased, with a plain fascia below the standard State-designed concrete balustrade with attached beam guiderails. The skewed structure is a representative example of the most common pre-World War II bridge type in New Jersey. It is not a technologically or historically distinguished bridge.

INFOR MATION

PHOTO: 178:26-27 (08/92) REVISED BY (DATE): QUAD: Washington

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2111154 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 46.87

NAME & FEATURE INTERSECTED NJ 31 OVER FURNACE BROOK **FACILITY** NJ 31

TOWNSHIP OXFORD TOWNSHIP

TYPE STRINGER **DESIGN** **MATERIAL** Steel, Concrete,

 # SPANS 1 **LENGTH** 30 ft **WIDTH** 82 ft

CONSTRUCTION DT 1920 **ALTERATION DT** 1953 **SOURCE** PLANS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located at the intersection of a state highway and local roads. The large intersection is surrounded by 19th and 20th century commercial structures, and lies within the boundaries of the Oxford Historic District. The period of significance of the State Register district includes the years of 1741-1930, when the iron industry in the area was prospering. There was mining and furnace blasting dominating the town during those years.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Listed. Oxford Industrial Historic District 08/27/1992. Noncontributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single span bridge is a combination of several structures and has been altered such that although within the time period and boundaries of the Oxford Historic District it is not a contributing structure. The 1920 bridge was a steel stringer on concrete abutments built near a short-span stone arch bridge (c.1875) carrying an adjacent street. In 1953 a concrete slab was built between the two bridges to form a larger intersection of the two roads. The bridge is not historically distinguished.

INFOR MATION

Bibliography:
Bridge Files and Plans, No. 2111154. NJDOT. 1920, 1953.
"Oxford Industrial District." National Register Nomination. NJ SHPO. 1992.

Physical Description: The single-span bridge is a composite of stone arch, steel stringer, and reinforced-concrete slab construction. The oldest northern portion of the bridge is an approximately 19'-span stone arch (c.1875) that carries Mill Street into the intersection with NJ 31. The southern end is a skewed 30'-span encased steel stringer (1920) built from approximately 18' to 53' upstream from the stone arch. The middle section of the bridge is a reinforced concrete slab infill (1953) connecting the stone arch and steel stringer portions to form a larger intersection. A concrete post and pipe railing remains at the face of the steel stringer, and a stone parapet at the face of the arch.

The stone arch has been repeatedly repaired and repointed. Portions of the wing walls, spandrel walls, and parapets that were originally coursed have been replaced with uncoursed field stone.

Historical and Technological Significance: The bridge, which has been significantly altered and lacks integrity, is not individually eligible and does not contribute to the Oxford Industrial Historic District. The historic district's areas of significance include industry, community development, and rail transportation, and primarily focus on the local iron furnace and foundry and its various phases of growth and decline. The older portions of the bridge fall within the district's period of significance (1741-1930), but are not well-preserved. Highway transportation systems are not a major theme of the historic district, and the NJ 31 right-of-way carried by the bridge's steel stringer portion was not developed until 1920. The bridge is not directly related to the town's historic landscape as it grew up around the iron industry. The factories shut down in the 1920s, and the construction of the state highways is not an important story to the impact of the iron industry's decline on the community's development. The bridge is not a contributing resource to the historic district.

Another bridge in the historic district, Washington Avenue over Furnace Brook (2101719, c.1910, Oxford Township), is a well-preserved steel stringer with original lattice railings. It carries the town's historic main thoroughfare over Furnace Brook and is rated a contributing structure.

PHOTO: 177:36-39 (08/92) REVISED BY (DATE): QUAD: Washington

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NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2111155 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 48.95

NAME & FEATURE INTERSECTED NJ 31 OVER PEQUEST RIVER AND ABANDONED RAILROAD **FACILITY** NJ 31

TOWNSHIP WHITE TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 2 **LENGTH** 116 ft **WIDTH** 30 ft

CONSTRUCTION DT 1922 **ALTERATION DT** **SOURCE** PLAQUE/PLANS

DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded area with a few mid-20th century commercial structures. It carries a busy two-lane state route over a river and an abandoned railroad right-of-way from the Lehigh and Hudson River RR. The line was developed in the 1880s, connecting the Lehigh Valley in Pennsylvania with the Hudson River via the Sussex Railroad and existing railroads on the west side of the Delaware River. The route follows the Pequest River valley through Warren County.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span reinforced concrete deck arch bridge is a high-rise structure. The arches, piers and spandrel walls are scored below the concrete balustrade. The posts of the balustrade are paneled, with a plaque noting the dual funding by the State and the Lehigh and Hudson River Railroad, though it was designed by the county engineer. The bridge is one of over 15 extant pre-World War II reinforced concrete deck arches in Warren County, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 164:27-30 (07/92) REVISED BY (DATE): QUAD: Belvidere

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2114159 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 73.17

NAME & FEATURE INTERSECTED DL&W RR NJ CUT-OFF OVER I-80, DELAWARE RIVER **FACILITY** DL&W RR NEW JERSEY CUT-OFF (MP 73.17)

TOWNSHIP KNOWLTON TOWNSHIP

TYPE OPEN SPANDREL ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 9 **LENGTH** 1450 ft **WIDTH** 28 ft

CONSTRUCTION DT 1911 **ALTERATION DT** **SOURCE** RR RECORDS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER** SMITH, MCCORMICK CO.

SETTING / CONTEXT The Delaware River Viaduct of the DL&W RR's New Jersey Cutoff crosses a five-lane interstate highway and the Delaware River. The right-of-way is abandoned. It is wide enough for two tracks at this point. Its construction was a major engineering accomplishment, and is a significant element in the development of transportation in northwestern New Jersey. Massive cuts, fills and viaducts were built to eliminate extreme grade changes and curves for trains travelling across New Jersey.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Individually Eligible. Agreed Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The 9-span reinforced concrete viaduct has 7 open-spandrel arch spans. The elliptical arches are supported on hollow piers. There are 8 spandrel arches in the 120' end spans and 10 arches per span over the river (150'per span). The deck is enclosed by a concrete post and metal pipe railing. The nearly complete viaduct is an individually technologically distinguished example of its bridge type, and it is also significant for its historical association with the important NJ Cut-Off of the DL&W RR.

INFOR MATION

BIBLIOGRAPHY:
Wheaton, F.L., "The New Cut-off Line of the Lackawanna Railroad", Engineering News, Vol.60, No.7, August 13, 1908.
Short summary of DL&W Cut-off, Engineering News, Vol.60, No.3, July 16, 1908. pg.72.
"Some Concrete Culverts and Small Bridges on the Slateford-Hopatcong Cut-off of the Delaware, Lackawanna & Western R.R.", Engineering News, Vol.62, No.14, September 30, 1909.
Condit, Carl W., American Building Art The Twentieth Century, 1961.
Taber, Thomas Townsend, The Delaware, Lackawanna & Western Railroad in the Nineteenth Century. 1977.
Taber, T.T. and Taber, T.T. III, The Delaware, Lackawanna & Western Railroad in the Twentieth Century, Vols. I and II. 1980.
Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.

Physical Description: The 9-span reinforced concrete viaduct has 7 open spandrel elliptical arch spans and 2 barrel arch spans at the west end. The 1450' long structure has 5 spans of 150' and 2 spans of 120'. The longer spans have ten spandrel arches per span, but the shorter spans have only eight. The fascias of the bridge are not finely detailed, though the piers have stylized pilasters. The railings are composed of concrete posts and 2-high metal pipe rails, with parapet-enclosed refuge bays at the piers. The ballasted deck no longer carries tracking, and the abandonment of the line has allowed vegetation to grow through the ballast. The concrete is deteriorating in some areas of the bridge due to the lack of maintenance.

Historical and Technological Significance: The New Jersey Cut-Off, built in 1908-1911, is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a

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November 12 , 2002

whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the old 1851 Warren Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed where the cut-off crossed over roads or small waterways. These structures often supported high fill embankments as the cut-off crossed a valley. Over 35 of these structures were built along the line, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

The viaduct is also individually eligible, in and of itself, including superstructure, substructure, and right-of-way over the water feature and highways.

PHOTO: 165:10-18,20-25 (07/92) REVISED BY (DATE): QUAD: Portland

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2117152 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 71.1

NAME & FEATURE INTERSECTED DL&W RR NJ CUT-OFF OVER NJ 94 **FACILITY** DL&W RR NEW JERSEY CUT-OFF (MP 71.10)

TOWNSHIP KNOWLTON TOWNSHIP

TYPE ARCH **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 44 ft **WIDTH** 227 ft

CONSTRUCTION DT 1909 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with working farms and scattered 20th century residences. The structure carries the overgrown right-of-way of the New Jersey Cutoff over a two-lane state route with shoulders. The RR was carried on a high fill at this point between the Delaware River and Paulins Kill Viaducts. The construction of the cut-off was a major engineering accomplishment of its day, which was constructed with major cuts and fills and avoided creating any highway railroad grade crossings along its 28.45 mile length.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Delaware, Lackawanna & Western Railroad New Jersey Cutoff Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 3/22/94, Letter 03/12/01.

SUMMARY The arch tunnel is of the standard design used by the DL&W RR on the 1908-1911 New Jersey Cut-Off. The reinforced concrete arch is flanked by sloping, skewed wingwalls that retain the fill used to build the right-of-way. The slope descends to just a few feet above the crown of the arch. The NJ Cut-Off is a technologically significant engineering achievement noted for its use of reinforced concrete for bridges and structures and for completely grade separating the railroad and highway crossings. The tunnel arch contributes to the significance of the r-o-w. The structure is not individually eligible for listing in the National Register of Historic Places, but is a contributing element of the Delaware, Lackawanna & Western Railroad New Jersey Cutoff Historic District under Criteria A and C.

INFOR MATION

BIBLIOGRAPHY:

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Condit, Carl W., American Building Art The Twentieth Century, 1961.Taber, Thomas Townsend, The Delaware, Lackawanna & Western Railroad in the Nineteenth Century. 1977.
Taber, T.T. and Taber, T.T. III, The Delaware, Lackawanna & Western Railroad in the Twentieth Century, Vols. I and II. 1980.
Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.

Physical Description: The reinforced concrete arch tunnel carries the railroad on a high fill over a two-lane highway. The barrel-arch is flanked by sloping, skewed wingwalls that retain the fill used to create the grade for the New Jersey Cut-Off. The skewed structure spans 44 feet (on skew) and is 227 feet wide. The fill slopes to just a few feet above the crown of the arch at each face. There is no railing at the top of the structure. Several utility lines run under the bridge, supported by brackets attached to its faces and intrados.

Historical and Technological Significance: The New Jersey Cut-Off, of which this arched tunnel is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new

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November 12 , 2002

DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the old 1851 Warren Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed where the cut-off crossed over roads or small waterways. These structures often supported high fill embankments as the cut-off crossed a valley. Over 35 of these structures were built along the line, according to secondary sources, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: 186:8 (07/92) REVISED BY (DATE): QUAD: Portland

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2117154 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 3.1

NAME & FEATURE INTERSECTED NJ 94 OVER YARD'S CREEK **FACILITY** NJ 94

TOWNSHIP KNOWLTON TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 28 ft **WIDTH** 29 ft

CONSTRUCTION DT 1913 **ALTERATION DT** **SOURCE** COUNTY RECORDS

DESIGNER/PATENT F. W. SALMON, COUNTY ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located a the edge of the late-19th century village of Hainesburg that consists of altered vernacular houses and has no historic district potential. The structure carries a two-lane state route over a creek.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span elliptical arch bridge is constructed of reinforced concrete. The structure is very plain, its presence discernable from the roadway only by the beam guiderail that crosses it. The bridge is not technologically or historically distinguished, being one of over 15 pre-World War II reinforced concrete deck arches in the county.

INFOR MATION

PHOTO: 166:11-12 (07/92) REVISED BY (DATE): QUAD: Portland

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION
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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2117157 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 7.99

NAME & FEATURE INTERSECTED NJ 94 OVER JACKSONBURG CREEK **FACILITY** NJ 94

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE SLAB **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 2 **LENGTH** 45 ft **WIDTH** 40.1 ft

CONSTRUCTION DT 1931 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded setting, with a late-19th century home that has been converted to commercial use nearby. The bridge is located next to the intersection of a state route and a local road. It carries the two-lane state route with shoulders over a stream.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span reinforced concrete slab bridge is simply supported on concrete abutments and pier. The balustrade along both faces of the bridge is a State Highway Department standard design with inscribed end posts. Beam guiderails have been added to the inside face. The bridge is not technologically or historically distinguished, being one of over 10 remaining pre-World War II slab bridges in Warren County.

INFOR MATION

PHOTO: 166:15-17 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2117159 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 9.09

NAME & FEATURE INTERSECTED NJ 94 OVER BLAIR CREEK **FACILITY** NJ 94

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 60 ft **WIDTH** 40 ft

CONSTRUCTION DT 1929 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located on the modern, commercial edge of Blairstown, a 19th century village with added 20th century commercial buildings. It carries a two-lane state route with shoulders over a creek. The state route was built as a bypass to the historic center of Blairstown.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span stringer bridge is supported on concrete abutments and a cutwater pier. The encased stringers support a concrete deck that is flanked by standard State-designed concrete balustrades. Beam guiderails also cross the bridge in front of the balustrades. The bridge is one of over 65 remaining pre-World War II stringer bridges in Warren County. It is not a technologically or historically distinguished structure.

INFOR MATION

PHOTO: 166:24-25 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2117160 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 9.18

NAME & FEATURE INTERSECTED NJ 94 OVER PAULINS KILL **FACILITY** NJ 94

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 3 **LENGTH** 161 ft **WIDTH** 40.1 ft

CONSTRUCTION DT 1931 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area on the west side of Blairstown, a 19th century village with later commercial infill. It carries a busy two-lane state route with shoulders over a river. The intersection of the state route with a county route is adjacent to the structure. NJ 94 was built as a bypass of the historic center of Blairstown.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The three-span encased stringer bridge is supported on a concrete substructure. The abutments and cutwater piers are horizontally scored. The fascia encasement is panelled below the standard State Highway Department designed concrete balustrades. Beam guiderail has been attached to the inside faces of the balustrades. The bridge is not technologically or historically distinguished, being one of over 65 remaining pre-World War II stringer bridges in Warren County.

