Maryland Historical Trust

Maryland Inventory of Historic Properties Number: WA-II-128

Name: Barnes Rd. over Beaver Creek

The bridge referenced herein was inventoried by the Maryland State Highway Administration as part of the Historic Bridge Inventory, and SHA provided the Trust with eligibility determinations in February 2001. The Trust accepted the Historic Bridge Inventory on April 3, 2001. The bridged received the following determination of eligibly.

MARYLAND HISTORICAL TRUST

Eligibility Recommended ___X____ Eligibility Not Recommended _____

Criteria: ____A ____B ____C ____D Considerations: ___A ___B ___C ___D ___E ___F ___G __None

Comments:_____

_____

_____

Reviewer, OPS:__Anne E. Bruder_____ Date:__3 April 2001_____

Reviewer, NR Program:_Peter E. Kurtze_____ Date:___3 April 2001_____

MARYLAND INVENTORY OF HISTORIC BRIDGES
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

MHT No. WA-II-128

SHA Bridge No. W 5351 **Bridge name** Barnes Road over Beaver Creek

LOCATION:
Street/Road name and number Barnes Road

City/town Boonsboro **Vicinity** X

County Washington

This bridge projects over: Road__ **Railway**____ **Water** X **Land** ____

Ownership: State ____ **County** X **Municipal** ____ **Other** ____

HISTORIC STATUS:
Is the bridge located within a designated historic district? Yes ____ **No** X
National Register-listed district ____ **National Register-determined-eligible district** ____
Locally-designated district ____ **Other** ____

Name of district ____

BRIDGE TYPE:
Timber Bridge ____:
Beam Bridge ____ **Truss -Covered** ____ **Trestle** ____ **Timber-And-Concrete** ____

Stone Arch Bridge ____

Metal Truss Bridge ____

Movable Bridge :
Swing ____ **Bascule Single Leaf** ____ **Bascule Multiple Leaf** ____
Vertical Lift ____ **Retractile** ____ **Pontoon** ____

Metal Girder ____:
Rolled Girder ____ **Rolled Girder Concrete Encased** ____
Plate Girder ____ **Plate Girder Concrete Encased** ____

Metal Suspension ____

Metal Arch ____

Metal Cantilever ____

Concrete X :
Concrete Arch X **Concrete Slab** ____ **Concrete Beam** ____ **Rigid Frame** ____

Other ____ **Type Name** ____

DESCRIPTION:

Setting: Urban _____ **Small town** _____ **Rural** ____X____

Describe Setting:

Bridge W 5351 carries Barnes Road over Beaver Creek in Washington County. Barnes Road runs north-south and Beaver Creek flows east. The bridge is located in the vicinity of Boonsboro, and is surrounded by woods and open space.

Describe Superstructure and Substructure:

Bridge W 5351 is a single-span, 1-lane, concrete arch bridge that was built in 1906. The structure is 90 feet long and has a clear roadway width of 10 feet 8 inches. The superstructure consists of 1 arch that supports a concrete deck and concrete parapets. The arch spans 51 feet and has a closed spandrel arch design. The concrete deck has a bituminous wearing surface. The structure has solid panel parapets and the roadway approaches are narrow and slope down towards the bridge. A date plaque on the parapet states that the bridge was built in 1906 by the Nelson Construction Company. The substructure consists of 2 concrete abutments. There are 4 u-shaped concrete wingwalls. The bridge is posted for 8 tons at 15 miles per hour, and has a sufficiency rating of 20.4.

According to the 1995 inspection report, this structure was in fair condition with spalling and cracking. The asphalt wearing surface has longitudinal cracks. The arches are spalling and have section loss of the exposed reinforcement bars. There is undermining under the north abutment Also, the concrete parapets have cracks and are spalling.

Discuss Major Alterations:

There have been no major alterations to this structure.

HISTORY:

WHEN was the bridge built: ____1906____
This date is: Actual _____X_____ **Estimated** _____
Source of date: Plaque _X_ **Design plans** _____ **County bridge files/inspection form** ____**Other (specify):**
_____

WHY was the bridge built?
The bridge was constructed in response to the need for more efficient transportation network and increased load capacity.
WHO was the designer? Unknown
WHO was the builder? Nelson Construction Company
WHY was the bridge altered? N/A
Was this bridge built as part of an organized bridge-building campaign?
There is no evidence that the bridge was built as part of an organized bridge building campaign.

SURVEYOR/HISTORIAN ANALYSIS:

This bridge may have National Register significance for its association with:
A - Events _____ **B- Person** _____
C- Engineering/architectural character ___X_____

This bridge was determined eligible by the Interagency Review Committee in February 1996.

