

10. NAME(S) OF STRUCTURE

State Bridge Number 9A

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

30A:17-23



30A:20

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).

Hancock, Harold Bell. A History of Kent County, Delaware. (Dover, Del.: Dover Litho Printing Co., 1976).

Delaware State Archives. Kent County Road Records 1875-1940. ms. State Archives, Dover, Delaware.

Delaware DOT records: Annual Reports; contract files.

Plans on file at Delaware DOT: Contract #412, 70-05-001

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 9A

2. LOCATION

Route 6 over Mill Creek
Smyrna, Kent County, Delaware

3. DATE(S) OF CONSTRUCTION

1936

4. USE (ORIGINAL/CURRENT)

Vehicular

5. RATING

TS

6. CONDITION

Deteriorated: Parts of parapet and fascia very deteriorated. Timber bents have been augmented with steel bents. Underside of slab appears satisfactory but is difficult to see well.

State Highway Bridge 9A (Mill Creek Bridge) is a 100'-0" composite concrete and timber bridge. A five span timber and concrete slab superstructure is combined with a substructure of timber bents and timber abutments. Each span measures 20'-0". The parapet consists of concrete posts and rails. The bridge is 23'-6" wide and carries two lanes of traffic. The substructure has been reinforced with steel I-beams, and the flared wing walls are made of steel sheeting.

Delaware Department of Transportation records state that Bridge 9A was built in 1936 under State Highway Department contract 412 (Federal Aid Project 170). Spear-Jones and Company, Inc., of Dover, Delaware, were the contractors, for a bid price of \$6,820. The bridge was highlighted in the State Highway Department's annual report for 1936 as an example of "unusual construction" involving a "new and very economical design . . . its serviceability will be watched with interest by the Department's engineers." It was noted that the Vines Creek Bridge in Sussex County (Bridge 445) which was also placed under contract in 1936 was a similar design, and both replaced "narrow, obsolescent structures." Original drawings, dated June 1935, detail the bridge's configuration. Drawing notes indicate that Bridge 9A replaced a pony truss bridge at this site. The typical section for this bridge shows a composite structure, incorporating timber and concrete. Drawing notes indicate special provisions for material placement to form a "composite beam" using 2" X 8" laminated timber with "shear developers and uplift spikes" and covered with approximately 5 inches of concrete. The bridge was designed for a 15 ton truck, with 30% impact, live load. The drawing notes specified that southern yellow pine, douglas fir, oak, and southern cypress were acceptable materials, treated with 14 pounds of grade no. 1 creosote oil under the full cell process. Added notes on the drawings document the construction process. In 1970, under contract 70-05-001, it was repaired with steel reinforcement to the substructure.

This composite structure, comprising a multiple-span timber substructure and concrete slab superstructure, has considerable technological significance, and exemplifies the receptiveness to innovation which characterized the bridge engineers of the State Highway Department during this period. This new type of structure offered the advantage of utilizing economical materials, and Department engineers were quick to test its merits. It is significant as one of only three composite timber/concrete bridges surveyed in Delaware.