INFOR MATION

PHOTO: 166:22-23 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
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November 12 , 2002

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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2117161 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 9.31

NAME & FEATURE INTERSECTED NJ 94 OVER NEW YORK SUSQUEHANNA & WESTERN RR **FACILITY** NJ 94

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE THRU GIRDER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 95 ft **WIDTH** 39.7 ft

CONSTRUCTION DT 1931 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located just east of the village of Blairstown, in a wooded area. It carries a two-lane, two-shoulder state route over an abandoned RR right-of-way that is used for access to a small municipal park. The line was initially chartered in 1832 as the New Jersey Midland Railway Company primarily to transport the coal products of eastern Pennsylvania. The line was reorganized in 1880 and was called the New York Susquehanna & Western RR. The line was abandoned in 1958.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span thru-girder bridge bears on scored concrete abutments with sloped wingwalls. The encased floorbeams are framed perpendicular to the girders, which are also encased. The bridge is constructed on a large skew. Beam guiderails cross the bridge inside the girder webs. The bridge is representative example of a common pre-World War II type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 167:16-18 (07/92) REVISED BY (DATE): QUAD: Blairstown

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NEW JERSEY DEPARTMENT OF TRANSPORTATION
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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2119150 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 0.4

NAME & FEATURE INTERSECTED NJ 163 OVER US 46 **FACILITY** NJ 163

TOWNSHIP KNOWLTON TOWNSHIP

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 4 **LENGTH** 97 ft **WIDTH** 30 ft

CONSTRUCTION DT 1932 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with some early- to mid-20th century commercial structures nearby. It is adjacent to structure 2107150, an abandoned RR right-of-way over the same federal highway. The bridge carries an abandoned road over the two-lane highway.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Finding 11/24/92

SUMMARY The skewed four-span bridge is composed of two stringer spans over the roadway and two slab end spans. The encased stringers are supported on eight-column reinforced concrete bents. The abutments are also concrete. The balustrade is a standard State-designed type, with Moderne-styled cornices above the piers at both faces. The bridge is a representative example of a common pre-World War II bridge type, and is not technologically or historically distinguished.

INFOR MATION

PHOTO: 164:12,14 (07/92) REVISED BY (DATE): QUAD: Portland

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2140150 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 75.52

NAME & FEATURE INTERSECTED LEHIGH VALLEY MAIN LINE RR OVER US 22 ALT (SOUTH MAIN ST) **FACILITY** LEHIGH VALLEY MAIN LINE RAILROAD

TOWNSHIP PHILLIPSBURG TOWN

TYPE DECK GIRDER **DESIGN** **MATERIAL** Steel

 # SPANS 1 **LENGTH** 102 ft **WIDTH** 22.8 ft

CONSTRUCTION DT 1902 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT LEHIGH VALLEY RR ENGINEERS OFF **BUILDER**

SETTING / CONTEXT The bridge is located in an urban neighborhood of early-20th century dwellings in Phillipsburg. It carries one track in a two-track right-of-way over a two-lane city street with sidewalks. Phillipsburg was forever changed in the 1850s by the entrance of the railroads. In 1855 the Lehigh Valley RR, the third line in Phillipsburg, built a bridge across the Delaware River to Easton.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span deck-girder bridge is seated on high, coursed ashlar abutments with concrete wingwalls. Two pairs of steel girders support open decks. K-bracing is present between the girders that are paired together, but not between the pairs. The span is a well-preserved example of a common bridge type that is extremely well represented in northern New Jersey. It is neither technologically nor historically distinguished, and postdates the historically significant period of railway development.

INFOR MATION

PHOTO: 172:18-19 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2140151 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 74.69

NAME & FEATURE INTERSECTED LEHIGH VALLEY MAIN LINE RR OVER US 22 ALT, LOPATCONG CREEK **FACILITY** LEHIGH VALLEY MAIN LINE RAILROAD

TOWNSHIP PHILLIPSBURG TOWN

TYPE DECK GIRDER **DESIGN** **MATERIAL** Steel

 # SPANS 5 **LENGTH** 392 ft **WIDTH** 31 ft

CONSTRUCTION DT 1913 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT LEHIGH VALLEY RR ENGINEERS OFF **BUILDER**

SETTING / CONTEXT The bridge is located at the southern edge of Phillipsburg. It carries one active track, though it is wide enough for two, and it crosses two two-lane roads and a creek that was part of the Morris Canal. Adjacent to the bridge is Green's Bridge, a five-span ashlar arch structure built in 1865 by the CNJ RR and considered eligible for the NR by NJT. The two bridge decks are approximately the same elevation, about 70' above the creek bed.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Listed. Morris Canal. 10/01/1974. Noncontributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The 5-span deck-girder bridge replaced an earlier span carried on ashlar abutments and piers that form part of the substructure for the present superstructure on a slightly realigned r-o-w. The abutments were widened with concrete extensions and new concrete seats were added to the abutments. Pairs of girders are braced with bottom K-bracing and diaphragm bracing. Though a large structure, the 1913 bridge is an example of a common type, and is not technologically nor historically distinctive.

INFOR MATION

PHOTO: 172:18-25 (07/92) REVISED BY (DATE): QUAD: Easton

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NJDOT updated data 03-01-2001.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2150160 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED GREENWICH STREET (CR 620) OVER LEHIGH & HUDSON RR **FACILITY** GREENWICH STREET (CR 620)

TOWNSHIP BELVIDERE TOWN

TYPE THRU GIRDER **DESIGN** PARTIALLY ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 56 ft **WIDTH** 30 ft

CONSTRUCTION DT 1928 **ALTERATION DT** **SOURCE** PLAQUE/PLANS

DESIGNER/PATENT LEHIGH & HUDSON RR ENGNRS OFF **BUILDER** AMERICAN BRIDGE COMPANY

SETTING / CONTEXT The bridge is located at the south edge of Belvidere, in a less densely populated area of late-19th and 20th century residences. It carries a two-lane county road over a two-track abandoned right-of-way with one inactive track remaining. The line was developed by the Lehigh and Hudson River RR in the 1880s, it connected railroads of the Lehigh Valley of Pennsylvania to the Sussex Railroad in New Jersey which ran to the Hudson River, following the Pequest River valley in Warren County.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The steel thru-girder bridge rests on scored concrete abutments that are set on rock outcrops. The bottom flanges of the girders are encased, as are the floorbeams supporting the concrete deck. Beam guiderails cross the bridge in front of the girders. The structure is a representative example of a common pre-World War II bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 29:12A-13A (07/92) REVISED BY (DATE): QUAD: Belvidere

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2151161 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED PRIVATE ROAD OVER LEHIGH VALLEY RR **FACILITY** PRIVATE ROAD

TOWNSHIP GREENWICH TOWNSHIP

TYPE PONY TRUSS **DESIGN** WARREN **MATERIAL** Iron

 # SPANS 3 **LENGTH** 128 ft **WIDTH** 15.3 ft

CONSTRUCTION DT 1901 **ALTERATION DT** 1939 **SOURCE** PLANS

DESIGNER/PATENT LEHIGH VALLEY RR ENGINEERS OFF **BUILDER** AMERICAN BRIDGE COMPANY

SETTING / CONTEXT The bridge is located in an isolated wooded setting. It carries an unimproved road over a single active track. The line was developed in the 1870s by the Lehigh Valley RR. In 1855 they had crossed the Delaware River at Phillipsburg and then used the CNJ for transportation across New Jersey. In the 1870s it became important for them to have their own line so they built the Easton & Amboy RR to the ports at Perth Amboy. Since 1976 Conrail has owned and operated the line.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The 3-span bridge has three span types: a stringer span, a pony truss middle span and a thru-girder span. The abutments are concrete, with built-up steel column-and-lateral-bracing bents. The riveted Warren truss span is built-up from channel and angle sections, plates and lacing. The timber deck is supported on timber stringers throughout the bridge, with rolled floorbeams on the truss and built-up girder span. The bridge is a well-preserved structure, and is a significant example of its type.

INFOR MATION

Bibliography:
NJDOT Plan File. Conrail 0501:70.72.
Snell, James. History of Sussex and Warren Counties, New Jersey. Philadelphia: Everts and Peck, 1881.

Physical Description: The 3-span bridge is composed of a pony truss, a stringer, and a thru girder span supported on ashlar abutments and built up bents set on stone plinths. The main span is a 55'-long 5-panel riveted Warren with verticals pony truss span. The knee braces or outriggers are original, as are the 3-high pipe railings on the inner face of the trusses. The top chord is a built-up box member while the verticals are composed of angle section with both battens and lacing stiffening. The stringers and deck are timber. The built-up thru girder span is topped with pipe railing as is the rolled steel stringer span. The flared steel bents are built-up members with lateral bracing.

Historical and Technological Significance: The 3-span private road railroad overpass bridge erected in 1901 is technologically significant as a well-preserved and documented example of a bridge type commonly used for grade crossing eliminations in central and northern New Jersey (Criterion C). Examples of the same pony truss bridge type over the same rail line are also found in Somerset County (1851160, Farm Road over Conrail (c.1900), Branchburg Township; 1851161, Black Point Road over Conrail (1910), Branchburg Township), but are not considered eligible due to alterations and poor condition. The private road span, identified as being fabricated in iron on the 1900 plans, was designed by the Office of the Engineer of the Easton & Amboy Division of the Lehigh Valley Railroad, an important anthracite hauler that developed its own line across New Jersey to Perth Amboy in the early 1870s. The 1900 bridge was fabricated by the newly formed American Bridge Company. The construction details of the bridge, which is composed of one riveted Warren pony truss span, one built-up plate girder thru girder span, and one steel stringer span supported on ashlar abutments and built-up bents, are typical of the turn-of-the-century period. The knee braces, or outriggers, are an original detail as are the pipe railings. With the exception of 1939 repairs made to the deteriorated sections of the rolled floor beams, the bridge is remarkably complete making it a noteworthy example of ca. 1900 bridge technology.

Boundary Description and Justification: Because the bridge is individually distinguished, the boundary is limited to the superstructure and substructure of the bridge itself.

PHOTO: 168:34-38 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

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NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2152160 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED FOUL RIFT ROAD OVER LEHIGH & HUDSON RIVER RR **FACILITY** FOUL RIFT ROAD

TOWNSHIP WHITE TOWNSHIP

TYPE SLAB **DESIGN** **MATERIAL** Wood

 # SPANS 1 **LENGTH** 39 ft **WIDTH** 13 ft

CONSTRUCTION DT 1926 **ALTERATION DT** 1986 **SOURCE** COUNTY ENGINEER

DESIGNER/PATENT WARREN COUNTY ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located on a winding road lined with 1920s cottages along the Delaware River. The one-lane bridge carries the road over a one-track abandoned right-of-way. The line was developed by the Belvidere-Delaware Railroad in the early 1850s. This portion was finished by 1854, completing the line along the Delaware River from Trenton to Belvidere. The line was important in the transportation of materials down the river, where only boats were able to carry freight earlier.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY In 1986 the thru girder and floorbeams bridge formerly at the railroad crossing was replaced with a glue-laminated timber slab superstructure but the exterior thru girders were retained as railings. The abutments are rubble-course stone on rock outcrops, and have concrete seats supporting the deck. Bolted connections hold the girders near the slab for pedestrian protection. The superstructure is not old enough to be evaluated a historic structure.

INFOR MATION

PHOTO: 29:18A-22A (07/92) REVISED BY (DATE): QUAD: Belvidere

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NJDOT updated data 03-01-2001.

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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2153160 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 72.21

NAME & FEATURE INTERSECTED STARK ROAD OVER DL&W RR NEW JERSEY CUT-OFF **FACILITY** STARK ROAD

TOWNSHIP KNOWLTON TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 79 ft **WIDTH** 20 ft

CONSTRUCTION DT 1910 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded, undeveloped area. It carries a two-lane road over the overgrown two-track right-of-way of the Delaware Lackawanna & Western RR's New Jersey Cutoff. The development of the r-o-w straightened the coal-hauling line's route through the state. The project was a major engineering accomplishment for its day, and the route provides a historic context. It is an important element in the transportation history of New Jersey.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Agreed Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced concrete arch bridge is skewed and has concrete balustrades with oval piercing. It is similar to other deck arch bridges in Warren & Sussex counties that are part of the DL&W RR's New Jersey Cut-Off, an ambitious engineering project undertaken 1908-1911. The route was composed exclusively of 73 reinforced concrete structures. This bridge is significant as part of the historically and technologically important railroad improvement campaign. It is well preserved.

INFORMATION

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Taber, T.T. and Taber, T.T. III, The Delaware, Lackawanna & Western Railroad in the Twentieth Century, Vols. I and II. 1980.
Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.

Physical Description: The one-span reinforced concrete deck arch bridge is skewed. The skewback foundations of the structure are set on rock, as the bridge carries a two-lane road over a cut section of the railroad right-of-way. The concrete balustrades are pierced with ovals. The roadway exhibits a vertical crest curve over the elliptical arch bridge. The construction date (1910) is inscribed at the crown of the arch in the western fascia. The right-of-way is overgrown at this point.