Was the bridge constructed in response to significant events in Maryland or local history?

The advent of modern concrete technology fostered a renaissance of arch bridge construction in the United States. Reinforced concrete allowed the arch bridge to be constructed with much more ease than ever before and maintained the load-bearing capabilities of the form. As the structural advantages of reinforced concrete became apparent, the heavy, filled barrel of the arch was lightened into ribs. Spandrel walls were opened, to give a lighter appearance and to decrease dead load. This enabled the concrete arch to become flatter and multi-centered, with longer spans possible. Designers were no longer limited to the semicircular or segmental arch form of the stone arch bridge. The versatility of reinforced concrete permitted development of a variety of economical bridges for use on roads crossing small streams and rivers.

Maryland's roads and bridge improvement programs mirrored economic cycles. The first road improvement of the State Roads Commission was a 7 year program, starting with the Commission's establishment in 1908 and ending in 1915. Due to World War I, the period from 1916-1920 was one of relative inactivity; only roads of first priority were built. Truck traffic resulting from war related factories and military installations generated new, heavy traffic unanticipated by the builders of the early road system. From 1920-1929, numerous highway improvements occurred in response to the increase in Maryland motor vehicles from 103,000 in 1920 to 320,000 in 1929, with emphasis on the secondary system of feeder roads that moved traffic from the primary roads built before World War I. After World War I, Maryland's bridge system also was appraised as too narrow and structurally inadequate for the increasing traffic , with plans for an expanded bridge program to be handled by the Bridge Division, set up in 1920. In 1920 under Chapter 508 of the Acts of 1920 the State issued a bond of $3,000,000.00 for road construction; the primary purpose of these monies was to meet the state obligations involving the construction of rural post roads. The secondary purpose of these monies was to fund (with an equal sum from the counties) the building of lateral roads. The number of hard surfaced roads on the state system grew from 2000 in 1920 to 3200 in 1930. By 1930, Maryland's primary system had been inadequate to the huge freight trucks and volume of passenger cars in use, with major improvements occurring in the late 1930's. Most improvements to local roads waited until the years after World War I.

As the nation's automotive traffic increased in the early twentieth century, local road networks were consolidated, and state highway departments were formed to supervise the construction and improvement of state roads. With a diverse topographical domain encompassing numerous small and large crossings, Maryland engineers quickly recognized the need for expedient design and construction through the standardization of bridge designs.

The concept and practice of standardization was one of the most important developments in engineering of the twentieth century. In Maryland, as in the rest of the nation, the standardized concrete types became the predominant bridge types built. In the period 1911 to 1920 (the decade in which standardized plans were introduced), beams and slabs constituted 65 percent and arches 35 percent of the extant 29 bridges built in Maryland. In the following decade, 1921-1930, the beam (now the T-beam) and slab increased to 73 percent and the arch had declined to 27 percent of the 129 extant bridges; in the next decade (1931-1940), the beam and slab achieved 82 percent and arches had further declined, constituting only 18 percent of the total of extant bridges built on state-owned roads between 1931 and 1946.

Although beam and slab bridges became the utilitarian choice, it appears that the arch was selected when aesthetics as well as other site conditions were considered. The architectural treatment of extant arch bridges supports this assessment. Many of these bridges were multiple span structures with open spandrels or masonry facing. Another decorative feature of the concrete arch bridge was an open, balustrade-style parapet. Despite the popularity of ornamental arches and the increase in use of beam and slab bridges, examples of simpler, single and multiple span closed concrete arch bridges with solid parapets continued to be constructed throughout the early twentieth century.

When the bridge was built and/or given a major alteration, did it have a significant impact on the growth and development of the area?

There is no evidence that the construction of this bridge had a significant impact on the growth and development of this area.

Is the bridge located in an area that may be eligible for historic designation and would the bridge add to or detract from the historic/visual character of the potential district?

The bridge is located in an area that does not appear to be eligible for historic designation.

Is the bridge a significant example of its type?

The bridge is a significant example of its type, due to the early date of construction.

Does the bridge retain integrity of important elements described in Context Addendum?

The bridge retains the character-defining elements of its type, as defined by the Statewide Historic Bridge Context, including arch ribs, spandrel walls, parapets, abutments and wingwalls, however some deterioration is evident.

Is the bridge a significant example of the work of a manufacturer, designer, and/or engineer?

This bridge is a significant example of the work of the Nelson Construction Company of Chambersburg and Pittsburgh, Pennsylvania.

Should the bridge be given further study before an evaluation of its significance is made?

No further study of this bridge is required to evaluate its significance.

