

10. NAME(S) OF STRUCTURE

State Bridge Number 246

11. PHOTOS (W/ FILM ROLL & FRAME NO.) AND SKETCH MAP OF LOCATION

62A:16-24A

62.1A:2-4



62A:16

Mack, Warren W. "A History of Motor Highways in Delaware", in Reed, Henry Clay, Delaware: A History of the First State, vol.2, pp.535-550 (NY: Lewis Historical Publishing Co., 1947).

Delaware State Program. Delaware State Highways; The Story of Roads in Delaware... [Newark, Delaware: Press of Kells, 1919].

Federal Writers' Project. Delaware: A Guide to the First State. (New York: Viking Press, 1938).

Spero, Paula A. C. A Survey and Photographic Inventory of Concrete and Masonry Arch Bridges in Virginia. (Charlottesville, Virginia: Virginia Highway & Transportation Research Council, 1984).

Delaware State Archives. State of Delaware, New Castle County Levy Court, Specifications, Proposals, Contract and Bond. ms., State Archives, Dover, DE.

Delaware State Archives. New Castle County Road Commissioners Papers, various years 1750-1940, ms. State Archives, Dover, Delaware.

Delaware DOT records: Annual Reports; Photo archives; contract files.

Plans on file at Delaware DOT: Contract #750

13. INVENTORIED BY:

AFFILIATION

DATE

P.A.C. Spero & Company with Kidde Consultants for Delaware DOT

April-November 1988

# HABS/HAER INVENTORY

See "HABS/HAER Inventory Guidelines" before filling out this card.

## 1. NAME(S) OF STRUCTURE

State Bridge Number 246  
Stanton Bridge

## 2. LOCATION

Pedestrian over White Clay Creek and Mill Creek  
Stanton, New Castle County, Delaware

## 3. DATE(S) OF CONSTRUCTION

1942

## 4. USE (ORIGINAL/CURRENT)

Pedestrian

## 5. RATING

CA

## 6. CONDITION

Good: Heavy deterioration on bottom chord; otherwise, good condition.

State Highway Bridge 246 (Stanton Bridge) is a concrete through, or rainbow, arch. The bridge has a clear span of 119'-6". The arch consists of two parallel ribs which are tied by a lower chord; vertical suspenders support the deck and roadway. Below each suspender a concrete floor beam supports the road; the upper portion of the arch ribs are braced laterally by concrete ties. The substructure consists of concrete piers with plain u-shaped wingwalls. The parapet comprises a simple, abstract concrete balustrade with arcade-style openings. The bridge deck measures 26'-0" wide curb to curb with 2'-6" sidewalks on each side.

Delaware Department of Transportation records state that Bridge 246 was built in 1942 under Highway Department contract 750 (Federal Aid Project 45A). Original drawings dated November 1940, note that the rainbow arch replaced a 102' long steel truss which had been built in 1904. The arch was constructed as a vehicular bridge and carried old Route 7 over the creeks. The drawings illustrate reinforcement schemes for the ribs, ties and beams, the parapet details, and foundation configuration. The J. A. Bader Company of Wilmington, Delaware was the contractor for the construction of Bridge 246. Construction began on July 7, 1941, and was completed except for the final rubbing of the concrete and placement of the bituminous wearing surface on January 16 of the following year; further work was suspended at that time due to cold weather, and was resumed April 15, 1942. The bridge was finished a few weeks later. The contract price was \$42,944.00. The contractor was not required to maintain traffic during construction, but provided a temporary footbridge for pedestrian use. Reinforcing steel was supplied by the Bethlehem Steel Company; the Deemer Steel Casting Company of New Castle, Delaware, provided the cast steel shoes and bearing plates. The concrete for the structure was mixed from coarse aggregate provided by the A. Petrillo Company of Wilmington, Delaware, fine aggregate from the Delaware Sand and Gravel Company of New Castle, and cement furnished by the National Portland Cement Company, Philadelphia. The Forest Products Company of Wilmington supplied timber piles for the substructure. The bridge was designed for H-20 loading according to 1935 AASHO specifications for highway Bridges.

The 1941-42 Annual Report of the State Highway Department reported that Bridge 246 "was the first bridge of this type to be constructed in Delaware". It is the only example of a concrete through, or rainbow, arch surveyed in the state. The concrete through arch was developed as a proprietary bridge type in the early twentieth century. One variation, the Marsh arch, named for the German-born engineer who operated the Marsh Engineering Company of Des Moines, Iowa, was built widely from 1912 to 1930. The through arch, with its two ribs extending above the roadway, can take two forms. The arched ribs may be rigidly fixed at the piers or abutments, or each arch rib may be connected with a tie and rest on the supports. The latter, a bow-string form, was used when conditions were not favorable for the arch thrust to be absorbed by the supports. The tie resisted all the thrust and looked much like the bottom chord of a truss. Bridge 246 is an example of the latter type, a tied rainbow arch. Variations of the through arch continued to be built after its use as a proprietary type declined, often as in-house designs by State Highway Departments. State Bridge 246 is a good example of the latter.