Historical and Technological Significance: The New Jersey Cut-Off, of which this deck arch bridge is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information

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gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the 1860s Morris & Essex Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed where the cut-off crossed over roads or small waterways. These structures often supported high fill embankments as the cut-off crossed a valley. Over 35 of these structures were built along the line, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical

connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: 165:31-33 (07/92) REVISED BY (DATE): QUAD: Portland

NEW JERSEY DEPARTMENT OF TRANSPORTATION
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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2153161 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 65.62

NAME & FEATURE INTERSECTED DIRT FARM ROAD OVER DL&W RR NEW JERSEY CUT-OFF **FACILITY** DIRT FARM ROAD

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 89 ft **WIDTH** 12 ft

CONSTRUCTION DT 1911 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area, and is inaccessible by vehicle. The road that was originally carried by the bridge has not been maintained and has become overgrown. The one-lane structure passes over the Delaware Lackawanna & Western Railroad's New Jersey Cutoff, one of the major engineering accomplishments of the early-20th century. Its development increased the efficiency of the DL&W RR's freight-carrying trains bringing Pennsylvania coal to the New York Harbor.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Agreed Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced-concrete arch bridge on a private road was inaccessible to inspection. Bridge plans show the span to be similar to at least 12 other highway overpasses along the New Jersey Cut-Off. Assuming that field check demonstrates the bridge retains its integrity, it is eligible as a contributing structure to the DL&W's New Jersey Cut-Off right-of-way. The Cut-Off is noted for its early and exclusive use of reinforced concrete structures.

INFOR MATION

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Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.

Physical Description: The one-span reinforced concrete deck arch bridge carries an unmaintained private road over a cut section of the railroad right-of-way. The roadway has become overgrown and the bridge is inaccessible, and it was not field inspected. Plans for the bridge show a well-detailed structure with scored spandrels above the elliptical arch. The concrete balustrades have concrete posts framing panels that are pierced with diamond shapes. A concrete rail is also diamond-shaped as it spans the concrete posts above the pierced panels. According to an unnamed person who lives near the structure, the bridge is still in place and has not been altered.

Historical and Technological Significance: The New Jersey Cut-Off, of which this deck arch bridge is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included. The DL&W offered property owners a choice for private farm roads such as this: they could have a bridge built across the right-of-way or they could sell the land on the opposite side of the tracks to the rail company. This bridge is representative of a bridge that was built for an owner who decided to retain his property on both sides of the track.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the 1860s Morris & Essex Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed where the cut-off crossed over roads or small waterways. These structures often supported high fill embankments as the cut-off crossed a valley. Over 35 of these structures were built along the line, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of

the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: NONE (07/92) REVISED BY (DATE): QUAD: Blairstown

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2153162 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED HELLER HILL ROAD OVER DL&W RR NEW JERSEY CUT-OFF **FACILITY** HELLER HILL ROAD

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 71 ft **WIDTH** 24 ft

CONSTRUCTION DT 1910 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with sparse development. It carries a two-lane road over the abandoned right-of-way of the Delaware Lackawanna & Western Railroad's New Jersey Cut-Off. The project eliminated extreme grade changes and limited curves across the hilly terrain of northwestern New Jersey, greatly increasing train efficiency. The construction of the cut-off was a major engineering accomplishment of its day, and the route provides a historic context.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Agreed Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The skewed one-span reinforced concrete deck-arch bridge is a high-rise structure on concrete abutments. It has a concrete balustrade with oval piercings typical of many of the New Jersey Cut-Off bridges. The bridge is one of 12 reinforced concrete deck-arch bridges along the 28.5 mile route. Though not individually significant, the bridge contributes to the important railroad-improvement campaign. The cut off is noted for its exclusive use of reinforced concrete for all its structures.

INFOR MATION

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NJDOT Bridge File: Scranton Br. RR; 64.40.

Physical Description: The one-span reinforced concrete elliptical deck arch bridge is skewed. The skewback foundations of the structure are set on rock, as the bridge carries a two-lane road over a cut section of the railroad right-of-way. The concrete balustrades are pierced with ovals, with skewed balustrades at the approaches. The construction date (1910) is inscribed at the crown of the arch in the fascia. The right-of-way is overgrown at this point, and the asphalt-paved deck has vegetation growing along both curblines.

Historical and Technological Significance: The New Jersey Cut-Off, of which this deck arch bridge is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County). From there the coal could be moved eastward to Elizabethport (Union County). In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a

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whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the 1860s Morris & Essex Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed. These structures often supported high fill embankments. Over 35 of these structures were built along the line, according to secondary sources, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: 167:22,185:35-36 (07/92) REVISED BY (DATE): QUAD: Blairstown

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2153163 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CR 521 OVER DL&W RR NEW JERSEY CUT-OFF **FACILITY** CR 521

TOWNSHIP BLAIRSTOWN TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 65 ft **WIDTH** 18 ft

CONSTRUCTION DT 1910 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with scattered residences from the 19th and 20th centuries. The one-lane bridge on a sharp curve carries a county road over the right-of-way of the Delaware Lackawanna & Western RR NJ Cut-Off. The abandoned r-o-w was cut through rock at this point, one of the major landscape changes brought about by the line's development. The construction of the cut-off was a major engineering accomplishment of its day, and the route provides a historic context.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Agreed Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The reinforced concrete elliptical arch bridge is set on high-rise concrete skewbacks. The bridge has diamond-pierced balustrades with a concrete rail above the pierced panels. The bridge is one of twelve of its type built from 1908 to 1911 on the railroad's route. It is significant as a contributing element to the DL&W RR's New Jersey Cut-Off right-of-way, an important railway-improvement campaign noted for its exclusive use of reinforced concrete.

INFOR MATION

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Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.

Physical Description: The one-span reinforced concrete deck arch bridge is skewed. The skewback foundations of the structure are set on rock, as the bridge carries a two-lane road over a cut section of the railroad right-of-way. The concrete balustrades have posts framing panels with diamond-shaped piercings. A concrete rail spans between the posts above the panels. The roadway approach has a sharp curve at the north end of the elliptical-shaped deck arch bridge.

Historical and Technological Significance: The New Jersey Cut-Off, of which this deck arch bridge is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information

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gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the 1860s Morris & Essex Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed where the cut-off crossed over roads or small waterways. These structures often supported high fill embankments as the cut-off crossed a valley. Over 35 of these structures were built along the line, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical

connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: 167:19-21 (07/92) REVISED BY (DATE): QUAD: Blairstown

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2153164 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED OLD DIRT ROAD OVER DL&W RR NJ CUT-OFF **FACILITY** OLD DIRT ROAD

TOWNSHIP FRELINGHUYSEN TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 65 ft **WIDTH** 18 ft

CONSTRUCTION DT 1911 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in an isolated area, and carries an unimproved road that is the driveway to a farm over an abandoned railroad right-of-way. The line is the Delaware Lackawanna & Western Railroad's New Jersey Cut-Off, built 1908-1911. The Cut-Off involved huge amounts of cutting, filling and reinforced concrete bridge construction to eliminate extreme grade changes and limit curves. It was a major engineering accomplishment of its day, and the route provides a historic context.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Agreed Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced concrete arch bridge sits on high rise concrete skewbacks. The bridge has concrete balustrades typical of oval-pierced balustrades of the cut-off bridges. The structure is one of 12 of its type along the route. It is an example of the railroad's effort to provide access for even minor existing roads over the new r-o-w. The DL&W New Jersey Cut-Off is a historically and technologically important railroad-improvement campaign noted for its use of reinforced concrete.

INFOR MATION

BIBLIOGRAPHY:
Wheaton, F.L., "The New Cut-off Line of the Lackawanna Railroad", Engineering News, Vol.60, No.7, August 13, 1908.
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"Some Concrete Culverts and Small Bridges on the Slateford-Hopatcong Cut-off of the Delaware, Lackawanna & Western R.R.", Engineering News, Vol.62, No.14, September 30, 1909.
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Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.

Physical Description: The one-span reinforced concrete elliptical deck arch bridge is skewed. The skewback foundations of the structure are set on rock, as the bridge carries an unimproved road over a cut section of the railroad right-of-way. The concrete balustrades are pierced with ovals, with skewed sections at the approaches. The construction date (1911) is inscribed at the crown of the arch. The bridge is representative of the DL&W's commitment to provide bridges across their right-of-way for even minor roads and farm roads that existed prior to the line's construction. The right-of-way is now overgrown at this point.

Historical and Technological Significance: The New Jersey Cut-Off, of which this deck arch bridge is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included. The DL&W offered property owners a choice for private farm roads such as this: they could have a bridge built across the right-of-way or they could sell the land on the opposite side of the tracks to the rail company.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.
Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US
November 12 , 2002

DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the 1860s Morris & Essex Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed where the cut-off crossed over roads or small waterways. These structures often supported high fill embankments as the cut-off crossed a valley. Over 35 of these structures were built along the line, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: 167:14-15 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2153165 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED CR 608 OVER DL&W RR NEW JERSEY CUT-OFF **FACILITY** CR 608 (SILVER LAKE - MARKSBORO ROAD)

TOWNSHIP FRELINGHUYSEN TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 62 ft **WIDTH** 21 ft

CONSTRUCTION DT 1911 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with scattered residences. It carries a two-lane county road over an abandoned railroad right-of-way, developed in 1908-1911 as the Delaware Lackawanna & Western Railroad's New Jersey Cut-Off, an ambitious project which minimized curves and grade changes to bring trains across northwestern New Jersey more efficiently. The successful project was a major engineering accomplishment of its day, and the route provides a historic context.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Agreed Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced concrete elliptical arch bridge is set on high rise skewbacks. The skewed bridge has concrete balustrades typical of the oval-pierced balustrades of the cut-off bridges. The structure is one of 12 of its type along the route. The New Jersey Cut-Off is a historically important railroad-improvement campaign noted for its exclusive use of reinforced concrete structures. This bridge, like the others, is unaltered, and it contributes to the design integrity of the route.

INFOR MATION

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Wheaton, F.L., "The New Cut-off Line of the Lackawanna Railroad", Engineering News, Vol.60, No.7, August 13, 1908.
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"Some Concrete Culverts and Small Bridges on the Slateford-Hopatcong Cut-off of the Delaware, Lackawanna & Western R.R.", Engineering News, Vol.62, No.14, September 30, 1909.
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Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.

Physical Description: The one-span reinforced concrete elliptical deck arch bridge is skewed. The skewback foundations of the structure are set on rock, as the bridge carries a two-lane road over a shallow cut section of the railroad right-of-way. The concrete balustrades are pierced with ovals, and have skewed sections at the approaches. The roadway curves at the north approach. The construction date (1911) is inscribed in the panel of the balustrade post at the center of the span. The right-of-way is overgrown at this point.

Historical and Technological Significance: The New Jersey Cut-Off, of which this deck arch bridge is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information

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gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the 1860s Morris & Essex Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed where the cut-off crossed over roads or small waterways. These structures often supported high fill embankments as the cut-off crossed a valley. Over 35 of these structures were built along the line, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical

connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: 167:10-11 (07/92) REVISED BY (DATE): QUAD: Blairstown

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2153166 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED LANNING ROAD OVER DL&W RR NJ CUT-OFF **FACILITY** LANNING ROAD

TOWNSHIP FRELINGHUYSEN TOWNSHIP

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 62 ft **WIDTH** 18 ft

CONSTRUCTION DT 1911 **ALTERATION DT** **SOURCE** INSCRIPTION/PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with sparse residential development. The one-lane structure carries a winding road over the abandoned railroad right-of-way that was developed in 1908-1911 by the Delaware Lackawanna & Western RR as the New Jersey Cut-Off, a line built to increase efficiency by decreasing curves and eliminating extreme grade changes. The construction of the DL&W Cut-Off was a major engineering accomplishment of its day, and the route provides a historic context.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Agreed Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span reinforced concrete deck arch bridge is set on high-rise skewbacks. The oval-pierced concrete balustrade follows the vertical crest curve of the roadway over the span. The bridge is one 12 reinforced concrete deck-arch bridges along the 28.5 mile cut-off. Though not individually significant, the bridge contributes to the historically and technologically important railroad-improvement campaign. The cut-off is noted for its exclusive use of concrete for all of its structures.

INFOR MATION

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Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.
NJDOT Bridge File: Scranton Branch RR; 62.19.

Physical Description: The one-span reinforced concrete deck arch bridge has skewback foundations set on rock. The bridge carries a two-lane road over a deep cut section of the railroad right-of-way. The concrete balustrades are pierced with ovals, with beam guiderails lining the approaches. The roadway exhibits a vertical crest curve over the elliptical arch bridge. The construction date (1911) is inscribed at the crown of the arch. The right-of-way is overgrown at this point, and the asphalt-paved deck has debris accumulating and vegetation growing along the curblines.

Historical and Technological Significance: The New Jersey Cut-Off, built in 1908-1911, is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The railroad's use of reinforced concrete for all of the structures built along the road did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County). From there the coal could be moved eastward to Elizabethport (Union County). In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.
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whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the 1860s Morris & Essex Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed. These structures often supported high fill embankments. Over 35 of these structures were built along the line, according to secondary sources, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: 167:8-9,185:27-26 (07/92) REVISED BY (DATE): QUAD: Blairstown

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154160 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.4

NAME & FEATURE INTERSECTED SOUTH MAIN STREET (US 22 ALT) OVER WASHINGTON SECONDARY RR **FACILITY** SOUTH MAIN STREET (US 22 ALTERNATE)

TOWNSHIP PHILLIPSBURG TOWN

TYPE STRINGER **DESIGN** ENCASED **MATERIAL** Steel

 # SPANS 2 **LENGTH** 53 ft **WIDTH** 36 ft

CONSTRUCTION DT 1910 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge, located in an urban area dominated by ca. 1900 residences, carries a two-lane road with sidewalks over one active track. 100' south of the bridge is a 1910 Warren thru truss bridge over CNJ tracks (NJT Raritan Valley Line, MP 72.15) that has been determined eligible. Between the sets of two tracks, a station was built by the DL&W to serve its own line as well as that of the CNJ. The station and the bridges are located approximately 1000' from the Delaware River.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The two-span encased stringer bridge is supported on ashlar abutments and an uncommon pier. The pier is built of steel columns with laced lateral bracing, and a built-up hammerhead steel pier cap. The columns are set in a concrete crash wall. The stringer spans are not of equal length. The deck is enclosed by paneled concrete parapets. The bridge is not technologically distinguished, as it is one of over 65 stringer spans in Warren County.