BIBLIOGRAPHY:

County inspection/bridge files X **SHA inspection/bridge files** _____
Other (list):

Johnson, Arthur Newhall
1899 The Present Condition of Maryland Highways. In *Report on the Highways of Maryland.* Maryland Geological Survey, The Johns Hopkins University Press, Baltimore.

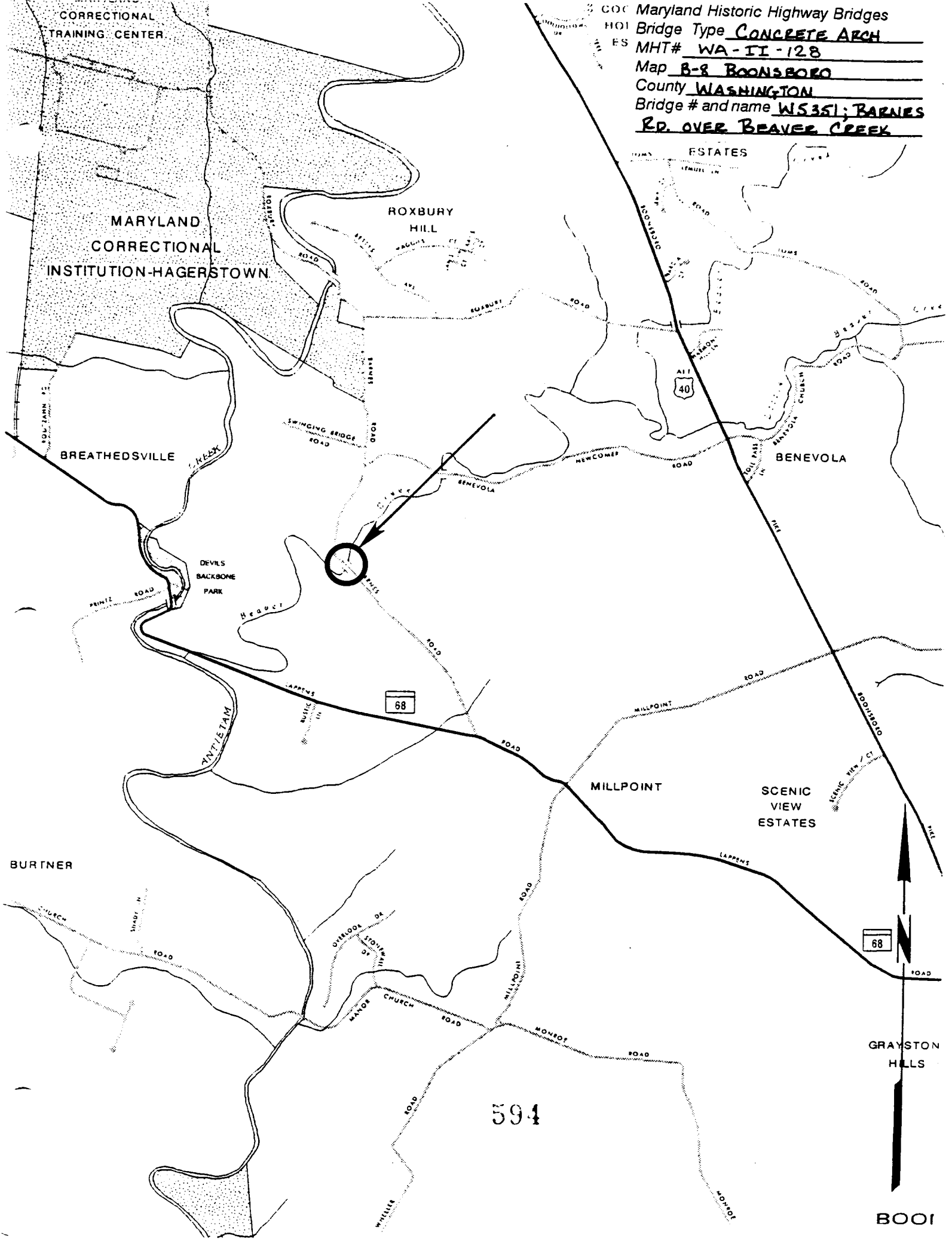
P.A.C. Spero & Company and Louis Berger & Associates
1995 Historic Highway Bridges in Maryland: 1631-1960: Historic Context Report. Maryland State Highway Administration, Maryland State Department of Transportation, Baltimore, Maryland.

Tyrrell, H. Grattan
1909 *Concrete Bridges and Culverts for Both Railroads and Highways.* The Myron C. Clark Publishing Company, Chicago and New York.