INFOR MATION

PHOTO: 172:28-30 (07/92) REVISED BY (DATE): QUAD: Easton

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NJDOT updated data 03-01-2001.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154161 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED INGERSOLL RAND ENTRANCE OVER WASHINGTON SECNDRY RR **FACILITY** INGERSOLL RAND ENTRANCE ROAD

TOWNSHIP PHILLIPSBURG TOWN

TYPE MULTI GIRDER **DESIGN** **MATERIAL** Steel

 # SPANS 4 **LENGTH** 122 ft **WIDTH** 22 ft

CONSTRUCTION DT 1923 **ALTERATION DT** 1944 **SOURCE** PLANS

DESIGNER/PATENT NJ STATE HWY DEPT BRIDGE DIV **BUILDER** AMERICAN BRIDGE COMPANY ELMIR

SETTING / CONTEXT The bridge is located in a 20th century commercial and industrial area. The structure carries a two-lane entrance road off of US 22 and a sidewalk over one active track of the Washington Secondary RR. The road accesses the Ingersoll-Rand plant, initially developed in 1905. The facility contains some historic buildings, but the bridge is not a contributing element to the historic character.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The four-span multi-deck-girder bridge sits on ashlar and concrete abutments and steel and concrete piers. The bridge was altered in 1944 when the north end of the bridge was widened with concrete tee-beams on a concrete-widened abutment. A bent and two new concrete columns were also added then. The bridge had been previously strengthened with the replacement of a sidewalk stringer with a heavier girder that could support vehicular traffic. The bridge has not retained its design integrity.

INFOR MATION

PHOTO: 172:33-37 (07/92) REVISED BY (DATE): QUAD: Easton

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NEW JERSEY DEPARTMENT OF TRANSPORTATION
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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154162 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED NORTH MAIN ST (CR 637) OVER WASHINGTON SECONDARY RR **FACILITY** NORTH MAIN STREET (CR 637)

TOWNSHIP GREENWICH TOWNSHIP

TYPE T BEAM **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 42 ft **WIDTH** 20 ft

CONSTRUCTION DT 1916 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located at the edge of a neighborhood built in the early-20th century. Most homes have been extensively altered. The structure carries a two-lane county route over one track of the Washington Secondary. The line was developed around 1860 by the Morris & Essex Railroad, extending their tracks from Hackettstown to Phillipsburg. In 1868 the Delaware Lackawanna & Western RR took control of the line, connecting their Warren RR to the M&E in Washington.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible. Delaware, Lackawanna & Western Railroad Old Main Line Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The 1-span reinforced concrete T-beam bridge is set on rubble-course abutments with concrete caps. The five precast T-beams are skewed to the abutments. The railing is a self-supporting precast truss-like balustrade set adjacent to the beams on precast seats. The bridge is 1 of 4 similar surviving T-beams built by the DL&W RR in Warren County between 1913 and 1916. The bridges are all significant due to the early use of precast concrete and their historic association with the DL&W RR.

INFOR MATION

Bibliography:
"A. Burton Cohen Dies; Civil Engineer." New York Times. February 12, 1956.
Hirschthal, M. "Railroad Bridge of 36-Ft. Clears pan Built of Heavy Precast Units." Engineering News-Record. Vol. 96,8 (Feb. 25, 1926).
_____. "Two Precast Concrete Bridges on the Lackawanna Railroad." Engineering News Record. Vol. 91,10 (Sept. 6, 1923).
Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.
NJDOT: Bridge Files: Conrail: Washington Secondary, Milepoint 75.71. "A Reinforced-Concrete Girder and Slab Bridge with Precast Members."
Engineering News, Vol. 71,6 (Feb. 5, 1914).
Schruffer, LeRoy M. "Casting Concrete-Slab Bridges for the Pennsylvania Railroad," Engineering News, Vol. 74,3 (July 15, 1915).

Physical Description: The one-span reinforced concrete T-beam bridge sits on rubble-course abutments with concrete seats. The stone abutments are from an earlier span, with the precast concrete seats being set on flat concrete beds on top of the stone. The superstructure is composed of 5 precast reinforced concrete T-beams. Asphalt covers the deck surface between the precast Warren truss-pattern balustrades. The self-supporting balustrades are set on the bridge seats.

Historical and Technological Significance: The 1916 North Main Street Bridge is an early and technologically significant example of precast concrete T-beam construction. It was built by the Delaware, Lackawanna, and Western Railroad (DL&W) based upon designs of its Bridge Division headed by noted engineer A. Burton Cohen. From 1910 to 1920 Cohen led the DL&W Bridge Division to a national reputation for its innovative use of concrete. In engineering circles the DL&W was known as the "concrete railroad," and it did more than any other railroad to gain the widespread acceptance of concrete for long-span structures. The bridge is eligible under National Register Criteria A and C as a well-preserved example of a technologically significant bridge type and for its historical association with Cohen and the DL&W. The bridge is one of four similar precast T-beam bridges (1913-1916) over the DL&W's Washington Secondary in Warren County (2154162, 2154163, 2154165, 2154169). The bridges are all well-preserved and technologically and historically significant as the only surviving examples of their type known to exist in New Jersey.

Reinforced concrete was used mostly for small slab and deck arch spans in the 1910s, but Cohen and the DL&W tried something more aggressive with T-beam construction. The T-beam is a more efficient use of material than a slab bridge of equal length. From 1913 to 1916 they built concrete T-beam highway overpasses on the DL&W's Washington Secondary. The span of the overpasses ranged from over 30' to 37' at a time when it was unusual to build even conventional reinforced-concrete T-beam or slab bridges of that length. The beams weighed each about 14 tons, significantly less than modern precast beams, but were easily transported and functional for light highway traffic. No records have been located that specifically address the DL&W's fabrication of these spans, and it is unknown whether any others were built on former DL&W properties. Articles from the Engineering News-Record demonstrate that other railroads did not begin to build precast concrete bridges of similar span until the mid-1920s, further indicating the DL&W's advanced use of the technology. Precast concrete beam spans eventually became one of the most prevalent post-WWII highway bridge types, and the DL&W's T-beam bridges are historically significant precursors of the modern approach to bridge building.

Another precast bridge from the same period over the same rail line also illustrates the DL&W's leadership in working with reinforced concrete. 2154168 is a 2-span precast slab bridge built in 1913 that is the documented example of its type in the state.

The DL&W, composed of a network of smaller railroads in Pennsylvania, New York, and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. In reaching to the east, in 1868 the DL&W acquired the Morris and Essex Railroad, which from 1830 to 1860 built a line from Hoboken to Phillipsburg. The line spanned by the precast T-beam spans was developed around 1860 by the Morris and Essex Railroad, which at the time was extending its tracks from Hackettstown to Phillipsburg.

The DL&W's reputation for reinforced-concrete bridge designs began in 1908 the company made engineering headlines with its decision to build a whole new line across northwestern New Jersey. The plan, known as the New Jersey Cut-Off, achieved minimum grades and

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curves with massive cuts and fills and several impressively large reinforced-concrete arch viaducts. The exclusive use of reinforced concrete for all the structures along the New Jersey Cut-Off, like 2114159, was a pioneering action and set the stage for the DL&W's continued experimentation with concrete bridges.

Engineer A. Burton Cohen rose to Chief Engineer of the DL&W's Bridge Division in 1910 and designed numerous bridges for the railroad including the Tunkhannock Viaduct (1915) in Nicholson, Pennsylvania, the largest reinforced-concrete arch structure in the world. The plans for the precast T-beam bridges in Warren County were signed by Cohen as the Chief Engineer. After 1920 Cohen went into private practice continuing his specialty in reinforced-concrete structures. In New Jersey he was responsible for the 1926 open spandrel arch bridge at Journal Square in Jersey City (0900008). In 1927 the American Concrete Institute awarded Cohen a gold medal for his solutions to bridge problems "with economy as well as architectural merit."

Three of the four remaining precast concrete T-beam spans are in public use, while one (2154169) services a farm road. Conrail records indicate that two other precast T-beam bridges spanned the DL&W's Washington Secondary, but they have been replaced within the last five years.

Boundary Description and Justification: Because it is the precast technology of the span that is significant, the boundary is limited to the superstructure and the abutments. Though the railroad right-of-way has several precast bridges, they are not used exclusively. There other common-type overpasses along the line which is one of many crossing northern New Jersey. Thus the railroad route itself is not technologically significant; only some structures are.

PHOTO: 170:11-13 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154163 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED BUTTERMILK BRIDGE ROAD OVER WASHINGTON SECONDARY RR **FACILITY** BUTTERMILK BRIDGE ROAD

TOWNSHIP WASHINGTON TOWNSHIP

TYPE T BEAM **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 37 ft **WIDTH** 16 ft

CONSTRUCTION DT 1916 **ALTERATION DT** Demolished **SOURCE** PLANS/NJDOT

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in a wooded area with a modern residence on an adjacent property. The one-lane structure carries a winding road over one track in a two-track wide right-of-way. The railroad line was developed by the Morris & Essex Railroad around 1860. Their lines reached only as far west as Hackettstown, so they constructed this extension to the Delaware River at Phillipsburg. The DL&W RR took over in 1868, connecting their Warren RR to the M&E in Washington.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Bridge was Individually Eligible. Delaware, Lackawanna & Western Railroad Old Main Line Historic District. Contributed.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span concrete tee-beam bridge sits on rubble-course abutments with concrete caps. The four precast beams form the deck of the span and are flanked by self-supporting precast balustrades that also rest on precast bridge seats. The span is one of six built between 1913-1916), though only four remain. All are significant due to their age, completeness, and extensive and innovative use of precast concrete by the Delaware, Lackawanna & Western Railroad.

INFOR MATION

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"A. Burton Cohen Dies; Civil Engineer." New York Times. February 12, 1956.
Hirschthal, M. "Railroad Bridge of 36-Ft. Clears pan Built of Heavy Precast Units." Engineering News-Record. Vol. 96,8 (Feb. 25, 1926).
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Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.
NJDOT: Bridge Files: Conrail: Washington Secondary, Milepoint 69.17.
"A Reinforced-Concrete Girder and Slab Bridge with Precast Members." Engineering News, Vol. 71,6 (Feb. 5, 1914).
Schruffer, LeRoy M. "Casting Concrete-Slab Bridges for the Pennsylvania Railroad," Engineering News, Vol. 74,3 (July 15, 1915).

Physical Description: The one-span, precast, reinforced concrete T-beam bridge sits on rubble-course abutments with concrete seats. The stone abutments are from an earlier span, with the precast concrete seats being set on flat concrete beds on top of the stone. The superstructure is composed of 4 precast reinforced concrete T-beams. Asphalt covers the deck surface between the precast Warren truss-pattern balustrades. The self-supporting balustrades are set on the bridge seats.

Historical and Technological Significance: The precast 1916 T-beam Buttermilk Bridge Road bridge is an early example of its type and of a technology that is still used in concrete construction (Criteria A. C.). It was built by the Delaware, Lackawanna, and Western Railroad (DL&W) based upon designs of its Bridge Division headed by noted engineer A. Burton Cohen. From 1910 to 1920 Cohen led the DL&W Bridge Division to a national reputation for its innovative use of concrete. In engineering circles the DL&W was known as the "concrete railroad," and it did more than any other railroad to gain the widespread acceptance of concrete for long-span structures. The bridge is one of four similar precast T-beam bridges built between 1913 and 1916) over the DL&W's Washington Secondary in Warren County (2154162, North Main Street, Greenwich Twp.; 2154165 Brick Yard Road, Mansfield Twp.; 2154169 in Mansfield Twp.). The precast T-beam bridges are all well-preserved and technologically and historically significant as the only surviving 1910s examples of their type documented in New Jersey.

Reinforced concrete was used mostly for small slab and deck arch spans in the 1910s, but Cohen and the DL&W tried something more aggressive with T-beam construction. The T-beam is a more efficient use of material than a slab bridge of equal length. From 1913 to 1916 they built concrete T-beam highway overpasses on the DL&W's Washington Secondary. The span of the overpasses ranged from over 30' to 37' at a time when it was unusual to build even conventional reinforced-concrete T-beam or slab bridges of that length. The beams weighed each about 14 tons, significantly less than modern precast beams, but were easily transported and functional for light highway traffic. No records have been located that specifically address the DL&W's fabrication of these spans, and it is unknown whether any others were built on former DL&W properties. Articles from the Engineering News-Record demonstrate that other railroads did not begin to build precast concrete bridges of similar span until the mid-1920s, further indicating the DL&W's advanced use of the technology. Precast concrete beam spans eventually became one of the most prevalent post-WWII highway bridge types, and the DL&W's T-beam bridges are historically significant precursors of the modern approach to bridge building.

Another precast bridge from the same period over the same rail line also illustrates the DL&W's leadership in working with reinforced concrete. 2154168 is a 2-span precast slab bridge built in 1913 that is the documented example of its type in the state.

The DL&W, composed of a network of smaller railroads in Pennsylvania, New York, and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. In reaching to the east, in 1868 the DL&W acquired the Morris and Essex Railroad, which from 1830 to 1860 built a line from Hoboken to Phillipsburg. The line spanned by the precast T-beam spans was developed around 1860 by the Morris and Essex Railroad, which at the time was extending its tracks from Hackettstown to Phillipsburg.

The DL&W's reputation for reinforced-concrete bridge designs began in 1908 the company made engineering headlines with its decision to build a whole new line across northwestern New Jersey. The plan, known as the New Jersey Cut-Off, achieved minimum grades and curves with massive cuts and fills and several impressively large reinforced-concrete arch viaducts. The exclusive use of reinforced

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NJDOT updated data 03-01-2001.
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November 12 , 2002

concrete for all the structures along the New Jersey Cut-Off, like 2114159, was a pioneering action and set the stage for the DL&W's continued experimentation with concrete bridges.

Engineer A. Burton Cohen rose to Chief Engineer of the DL&W's Bridge Division in 1910 and designed numerous bridges for the railroad including the Tunkhannock Viaduct (1915) in Nicholson, Pennsylvania, the largest reinforced-concrete arch structure in the world. The plans for the precast T-beam bridges in Warren County were signed by Cohen as the Chief Engineer. After 1920 Cohen went into private practice continuing his specialty in reinforced-concrete structures. In New Jersey he was responsible for the 1926 open spandrel arch bridge at Journal Square in Jersey City (0900008). In 1927 the American Concrete Institute awarded Cohen a gold medal for his solutions to bridge problems "with economy as well as architectural merit."

Three of the four remaining precast concrete T-beam spans are in public use, while one (2154169) services a farm road. Conrail records indicate that two other precast T-beam bridges spanned the DL&W's Washington Secondary, but they have been replaced within the last five years.

Boundary Description and Justification: Because it is the precast technology of the span that is significant, the boundary is limited to the superstructure and the abutments. Though the railroad right-of-way has several precast bridges, they are not used exclusively. There other common-type overpasses along the line which is one of many crossing northern New Jersey. Thus the railroad route itself is not technologically significant; only some structures are.

PHOTO: 173:39A-41A (07/92) REVISED BY (DATE): QUAD: Bloomsbury

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154165 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED BRICK YARD ROAD OVER WASHINGTON SECONDARY OF DL&W RR **FACILITY** BRICK YARD ROAD

TOWNSHIP MANSFIELD TOWNSHIP

TYPE T BEAM **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 40 ft **WIDTH** 12 ft

CONSTRUCTION DT 1913 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in a wooded area with a large vehicle salvage yard adjacent to it. The one-lane bridge carries a narrow winding road over one active track in a two-track wide right-of-way. The RR line was developed by the Morris & Essex RR around 1860. They wanted to extend their lines to the Delaware River, at Phillipsburg, from their existing tracks to Hackettstown. The DL&W RR took control of the lines in 1868, providing them with their own access to the ports near New York.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible. Delaware, Lackawanna & Western Railroad Old Main Line Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single-span precast concrete T-beam bridge sits on earlier ashlar abutments with concrete bridge seats. The three precast T-beams are set between self-supporting precast concrete truss-like balustrades. The bridge is one of four similar surviving precast T-Beam bridges (1913-1916) over the rail line. The span is significant as an unaltered example of its type and as an example of the early use of precast concrete elements for bridges by the Delaware, Lackawanna & Western Railroad.

INFOR MATION

Bibliography:

"A. Burton Cohen Dies; Civil Engineer." New York Times. February 12, 1956.
Hirschthal, M. "Railroad Bridge of 36-Ft. Clears pan Built of Heavy Precast Units." Engineering News-Record. Vol. 96,8 (Feb. 25, 1926).
_____. "Two Precast Concrete Bridges on the Lackawanna Railroad." Engineering News Record. Vol. 91,10 (Sept. 6, 1923).
Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.
NJDOT: Bridge Files: Conrail: Washington Secondary, Milepoint 75.71.
"A Reinforced-Concrete Girder and Slab Bridge with Precast Members." Engineering News, Vol. 71,6 (Feb. 5, 1914).
Schruffer, LeRoy M. "Casting Concrete-Slab Bridges for the Pennsylvania Railroad," Engineering News, Vol. 74,3 (July 15, 1915).

Physical Description: The one-span reinforced concrete T-beam bridge sits on rubble-course abutments with concrete seats. The stone abutments are from an earlier span, with the precast concrete seats being set on flat concrete beds on top of the stone. The superstructure is composed of 3 precast reinforced concrete T-beams. The top of the T-beams forms the deck and wearing surface of the bridge between the precast truss-like balustrades. The self-supporting balustrades are also set on the bridge seats.

Historical and Technological Significance: The precast 1913 T-beam Brick Yard Road bridge is an early example of its type and of a technology that is still used in concrete construction (Criteria A. C.). It was built by the Delaware, Lackawanna, and Western Railroad (DL&W) based upon designs of its Bridge Division headed by noted engineer A. Burton Cohen. From 1910 to 1920 Cohen led the DL&W Bridge Division to a national reputation for its innovative use of concrete. In engineering circles the DL&W was known as the "concrete railroad," and it did more than any other railroad to gain the widespread acceptance of concrete for long-span structures. The bridge is one of four similar precast T-beam bridges built between 1913 and 1916) over the DL&W's Washington Secondary in Warren County (2154162, North Main Street, Greenwich Twp.; 2154163, Buttermilk Bridge Road, Washington Twp.; 2154165 Brick Yard Road, Mansfield Twp.; and, 2154169, Dirt Road, Mansfield Twp.). The precast T-beam bridges are all well-preserved and technologically and historically significant as the only surviving 1910s examples of their type documented in New Jersey.

Reinforced concrete was used mostly for small slab and deck arch spans in the 1910s, but Cohen and the DL&W tried something more aggressive with T-beam construction. From 1913 to 1916 they built concrete T-beam highway overpasses on the DL&W's Washington Secondary. The span of the overpasses ranged from over 30' to 37' at a time when it was unusual to build even conventional reinforced-concrete T-beam or slab bridges of that length. The beams weighed each about 14 tons, significantly less than modern precast beams, but were easily transported and functional for light highway traffic. No records have been located that specifically address the DL&W's fabrication of these spans, and it is unknown whether any others were built on former DL&W properties. Articles from the Engineering News-Record demonstrate that other railroads did not begin to build precast concrete bridges of similar span until the mid-1920s, further indicating the DL&W's advanced use of the technology. Precast concrete beam spans eventually became one of the most prevalent post-WWII highway bridge types, and the DL&W's T-beam bridges are historically significant precursors of the modern approach to bridge building.

Another precast bridge from the same period over the same rail line also illustrates the DL&W's leadership in working with reinforced concrete. 2154168 is a 2-span precast slab bridge built in 1913 that is the documented example of its type in the state.

The DL&W, composed of a network of smaller railroads in Pennsylvania, New York, and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. In reaching to the east, in 1868 the DL&W acquired the Morris and Essex Railroad, which from 1830 to 1860 built a line from Hoboken to Phillipsburg. The line spanned by the precast T-beam spans was developed around 1860 by the Morris and Essex Railroad, which at the time was extending its tracks from Hackettstown to Phillipsburg.

The DL&W's reputation for reinforced-concrete bridge designs began in 1908 the company made engineering headlines with its decision to build a whole new line across northwestern New Jersey. The plan, known as the New Jersey Cut-Off, achieved minimum grades and curves with massive cuts and fills and several impressively large reinforced-concrete arch viaducts. The exclusive use of reinforced

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NJDOT updated data 03-01-2001.
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November 12 , 2002

concrete for all the structures along the New Jersey Cut-Off, like 2114159, was a pioneering action and set the stage for the DL&W's continued experimentation with concrete bridges.

Engineer A. Burton Cohen rose to Chief Engineer of the DL&W's Bridge Division in 1910 and designed numerous bridges for the railroad including the Tunkhannock Viaduct (1915) in Nicholson, Pennsylvania, the largest reinforced-concrete arch structure in the world. The plans for the precast T-beam bridges in Warren County were signed by Cohen as the Chief Engineer. After 1920 Cohen went into private practice continuing his specialty in reinforced-concrete structures. In New Jersey he was responsible for the 1926 open spandrel arch bridge at Journal Square in Jersey City (0900008). In 1927 the American Concrete Institute awarded Cohen a gold medal for his solutions to bridge problems "with economy as well as architectural merit."

Three of the four remaining precast concrete T-beam spans are in public use, while one (2154169) services a farm road. Conrail records indicate that two other precast T-beam bridges spanned the DL&W's Washington Secondary, but they have been replaced within the last five years.

Boundary Description and Justification: Because it is the precast technology of the span that is significant, the boundary is limited to the superstructure and the abutments. Though the railroad right-of-way has several precast bridges, they are not used exclusively. There other common-type overpasses along the line which is one of many crossing northern New Jersey. Thus the railroad route itself is not technologically significant; only some structures are.

PHOTO: 178:44,1 (08/92) REVISED BY (DATE): QUAD: Washington

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154166 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED MAIN STREET (CR 629) OVER WASHINGTON SECONDARY OF DL&W RR **FACILITY** MAIN STREET (CR 629)

TOWNSHIP MANSFIELD TOWNSHIP

TYPE THRU GIRDER **DESIGN** PARTIALLY ENCASED **MATERIAL** Steel

 # SPANS 1 **LENGTH** 50 ft **WIDTH** 21 ft

CONSTRUCTION DT 1914 **ALTERATION DT** **SOURCE** PLAQUE/PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER** AMERICAN BRIDGE COMPANY

SETTING / CONTEXT The bridge is located at the south edge of the village of Port Murray. The village was built along the Morris Canal, with late-19th and 20th century residences dominant. The bridge carries a two-lane county route over one active track in a two-track width right-of-way. An abandoned railroad station with grain hoppers is located a few hundred feet northeast. The bridge is at a boundary (DL & W RR r-o-w) of a historic district.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Listed. Port Murray Historic District. 06/07/1996. Contributing.

CONSULT DOCUMENTS SHPO Letter 03/12/01

SUMMARY The skewed one-span thru-girder bridge sits on earlier ashlar abutments with concrete seats and widening. The bottom flanges of the built-up girders are encased, as are the floorbeams. Pipe railings are fixed to the top of the girders. The deck is covered with brick pavers. The structure is a representative example of a common bridge type, and it is not individually technologically or historically distinguished. It is located on the boundary of the potential Port Murray Historic District and was built within its period of significance. The bridge is a contributing resource to the historic district. The nomination lists an incorrect date of construction for the bridge.

INFOR MATION

PHOTO: 178:41-43 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154167 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 62.39

NAME & FEATURE INTERSECTED DIRT ROAD OVER WASHINGTON SECONDARY OF DL&W RR **FACILITY** DIRT ROAD

TOWNSHIP MANSFIELD TOWNSHIP

TYPE PONY TRUSS **DESIGN** WARREN **MATERIAL** Steel

 # SPANS 1 **LENGTH** 56 ft **WIDTH** 13 ft

CONSTRUCTION DT 1900ca **ALTERATION DT** 1914 **SOURCE** STYLE/PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located on a farm with cattle and corn fields. The one-lane bridge carries an unimproved private farm road over one active track in a two-track right-of-way. The rail line was developed by the Morris & Essex Railroad around 1860 as they extended their lines beyond Hackettstown to the Delaware River at Phillipsburg. The DL&W RR leased the M&E in 1868, allowing them access to the New York ports after connecting their Warren RR to the M&E lines in Washington.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible. Delaware, Lackawanna & Western Railroad Old Main Line Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 09/24/96, Letter 6/30/95 03/12/01.

SUMMARY The one-span Warren pony truss is supported by ashlar abutments with concrete seats. The rivet-connected trusses have not been altered since the trusses were moved from Clark's Summit, PA, where they had been used for a highway bridge over DL&W trackage. The bottom chord is encased, as are the floorbeams, which directly support the slab deck. The structure is significant as a well-preserved example of its type, and is one of 4 rivet-connected Warren pony trusses in the county.

INFORMATION

Bibliography:
NJDOT. Conrail Bridge Plan File.
Snell, James. History of Sussex and Warren Counties, New Jersey. Philadelphia: Everts and Peck, 1881.

Physical Description: The bridge is a 4-panel riveted Warren with verticals pony truss on an ashlar substructure with concrete extensions and bridge seats. It is composed almost entirely of tow-out angle section with plate set between the back-to-back members at the panel points. The inclined end posts have cover plates. The verticals are braced, and a railing is set inside the truss lines at mid-height. What is unusual about the bridge is that the bottom chord and lower panel points, floor beams, and stringers are encased in concrete, and they directly support a concrete deck. There is some impact damage that compromises the structural integrity of the span.

Historical and Technological Significance: The 56'-long riveted Warren pony truss bridge was installed at this farm crossing in 1914 and is significant not so much for being a well-preserved example of its type but because its flooring system reflects the Delaware Lackawanna & Western Railroad's innovative use of concrete as applied to bridge construction (Criterion C). Plans indicate that the trusses, which in style date from c.1900, were moved from a highway crossing east of Clark's Summit, Pennsylvania to the Port Murray area farm crossing. At that time the existing stone abutments of a prior bridge were "torn down until thoroughly good foundation" was obtained for new concrete bridge seats. The trusses were installed, and the floor beams and stringers were encased in poured-in-place concrete, and the concrete deck was poured directly on them. No other truss bridges with encased flooring systems of this type were evaluated by the Historic Bridge Survey. The span is technologically distinguished and valuable as part of the documentation in the DL&W's experimental and innovative application of concrete to a variety of structures related to the operation of their line.

The bridge carries a farm road over what was the Morris & Essex Railroad, an ambitious but not wholly successful east-west line that was acquired by the DL&W about 1870. Its original circuitous right-of-way was bypassed by the 1909-1911 New Jersey Cut-Off, which had several innovative long-span concrete bridges. This section of the Morris and Essex line known as the Washington Secondary connected Washington with Phillipsburg.

Boundary Description and Justification: The bridge is individually eligible, in and of itself, including superstructure, substructure, and right-of-way over the rail line.

PHOTO: 178:4-8 (08/92 JPH (5/96)) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154168 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 58.61

NAME & FEATURE INTERSECTED DIRT ROAD OVER WASHINGTON SECONDARY OF DL&W RR **FACILITY** DIRT ROAD

TOWNSHIP MANSFIELD TOWNSHIP

TYPE SLAB **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 2 **LENGTH** 47 ft **WIDTH** 12 ft

CONSTRUCTION DT 1913 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in an area of cultivated fields and some residences scattered throughout the area. The structure carries a one-lane unimproved private farm road over one active track on a two-track right-of-way. The line was developed 1860 by the Morris & Essex Railroad, and in 1868 leased by the Delaware, Lackawanna & Western to connect with their Warren Railroad line in Washington.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible. Delaware, Lackawanna & Western Railroad Old Main Line Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 09/24/96, Letter 6/30/95 03/12/01.

SUMMARY The two-span precast concrete slab bridge sits on ashlar abutments with precast bridge seats and a precast pier. The structure is a design of six slab panels simply-supported, using as many precast pieces as possible. The bottom beam of the pier and the curb of the deck were cast in place. The bridge is an early significant example of precast concrete technology and represents the DL&W's innovative use of concrete in the 1910s. It is the only known example of its type and age in New Jersey.

INFORMATION

Bibliography:
"A. Burton Cohen Dies; Civil Engineer." New York Times. February 12, 1956.
Hirschthal, M. "Railroad Bridge of 36-Ft. Clears pan Built of Heavy Precast Units." Engineering News-Record. Vol. 96,8 (Feb. 25, 1926).
_____. "Two Precast Concrete Bridges on the Lackawanna Railroad." Engineering News Record. Vol. 91,10 (Sept. 6, 1923).
Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.
NJDOT: Bridge Files: Conrail: Washington Secondary, Milepoint 58.61.
"A Reinforced-Concrete Girder and Slab Bridge with Precast Members." Engineering News, Vol. 71,6 (Feb. 5, 1914).
Schruffer, LeRoy M. "Casting Concrete-Slab Bridges for the Pennsylvania Railroad," Engineering News, Vol. 74,3 (July 15, 1915).

Physical Description: The two-span precast reinforced concrete slab bridge sits on ashlar abutments with concrete seats and a concrete pier. The stone abutments are from an earlier span, with the precast concrete seats being set on flat concrete beds on top of the stone. The pier is composed of precast columns set on a cast-in-place plinth. A precast cap crosses the columns below the slabs. The superstructure is composed of 6 precast reinforced concrete slabs. The slabs are not covered, but are framed by cast-in-place curbs and metal pipe railings.

Historical and Technological Significance: The 1913 bridge is an early and technologically significant example of precast slab construction. It was built by the Delaware, Lackawanna, and Western Railroad (DL&W) based upon designs of its Bridge Division headed by noted engineer A. Burton Cohen. From 1910 to 1920 Cohen led the DL&W Bridge Division to a national reputation for its innovative use of concrete. In engineering circles the DL&W was known as the "concrete railroad," and it did more than any other railroad to gain the widespread acceptance of concrete for long-span structures. The bridge is eligible under National Register Criteria A and C as a well-preserved example of a technologically significant bridge type and for its historical association with Cohen and the DL&W. The bridge is the only documented 1910s precast concrete slab bridge in the state. The same railroad line, the Washington Secondary, has four other related 1913-1916 precast concrete T-beam bridges (2154162, North Main Street, Greenwich Twp.; 2154163, Buttermilk Bridge Road, Washington Twp.; 2154165 Brick Yard Road, Mansfield Twp.; and, 2154169, Dirt Road, Mansfield Twp.).

Early precast concrete bridges were mostly short-span slab and deck arch designs. The 1913 slab bridge with two 23-1/2' spans is an early attempt at precast concrete slab construction, and was an ambitious length for its time. The six precast slab panels weighed significantly less than modern precast slabs, but were easily transported and functional for light highway traffic. No records have been located that specifically address the DL&W's fabrication of this span, and it is unknown whether any other precast slab spans were built on former DL&W properties. Articles from the Engineering News-Record demonstrate that other railroads did not begin to build precast concrete bridges of similar span until the mid-1920s, further indicating the DL&W's advanced use of the technology. Precast concrete slab spans eventually became an important post-WWII highway bridge type, and the DL&W's precast slab bridge is a historically significant precursor of the modern approach to bridge building.

The DL&W, composed of a network of smaller railroads in Pennsylvania, New York, and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. In reaching to the east, in 1868 the DL&W acquired the Morris and Essex Railroad, which from 1830 to 1860 built a line from Hoboken to Phillipsburg. The line spanned by the precast slab and T-beam spans was developed around 1860 by the Morris and Essex Railroad, which at the time was extending its tracks from Hackettstown to Phillipsburg.

The DL&W's reputation for reinforced-concrete bridge designs began in 1908 when the company made engineering headlines with its decision to build a whole new line across northwestern New Jersey. The plan, known as the New Jersey Cut-Off, achieved minimum grades and curves with massive cuts and fills and several impressively large reinforced-concrete arch viaducts. The exclusive use of reinforced concrete for all the structures along the Cut-Off was a pioneering action and set the stage for the DL&W's continued experimentation with concrete bridges.

Engineer A. Burton Cohen rose to Chief Engineer of the DL&W's Bridge Division in 1910 and designed numerous bridges for the railroad including the Tunkhannock Viaduct (1915) in Nicholson, Pennsylvania, the largest reinforced-concrete arch structure in the world. The

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plans for the precast slab bridge and the four precast concrete T-beam bridges in Warren County was signed by Cohen as the Chief Engineer. After 1920 Cohen went into private practice continuing his specialty in reinforced-concrete structures. In New Jersey he was responsible for the 1926 open spandrel arch bridge at Journal Square in Jersey City (0900008). In 1927 the American Concrete Institute awarded Cohen a gold medal for his solutions to bridge problems "with economy as well as architectural merit."

Boundary Description and Justification: Because it is the precast technology of the span that is significant, and the technology of the route as a whole, the boundary is limited to the superstructure and the abutments.

PHOTO: 179:18A-21A (08/92) REVISED BY (DATE): QUAD: Hackettstown

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2154169 **CO** WARREN **OWNER** RAILROAD **MILEPOINT** 58.34

NAME & FEATURE INTERSECTED DIRT ROAD OVER WASHINGTON SECONDARY OF DL&W RR **FACILITY** DIRT ROAD

TOWNSHIP MANSFIELD TOWNSHIP

TYPE T BEAM **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 34 ft **WIDTH** 12 ft

CONSTRUCTION DT 1913 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is surrounded by cultivated fields. It carries a private, unimproved farm road over one active track in a two-track wide right-of-way. The line was developed from Hackettstown to Phillipsburg by the Morris and Essex Railroad around 1860. The Delaware Lackawanna & Western RR leased the M&E in 1868, connecting their own Warren RR to it in Washington. The acquisition of the M&E provided the DL&W with their own access to the New York ports.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible. Delaware, Lackawanna & Western Railroad Old Main Line Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 09/24/96, Letter 6/30/95 03/12/01.

SUMMARY The one-span precast concrete T-beam bridge is set on ashlar abutments with precast bridge seats. The deck of the bridge is formed by the T-beams, with distinctive precast truss-like balustrades at each face. The use of precast concrete is prevalent on this line from 1913-1916, when 6 precast and one precast slab bridges were built. Four T-beams and the slab span survive. This bridge, like the others, is significant due to its early and innovative use of precast concrete bridge members.

INFORMATION

Bibliography:
"A. Burton Cohen Dies; Civil Engineer." New York Times. February 12, 1956.
Hirschthal, M. "Railroad Bridge of 36-Ft. Clears pan Built of Heavy Precast Units." Engineering News-Record. Vol. 96,8 (Feb. 25, 1926).
_____. "Two Precast Concrete Bridges on the Lackawanna Railroad." Engineering News Record. Vol. 91,10 (Sept. 6, 1923).
Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.
NJDOT: Bridge Files: Conrail: Washington Secondary, Milepoint 58.34.
"A Reinforced-Concrete Girder and Slab Bridge with Precast Members." Engineering News, Vol. 71,6 (Feb. 5, 1914).
Schruffer, LeRoy M. "Casting Concrete-Slab Bridges for the Pennsylvania Railroad," Engineering News, Vol. 74,3 (July 15, 1915).

Physical Description: The one-span reinforced concrete T-beam bridge sits on rubble-course abutments with concrete seats. The stone abutments are from an earlier span, with the precast concrete seats being set on flat concrete beds on top of the stone. The superstructure is composed of 3 precast reinforced concrete T-beams. The deck surface is formed by the tops of the beams on the unimproved and overgrown private road. The precast Warren truss-pattern balustrades are self-supporting, and are set on the bridge seats beside the fascia beams.

Historical and Technological Significance: The precast 1913 T-beam farm road bridge is an early example of its type and of a technology that is still used in concrete construction (Criteria A. C.). It was built by the Delaware, Lackawanna, and Western Railroad (DL&W) based upon designs of its Bridge Division headed by noted engineer A. Burton Cohen. From 1910 to 1920 Cohen led the DL&W Bridge Division to a national reputation for its innovative use of concrete. In engineering circles the DL&W was known as the "concrete railroad," and it did more than any other railroad to gain the widespread acceptance of concrete for long-span structures. The bridge is one of four similar precast T-beam bridges built between 1913 and 1916) over the DL&W's Washington Secondary in Warren County (2154162, North Main Street, Greenwich Twp.; 2154163, Buttermilk Bridge Road, Washington Twp.; 2154165 Brick Yard Road, Mansfield Twp.; and, 2154165 in Mansfield Twp.). The precast T-beam bridges are all well-preserved and technologically and historically significant as the only surviving 1910s examples of their type documented in New Jersey.

Reinforced concrete was used mostly for small slab and deck arch spans in the 1910s, but Cohen and the DL&W tried something more aggressive with T-beam construction. The T-beam is a more efficient use of material than a slab bridge of equal length. From 1913 to 1916 they built concrete T-beam highway overpasses on the DL&W's Washington Secondary. The span of the overpasses ranged from over 30' to 37' at a time when it was unusual to build even conventional reinforced-concrete T-beam or slab bridges of that length. The beams weighed each about 14 tons, significantly less than modern precast beams, but were easily transported and functional for light highway traffic. No records have been located that specifically address the DL&W's fabrication of these spans, and it is unknown whether any others were built on former DL&W properties. Articles from the Engineering News-Record demonstrate that other railroads did not begin to build precast concrete bridges of similar span until the mid-1920s, further indicating the DL&W's advanced use of the technology. Precast concrete beam spans eventually became one of the most prevalent post-WWII highway bridge types, and the DL&W's T-beam bridges are historically significant precursors of the modern approach to bridge building.

Another precast bridge from the same period over the same rail line also illustrates the DL&W's leadership in working with reinforced concrete. 2154168 is a 2-span precast slab bridge built in 1913 that is the documented example of its type in the state.

The DL&W, composed of a network of smaller railroads in Pennsylvania, New York, and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. In reaching to the east, in 1868 the DL&W acquired the Morris and Essex Railroad, which from 1830 to 1860 built a line from Hoboken to Phillipsburg. The line spanned by the precast T-beam spans was developed around 1860 by the Morris and Essex Railroad, which at the time was extending its tracks from Hackettstown to Phillipsburg.

The DL&W's reputation for reinforced-concrete bridge designs began in 1908 the company made engineering headlines with its decision to build a whole new line across northwestern New Jersey. The plan, known as the New Jersey Cut-Off, achieved minimum grades and

A. G. Lichtenstein & Associates, Inc. performed initial survery.
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November 12 , 2002

curves with massive cuts and fills and several impressively large reinforced-concrete arch viaducts. The exclusive use of reinforced concrete for all the structures along the New Jersey Cut-Off, like 2114159, was a pioneering action and set the stage for the DL&W's continued experimentation with concrete bridges.

Engineer A. Burton Cohen rose to Chief Engineer of the DL&W's Bridge Division in 1910 and designed numerous bridges for the railroad including the Tunkhannock Viaduct (1915) in Nicholson, Pennsylvania, the largest reinforced-concrete arch structure in the world. The plans for the precast T-beam bridges in Warren County were signed by Cohen as the Chief Engineer. After 1920 Cohen went into private practice continuing his specialty in reinforced-concrete structures. In New Jersey he was responsible for the 1926 open spandrel arch bridge at Journal Square in Jersey City (0900008). In 1927 the American Concrete Institute awarded Cohen a gold medal for his solutions to bridge problems "with economy as well as architectural merit."

Three of the four remaining precast concrete T-beam spans are in public use, while one (2154169) services a farm road. Conrail records indicate that two other precast T-beam bridges spanned the DL&W's Washington Secondary, but they have been replaced within the last five years.

Boundary Description and Justification: Because it is the precast technology of the span that is significant, the boundary is limited to the superstructure and the abutments. Though the railroad right-of-way has several precast bridges, they are not used exclusively. There other common-type overpasses along the line which is one of many crossing northern New Jersey. Thus the railroad route itself is not technologically significant; only some structures are.

PHOTO: 179:22A-24A (08/92) REVISED BY (DATE): QUAD: Hackettstown

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2160152 **CO** WARREN **OWNER** STATE AGENCY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED WELSH SPUR ROAD OVER RARITAN VALLEY LINE RR **FACILITY** WELSH SPUR ROAD

TOWNSHIP GREENWICH TOWNSHIP

TYPE GIRDER **DESIGN** OPEN WEB **MATERIAL** Wrought Iron

 # SPANS 1 **LENGTH** 40 ft **WIDTH** 12.3 ft

CONSTRUCTION DT 1890ca **ALTERATION DT** Unknown **SOURCE** STYLE/INSCRIPTION

DESIGNER/PATENT **BUILDER**

SETTING / CONTEXT The bridge is located on the driveway of a horse farm. The one-lane structure crosses an inactive railroad line with one track remaining in the right-of-way. This line was developed in the early 1850s by the Central RR of New Jersey. It reached from the New York ports to the Delaware River at Phillipsburg where it connected with other railroads and canals, with its primary purpose hauling coal to the ports. In 1976 the bankrupt line was divided between Amtrak and NJT.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Individually Eligible. Central Railroad of NJ Main Line Corridor. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95 11/22/95. DOE 11/30/95.

SUMMARY The ca. 1890 lattice-web thru-girders sit on stone abutments (inscribed 1907) with timber seats. The girders were most likely moved to this location some time in the 20th century. The lattice is formed by the crossing of rolled T-sections and flat bars between built-up flanges. Rolled floorbeams are hung from the bottom flanges, and they support timber stringers and the plank deck. This is one of less than 5 remaining lattice girders identified in the state, and it is a well-preserved.

INFOR MATION

Bibliography:

Anderson, Elaine. The Central Railroad of New Jersey's First 100 Years. Easton, PA: 1984.
NJDOT. Conrail Bridge File.
New Jersey Transit. NJT Historic Railroad Bridge Survey. 1991.
Phoenix Bridge Company Records. Bridge Order Books. Hagley Museum and Library.
Snell, James. History of Sussex and Warren Counties, New Jersey. Philadelphia: 1881.

Physical Description: The 40'-long thru girder bridge incorporates iron lattice web girders that appear to have been modified for service at this crossing. The top and bottom flanges are built-up of angle and plate, and the diagonals are t-sections and flat bars. The only verticals are at the end of the girders. Rolled floor beams that extend beyond the girders have been hung from the bottom flanges with carriage bolts. The arrangement does not look original. The stringers and deck are timber. The girders are supported on ashlar abutments inscribed "1907". The seat is narrower than the present span, which bears on timber cribbing. There is no scaring on the top flanges to suggest that these girders were once deck girders.

Historical and Technological Significance: Although no bridge plans to indicate date of fabrication or moving to this site have been located, even undocumented the Central Railroad of New Jersey's wrought iron lattice web girder bridge at a farm crossing is technologically significant as a rare survivor of an early bridge type (Criterion C). The lattice webbing on the Welsh Spur Road bridge is similar in style and construction to a bridge over the same line at milepoint 53.38 in Hunterdon County. That span is included in the NJT 1990-1991 bridge survey, and it is given a date of 1891, but no documentation for the source of the date nor the name of the fabricator is identified on their survey form. The span is also similar to two ca. 1890 lattice web deck girders in Hudson County. Both Bergen Avenue over Conrail in Jersey City (0900011) and Ocean Avenue over Conrail in Jersey City were built by the Central Railroad of New Jersey over its Newark and New York branch. All four bridges have the T-section diagonals and all four are iron. According to Phoenix Bridge Company records at the Hagley Museum and Library, the Central Railroad of New Jersey purchased several lattice through girder spans for unspecified locations in the 1880s and 1890s. The bridge company manufactured the lattice through girder bridge type from the 1870s until about 1900 for both highway and railroad use.

It is likely that the Welsh Spur Road girders are not original to the crossing. The span rests on timber cribbing, and it appears to be wider than the seat notches in the ashlar abutments that are inscribed 1907. There are several instances of earlier trusses being moved to farm crossings such as this one, so historic precedent and physical evidence support the contention that the early girders were moved to this site after 1907. The Central New Jersey originally developed the right-of-way through Warren County in the early 1850s.

Boundary Description and Justification. The bridge is individually eligible, in and of itself, including superstructure, substructure, and right-of-way over the rail line.

PHOTO: 168:39-,169:21 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION
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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2160153 **CO** WARREN **OWNER** STATE AGENCY **MILEPOINT** 66.51

NAME & FEATURE INTERSECTED PINE HOLLOW ROAD OVER RARITAN VALLEY LINE RR **FACILITY** PINE HOLLOW ROAD

TOWNSHIP GREENWICH TOWNSHIP

TYPE THRU TRUSS **DESIGN** DOUBLE INTERSECTION WARREN **MATERIAL** Steel

 # SPANS 1 **LENGTH** 93 ft **WIDTH** 10.5 ft

CONSTRUCTION DT 1898 **ALTERATION DT** Demolished **SOURCE** PLANS

DESIGNER/PATENT CRR NJ OFFICE OF ENGINEER **BUILDER** PASSAIC ROLLING MILL COMPANY

SETTING / CONTEXT The bridge is located in a wooded area, at the end of a paved road lined with 19th and 20th century residences. The road continues unimproved, over the span and further into the woods. The structure crosses one track in an abandoned right-of-way of the CNJ RR wide enough for two tracks. The railroad was developed here in the early 1850s for the transfer of the eastern Pennsylvania coal to the New York ports. It is now used mostly for passenger trains and now belongs to NJT and Amtrak.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Bridge was Individually Eligible. Central Railroad of NJ Main Line Corridor. Contributed.

CONSULT DOCUMENTS SHPO Letter 6/30/95 11/22/95. DOE 11/30/95.

SUMMARY The one-span riveted double-intersection Warren thru-truss bridge sits on stone abutments. The members of the truss are virtually unaltered with the exception of impact damage. One of the verticals is severely twisted and an adjacent diagonal is also bent. The truss is built-up using channel and angle sections, lacing bars and cover plates. The floorbeam-stringer floor system was strengthened in 1914 and 1941. The bridge is well-preserved, and is one of two examples of its type in Warren County.

INFOR MATION

Bibliography:
Condit, Carl. American Building Art 19th Century. New York: 1960.
Darnell, Victor. Directory of American Bridge Building Companies 1840-1900. Washington, D.C.: Society for Industrial Archeology, 1984.
Snell, James. History of Sussex and Warren County New Jersey. Philadelphia, 1881.
NJDOT: Bridge Plan File; Raritan Valley Ln, 66.51.

Physical Description: The bridge is a 6-panel rivet-connected double-intersection Warren thru truss. The top chord and inclined end posts are composed of toe-out channel joined on both the top and bottom face with lacing. The bottom chord is made up of angles linked by a laced web. The compression diagonals are also laced angles while the tensile members are one of two types; angles with battens or angles with lacing. Each panel is subdivided with a subtie carrying floor beams. The portal braces have lattice infill, and the lateral bracing and sway bracing are original. There was no original railing on the inner faces of the trusses. The 10'-5" wide bridge has rolled floor beams that have been strengthened and carries a wood plank deck.

Historical and Technological Significance: The 1898 6-panel riveted construction double-intersection Warren thru truss bridge with subdivided panels is technologically significant as a rare survivor of an uncommon truss type. It also has unusual construction details (Criterion C). According to plans, the bridge was designed by the Central Railroad of New Jersey (CNJ) and fabricated by the Passaic Rolling Mill of Paterson. Although the capacity has been reduced due to deterioration and impact damage, the bridge is otherwise unaltered adding to its technological distinction. The top chord of toe-out channel with top and bottom lacing is an unusual detail. The Warren truss, which is distinguished by members designed to carry both tensile and compressive forces, was developed in 1846 by British engineers, but did not become popular until the 1890s when a successful means of performing field rivets became available. The double intersection Warren thru truss, a variation on the standard Warren truss design, was not an uncommon bridge type from the 1890s into the first decade of the 20th century and a small handful survive in New Jersey including Buttzville Road over Pequest River (2102307, 1902, White Township), also evaluated as significant.

The Passaic Rolling Mill, fabricator of the span, was established in Paterson in 1877, and in 1884, its fabricating capacity was 12,000 tons, making it one of the largest works in the country at that time. They produced structural steel as well as bridge components. The Central Railroad of New Jersey was the first railroad in Warren County, and its importance is linked to the fact that it provided access across New Jersey with the coal-rich Lehigh Valley region of Pennsylvania. This right-of-way was part of the 1847-chartered extension to Easton of the Elizabeth and Somerville Railroad. The extension was known as the Somerville and Easton Railroad, and in 1850, the two companies were merged and restyled the Central Railroad of New Jersey. The line to Easton was completed in 1852, and it served as the route that the Lehigh Valley Railroad also crossed to Jersey City until the LVRR completed its own route in the early 1870s. It is not known if this is the first span to eliminate the grade crossing at Springtown, as the area was then known.

The flooring system was strengthened in 1914 and 1941 with the addition of angles and/or plates to the floor beams. The bridge now services an unimproved road.

Boundary Description and Justification: The bridge is individually eligible, in and of itself, including superstructure, substructure, and right-of-way over the rail line.

PHOTO: 168:25-33 (07/92) REVISED BY (DATE): QUAD: Bloomsbury

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2160164 **CO** WARREN **OWNER** STATE AGENCY **MILEPOINT** 71.16

NAME & FEATURE INTERSECTED RARITAN VALLEY LINE RR OVER CENTER STREET **FACILITY** RARITAN VALLEY LINE RR

TOWNSHIP PHILLIPSBURG TOWN

TYPE DECK ARCH **DESIGN** ELLIPTICAL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 60 ft **WIDTH** 30 ft

CONSTRUCTION DT 1911 **ALTERATION DT** **SOURCE** PLANS

DESIGNER/PATENT CNJ RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in an urban area of ca.1900 worker's housing and a plant manufacturing ductile iron pipe. The structure carries one active track in a two-track right-of-way over a two-lane street with two sidewalks. The line was developed in Phillipsburg in 1852, connecting the railroads of eastern Pennsylvania with the ports of New York. The line eventually became used for passenger trains, and was divided between Amtrak and New Jersey Transit in 1976.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Central Railroad of NJ Main Line Corridor. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95. DOE 11/30/95.

SUMMARY The one-span reinforced concrete arch bridge sits on low scored concrete abutments with ashlar wingwalls. The elliptical arch has scored spandrel walls to accent the arch. Metal pipe railings are set in the concrete at the top of both spandrel walls, framing the ballasted deck. The bridge is a representative example of a common pre-World War I type, one of over 15 reinforced concrete arch bridges in Warren County. It is not technologically or historically distinguished.

INFOR MATION

PHOTO: 173:19A-22A (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 3300301 **CO** WARREN **OWNER** PRIVATE **MILEPOINT** 0.1

NAME & FEATURE INTERSECTED US 22 OVER PCRR & BROAD STREET **FACILITY** US 22

TOWNSHIP PHILLIPSBURG TOWN

TYPE DECK GIRDER **DESIGN** **MATERIAL** Steel

 # SPANS 5 **LENGTH** 330 ft **WIDTH** 40 ft

CONSTRUCTION DT 1937 **ALTERATION DT** **SOURCE**

DESIGNER/PATENT **BUILDER**

SETTING / CONTEXT The bridge is an approach to the east side of the US 22 bridge over the Delaware River. The eastern approach spans carry four lanes of the highway and two sidewalks over a two-lane street, a one-track railroad and property owned by the Delaware River Joint Bridge Toll Commission.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible. Potential Historic District. Contributing.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The five-span deck girder bridge with concrete piers and an abutment is skewed to carry a curved roadway. The abutment, pier columns and the arched struts are scored. The simple-span girders are built-up and support rolled floorbeams which support stringers and the deck. Overhang brackets support the sidewalk with a metal railing at each face. The bridge is structurally part of the truss bridge owned and operated by the Delaware River commission. The bridge's main span, which carries US 22 over the Delaware River is potentially eligible to listed under Criteria C, but, was outside the scope of the survey. This approach spans would have the same NR status as the main truss spans.

INFOR MATION

PHOTO: 172:38-;173:-17 (07/92) REVISED BY (DATE): QUAD: Easton

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 3305151 **CO** WARREN **OWNER** STATE AGENCY **MILEPOINT** 0.0

NAME & FEATURE INTERSECTED PARK ROAD OVER DEER PARK LAKE SPILLWAY **FACILITY** PARK ROAD

TOWNSHIP ALLAMUCHY TOWNSHIP

TYPE SLAB **DESIGN** **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 25 ft **WIDTH** 10.9 ft

CONSTRUCTION DT 1920 **ALTERATION DT** **SOURCE** NJDOT

DESIGNER/PATENT **BUILDER**

SETTING / CONTEXT The bridge is located in Allamuchy State Park, at the spillway of Deer Park Lake. It carries a one-lane unimproved trail which leads around the lake over the spillway.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The small one-span concrete slab bridge is seated on ashlar abutments. Concrete walls are present upstream to direct water under the bridge as it spills over rubble stone and natural debris. The timber formwork is present below the slab, with steel straps holding it in place. Beam guiderails are at each edge of the span. The structure is technologically and historically undistinguished, being a small example of a relatively common bridge type.

INFOR MATION

PHOTO: 184:11-13 (08/92) REVISED BY (DATE): QUAD: Tranquility

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION
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NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 4320002 **CO** WARREN **OWNER** OTHER FEDERA **MILEPOINT** 0.04

NAME & FEATURE INTERSECTED DEPEW PICNIC AREA ACCESS ROAD OVER VANCAMPEN BROOK **FACILITY** DEPEW PICNIC AREA ACCESS ROAD

TOWNSHIP PAHAQUARRY TOWNSHIP

TYPE STRINGER **DESIGN** **MATERIAL** Steel

 # SPANS 1 **LENGTH** 39 ft **WIDTH** 15.3 ft

CONSTRUCTION DT 1930ca **ALTERATION DT** 1970ca **SOURCE** STYLE

DESIGNER/PATENT UNKNOWN **BUILDER** UNKNOWN

SETTING / CONTEXT The bridge is located in the Delaware Water Gap National Recreation Area. It carries an isolated access road to a picnic area over a minor stream. The immediate surroundings are densely wooded and undeveloped.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No

CONSULT STATUS Not Individually Eligible.

CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The one-span stringer bridge (c.1930) bears on concrete abutments. It was widened by the addition of stringers (c.1970) on the concrete substructure, with timber bracing placed between both old and new stringers. The bridge has a plank deck and a wand a wood railing on each side. The bridge is one of a common bridge type, and it is not technologically or historically distinguished.

INFOR MATION

PHOTO: 166:29-31 (07/92) REVISED BY (DATE): QUAD: Bushkill

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

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November 12 , 2002

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # Unknown0 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 72.98

NAME & FEATURE INTERSECTED DL&W RR NEW JERSEY CUT-OFF OVER SIMPSON ROAD **FACILITY** DL&W RR NEW JERSEY CUT-OFF (MP 72.98)

TOWNSHIP KNOWLTON TOWNSHIP

TYPE ARCH **DESIGN** TUNNEL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 33 ft **WIDTH** 45 ft

CONSTRUCTION DT 1909 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in an area of late-20th century commercial development. It carries the two-track right-of-way of the Delaware Lackawanna & Western Railroad's New Jersey Cutoff over a two-lane road. The structure is located very close to the Delaware River Viaduct of the same rail line. The development of this r-o-w was a major engineering accomplishment of its day. It is a significant engineering achievement constructed with major cuts and fills, which avoided creating any highway railroad grade crossings along its 28.45 mile length.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Delaware, Lackawanna & Western Railroad New Jersey Cutoff Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 3/22/94, Letter 03/12/01.

SUMMARY The skewed reinforced concrete arch is flanked by sloping concrete wingwalls. No railings are present at the faces of the bridge, which has a ballasted deck. The structure, which resembles a tunnel, supports very little fill in comparison to other structures on the route. The DL&W's New Jersey Cut-Off is a technologically significant engineering achievement noted for its use of reinforced concrete for bridges and structures and for completely grade separating the railroad and highway crossings. The structure is not individually eligible for listing in the National Register of Historic Places, but is a contributing element of the Delaware, Lackawanna & Western Railroad New Jersey Cutoff Historic District under Criteria A and C.

INFORMATION

Simpson Road Tunnel

BIBLIOGRAPHY:

Wheaton, F.L., "The New Cut-off Line of the Lackawanna Railroad", Engineering News, Vol.60, No.7, August 13, 1908.
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"Some Concrete Culverts and Small Bridges on the Slateford-Hopatcong Cut-off of the Delaware, Lackawanna & Western R.R.", Engineering News, Vol.62, No.14, September 30, 1909.
Condit, Carl W., American Building Art The Twentieth Century, 1961.
Taber, Thomas Townsend, The Delaware, Lackawanna & Western Railroad in the Nineteenth Century. 1977.
Taber, T.T. and Taber, T.T. III, The Delaware, Lackawanna & Western Railroad in the Twentieth Century, Vols. I and II. 1980.
Lefferts, H. Leedom Jr., and Piefer, David R., Northwest New Jersey: An Inventory and History of Historic Engineering and Industry. 1979.

Physical Description: The reinforced concrete arch tunnel carries the railroad on a fill over a two-lane road. The span is a few hundred feet from the New Jersey end of the Delaware River Viaduct. The skewed barrel-arch tunnel is flanked by sloping, skewed wingwalls that retain the fill used to create the grade for the New Jersey Cut-Off. The deck is ballasted, but the right-of-way is overgrown with vegetation. The date of construction (1909) is inscribed in the spandrels at each end of the structure. The tunnel spans 33 feet and is 45 feet wide. A utility line runs under the bridge, but it is not physically tied to the structure.

Historical and Technological Significance: The New Jersey Cut-Off, of which this arched tunnel is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the

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Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren County. The M&E crossed New Jersey from Hoboken to Phillipsburg on the Delaware River.

Though the DL&W controlled several railroads (like the M&E, Warren, Valley, etc.), each was operated separately until 1899, when new DL&W president William Truesdale centralized control of the company. This move allowed for increased efficiency for the railroad as a whole. In addition to the reorganization, Truesdale undertook an ambitious plan to modernize the routes (All background information gathered from Taber, 1977).

In seeking a more efficient, less circuitous route to replace the 1860s Morris & Essex Railroad right-of-way, the DL&W considered three plans to build a completely new route (Taber and Taber, 1980:34-36). The plan chosen was a completely new line that would include massive cuts and fills to virtually eliminate grade changes. The existing line was nearly 40 miles long, had 57 curves comprising almost 13 miles of track, and a maximum grade of 60.2 feet per mile with a total rise and fall of 248 feet. The new layout, known as the New Jersey Cut-Off, limited the number and degree of curves and saved over 11 miles of track from the circuitous old line. This was the most expensive choice, costing $11,065,511.43 when completed (Taber and Taber, 1980:39), but the anticipated benefits for the railroad outweighed the cost.

Beginning in 1908 and under the direction of DL&W Chief Engineer George Ray, layout and design of the cut-off began. The line was to be 28.45 miles long, with a total rise and fall of just 11 feet and less than 5 miles of curved track. The new route would require 73 structures, including two massive viaducts, twelve overhead highway bridges and numerous crossings of roads and minor watercourses. Over 14 million cubic yards of both cut and fill were needed to create the relatively flat crossing of the hills and valleys of northwestern New Jersey (Taber and Taber, 1980:36).

Mr. Ray decided that reinforced concrete would be used for all structures along the route. This was the first time such a decision was made, causing the nickname of the "reinforced concrete railroad" to be used by the engineering profession when discussing the cut-off (Taber and Taber, 1980:36). Reinforced concrete was a state-of-the-art building material with yet unknown ultimate capabilities. It was thought to be as strong and durable as stone, and seemingly more permanent than wood or even steel.

Uncommon methods were used for the construction of the fills along the route. While the traditional method of building a wooden trestle to run dumping trains on was used for most fills, tracking was hung from suspended cables for the fills of greater magnitude. Dumping trains would carry fill onto the suspended tracks and dump the fill material from there. Most of the fill used on the cutoff was taken from the many cuts that were made, but even that was not enough. The DL&W bought 760 acres of farm land from which the contractors could dig additional fill. Five million pounds of dynamite was used to make the cuts. The Pequest Fill (Milepoint 55.85, Green Township, Sussex County) was the largest along the cut-off and in 1908 was claimed to be the "largest railway embankment ever made" (Engineering News, 1908:72). It was over 3 miles long and was up to 140 feet high. Over 6.5 million cubic yards of fill were necessary to reach the proper grade on this fill (Taber and Taber, 1980:36).

The DL&W chose to use similar structures for similar uses along the line. Where highway bridges were needed to cross their tracks, they designed reinforced concrete deck arch bridges, a bridge type that was capable of relatively long spans while providing dynamic and graceful forms. At least eleven deck arches were built in New Jersey, (1900G12, 1900G13, 1900K07, 1900C17, 2153166, 2153165, 2153164, 2153163, 2153162, 2153161, 2153160), all of them single span structures with one of two types of balustrades. Though design adjustments had to be made for roadway alignment and foundation conditions, the deck arch bridges are very similar structures.

Reinforced concrete arch tunnels were constructed where the cut-off crossed over roads or small waterways. These structures often supported high fill embankments as the cut-off crossed a valley. Over 35 of these structures were built along the line, and several of them are included in the Historic Bridge Survey (Wasigan and Simpson roads in Warren County, 2117152). Slab-roofed tunnels and box culverts were also built to carry the right-of-way over roads and streams.

The largest structures along the line were the two multi-span viaducts; the Delaware River Viaduct (2114159) and the Paulins Kill Viaduct (Milepoint 70.63, Knowlton Twp.). Both are open spandrel arch bridges that span valleys and larger water courses. The 9-span Delaware River Viaduct crosses the river as well as the highways that parallel it on both sides. It is 1,450 feet long and carries trains 65 feet above the river. The nine span structure has seven open spandrel arches and two deck arch approach spans on the Pennsylvania end. The 7-span Paulins Kill Viaduct in Hainesburg (Warren County) is 1100 feet long, but it is more graceful and magnificent as it rises 115 feet above the valley floor. It passes over the Paulins Kill River, the New York, Susquehanna and Western Railroad and the valley they run through. It was the most impressive structure on the DL&W main line prior to the building of the Tunkhannock Viaduct in Nicholson, Pennsylvania, completed in 1915.

Around the turn of the century, reinforced concrete arches were generally limited to relatively short and often single span bridges. The dead load carried by the arches was reduced with the introduction of open spandrel arches. The lighter structures were capable of longer spans and more aesthetically pleasing large bridges. The Walnut Lane bridge (1906-8) over Wissahickon Creek in Philadelphia was a forerunner of the type, though it used virtually no steel reinforcement in the two ribs (Condit, 1961:198). The use of reinforcement made the possibilities even greater. Under Ray's direction, the length and number of spans increased to create massive structures that dominated the landscape.

The New Jersey Cut-Off was divided into sections for bidding. Seven contractors were each awarded one section of the line, including contractors from as far away as Billings, Montana and Roanoke, Virginia. Each contract included all clearing, grading and masonry construction (Wheaton, 1908).

In addition to its engineering significance, the railroad right-of-way ranks historically as one of the most significant in the state, owing to the impact moving coal across the state had on the development of transportation systems within New Jersey. The Lehigh Valley Railroad played a significant role in the development of transportation and transportation-driven development in the northern half of the state, and the cut-off stands as one of the most ambitious remnants of the coal era in the state.

In summation, the viaducts, tunnels, overpasses, cuts, and fills on the New Jersey Cut-Off (1908-1911) form part of a unified design that

was, and still is, one of the most remarkable engineering achievements of the early 20th century in the region. Furthermore, the New Jersey Cut-Off is one of the most visible remnants of the DL&W, and is illustrative of the history of one of the largest movers of coal that contributed to the transportation-driven economic growth of the northern half of the state. The New Jersey Cut-Off is a significant part of the western New Jersey historic landscape and transportation systems.

Boundary Description and Justification: The significance of the structure is based, in part, on its historic association and physical connection with a right-of-way that is both historically and technologically important. In New Jersey, the potential historic corridor appears to be limited to the railroad right-of-way. The potential historic corridor is approximately 28 miles long stretching from the Delaware River to the eastern junction at Hopatcong, Morris County. The New Jersey Cut-Off's western junction is in Slateford, Pennsylvania on the west bank of the Delaware River. The entire route and all its related structures were not surveyed as part of this project, but those portions of the route that were surveyed or observed as part of the 1991-1993 Historic Bridge Survey have integrity of setting and original design and appear to representative of the overall state of preservation and completeness of the route in Sussex and Warren counties.

PHOTO: 165:19 (07/92) REVISED BY (DATE): QUAD: Knowlton

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # Unknown0 **CO** WARREN **OWNER** UNKNOWN **MILEPOINT** 63.81

NAME & FEATURE INTERSECTED DL&W RR NEW JERSEY CUT-OFF OVER WASIGAN ROAD **FACILITY** DL&W RR NEW JERSEY CUT-OFF (MP 63.81)

TOWNSHIP FRELINGHUYSEN TOWNSHIP

TYPE ARCH **DESIGN** TUNNEL **MATERIAL** Reinforced Concrete

 # SPANS 1 **LENGTH** 240 ft **WIDTH** 187 ft

CONSTRUCTION DT 1909 **ALTERATION DT** **SOURCE** INSCRIPTION

DESIGNER/PATENT DL&W RR OFFICE OF ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located in wooded area with sparse residential development. It carries the right-of-way of the Delaware Lackawanna & Western RR's New Jersey Cutoff over a winding two-lane road. The rail line development was a major engineering achievement for of its day, which was constructed with major cuts and fills and avoided creating any highway railroad grade crossings along its 28.45 mile length.

1995 SURVEY RECOMMENDATION Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** Yes

CONSULT STATUS Not Individually Eligible. Delaware, Lackawanna & Western Railroad New Jersey Cutoff Historic District, Eligible. Contributing.

CONSULT DOCUMENTS SHPO Opinion 3/22/94, Letter 03/12/01.

SUMMARY The reinforced concrete arch bridge has skewed, sloping wingwalls to retain the fill used to elevate the right-of-way above the existing grade. Two power lines are connected to the intrados of the arch, running along the crown to the other side of the tracks. The DL&W's New Jersey Cut-Off was the first major railroad line in the United States to make exclusive use of concrete structures. It is a technologically significant engineering achievement noted for its use of reinforced concrete for bridges and structures and for completely grade separating the railroad and highway crossings. The structure is not individually eligible for listing in the National Register of Historic Places, but is a contributing element of Delaware, Lackawanna & Western Railroad New Jersey Cutoff Historic District under Criteria A and C.

INFOR MATION

Wasigan Road Tunnel

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Physical Description: The reinforced concrete arch tunnel carries the railroad on a high fill over a two-lane road. The barrel-arch tunnel is flanked by sloping, skewed wingwalls that retain the fill used to create the grade for the New Jersey Cut-Off. The date of construction (1909) is inscribed in the spandrels at each end of the structure. The bridge spans 24 feet and is 187 feet wide. The fill slopes to just a few feet above the crown of the arch at each face. Several utility lines run under the bridge, supported by brackets attached to its faces and intrados.

Historical and Technological Significance: The New Jersey Cut-Off, of which this arched tunnel is a part, was built in 1908-1911 and is historically and technologically distinguished in the areas of engineering and transportation (Criteria A, C). The cut-off is an important engineering accomplishment of the early 20th century. The Delaware, Lackawanna & Western RR (DL&W) designed and built the line to improve the efficiency of train travel across the mountainous terrain of northwestern New Jersey in Warren, Sussex, and Morris counties. The design and construction of a railroad that rises and falls just eleven feet over its length of 28.45 miles while crossing the mountains and valleys of northwestern New Jersey is remarkable even today. The decision to use reinforced concrete exclusively for all structures along the route was a pioneering action that attracted the attention of the engineering profession. The railroad's use of reinforced concrete did much to prove the material to be as strong and durable as the engineers of the early-20th century had anticipated. The DL&W also made full use of the moldable qualities of the material, designing not just functional structures, but also aesthetically pleasing ones that enhance the beauty of the railroad.

Sixteen structures are included in the NJDOT Historic Bridge Survey, but other structures, including viaducts, tunnels, and stations, were observed within Warren and Sussex counties. The structures not included in this survey appear to have integrity consistent with those bridges and tunnels that are included.

The New Jersey Cutoff is the culmination of over 55 years of efforts by the company to improve its route across New Jersey to New York City. The Delaware, Lackawanna and Western Railroad (DL&W), composed of a network of smaller railroads in Pennsylvania, New York and New Jersey, was formed in 1853 for the purpose of moving anthracite coal from the mining regions of northeastern Pennsylvania to market locations. It started from the merger of the Liggett's Gap RR and the Delaware & Cobbs Gap RR, which had been chartered and developed around 1850 by parties interested in carrying the coal to the Erie RR to the west and to the Delaware River to the east.

As the anthracite coal mining industry grew, so did the desire to increase the access to markets. In reaching to the east the DL&W needed a connection in New Jersey. They incorporated the Warren Railroad in the 1851 to carry trains from the Delaware River at Columbia (Warren County, NJ) to Central Railroad of New Jersey tracks in Hampton (Hunterdon County, NJ). From there the coal could be moved eastward to Elizabethport (near Newark, NJ). Commuters also traveled this route to get to New York City. In the late 1860s the DL&W became dissatisfied with the CNJ connections and sought their own access to the New York markets. In 1868 they leased the Morris & Essex RR, which was developed in the 1830s and 1840s in Morris, Essex and Hudson counties and the 1850s in Warren

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001.

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

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PHOTO: 167:12-13 (07/92) REVISED BY (DATE): QUAD: Blairstown