SURVEYOR:

Date bridge recorded December 1997
Name of surveyor Wallace, Montgomery & Associates / P.A.C. Spero & Company
Organization/Address P.A.C. Spero & Co., 40 W. Chesapeake Avenue, Baltimore, MD 21204
Phone number (410) 296-1635 **FAX number** (410) 296-1670

Maryland Historic Highway Bridges
Bridge Type CONCRETE ARCH
MHT# WA-II-128
Map B-8 BOONSBORO
County WASHINGTON
Bridge # and name W5351; BARNES RD. OVER BEAVER CREEK



WA-II-128

5

WA-II-128

SR # 20[illegible]

[illegible]

WASHINGTON [illegible]

[illegible]

[illegible]

[illegible]

[illegible] ATTACHMENT

[illegible] OF 5

WA-II-128

[illegible]

[illegible]

WASHINGTON POND

DAVID KING

[illegible]

[illegible]

[illegible]

5 OF 5

BUILT BY
NELSON CONST. CO
CHAMB'G & PITTSBG
1906

WA-II-128

ER # 20WS3SM0

[illegible]ER BEAVER [illegible]

WASHINGTON [illegible]

DAVID [illegible]

2/23/45

S. A. A.

PLAQUE [illegible] PARAPET

4 of 5

D A ROHER
F F FOLTZ
D F NIGH } COMMISS.
JOSEPH ERNST
J W DRAPER
J E WAGAMAN CLK.
A R HAGNER ATTY.

WA-II-128

SR # [illegible]

[illegible]

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2/23/[illegible]

S. H. A.

[illegible]

5 OF 5

Copy 11

WA-II-128
District 6
Map 68

MARYLAND HISTORICAL TRUST WORKSHEET

2203533717

NOMINATION FORM
for the
NATIONAL REGISTER OF HISTORIC PLACES, NATIONAL PARKS SERVICE

SEE INSTRUCTIONS

1. NAME

COMMON: Concrete Bridge - Barnes Road

AND/OR HISTORIC:

2. LOCATION

STREET AND NUMBER: Beaver Creek and Barnes Road

CITY OR TOWN: Boonsboro Vicinity

STATE: Maryland

COUNTY: Washington

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
☐ District ☐ Building ☐ Site ☒ Structure ☐ Object	☒ Public ☐ Private ☐ Both	Public Acquisition: ☐ In Process ☐ Being Considered	☐ Occupied ☐ Unoccupied ☐ Preservation work in progress	Yes: ☐ Restricted ☒ Unrestricted ☐ No

PRESENT USE (Check One or More as Appropriate)

☐ Agricultural	☐ Government	☐ Park	☒ Transportation	☐ Comments
☐ Commercial	☐ Industrial	☐ Private Residence	☐ Other (Specify)	
☐ Educational	☐ Military	☐ Religious		
☐ Entertainment	☐ Museum	☐ Scientific		

4. OWNER OF PROPERTY

OWNER'S NAME: Board Of County Commissioners Of Washington County

STREET AND NUMBER: Washington County Court House

CITY OR TOWN: Hagerstown

STATE: Maryland 21740

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC:

STREET AND NUMBER:

CITY OR TOWN:

STATE

Title Reference of Current Deed (Book & Pg. #):

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:

DATE OF SURVEY: ☐ Federal ☐ State ☐ County ☐ Local

DEPOSITORY FOR SURVEY RECORDS:

STREET AND NUMBER:

CITY OR TOWN:

STATE:

WA-II-128

7. DESCRIPTION

CONDITION	(Check One)		
	☐ Excellent ☒ Good ☐ Fair ☐ Deteriorated ☐ Ruins ☐ Unexposed		
	(Check One)	(Check One)	
	☐ Altered ☒ Unaltered	☐ Moved ☒ Original Site	

DESCRIBE THE PRESENT AND ORIGINAL (*If known*) PHYSICAL APPEARANCE

This bridge carries Barnes Road across Beaver Creek about three miles northwest of Boonsboro and about .7 mile north Of Maryland Route 68 in Washington County, Maryland

The bridge is constructed of reinforced and poured concrete and spans a distance of approximately 50 feet. The width of the bridge is 11 feet. The single broad segmental arch springs from abutments which flair slightly at their ends. The walls rise to a peak over the center of the arch. A tablet set in the east wall of the structure relates that the bridge was built by Nelson Construction Company, Chambersburg and Pittsburgh, 1906. On a second tablet set in the opposite wall are listed the names of the County Commissioners, Clerk and Attorney.

At present the bridge has a load rating of eight tons. Some cracking and spalling of concrete has occured although the bridge is deemed safe for present use.

SEE INSTRUCTIONS

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8. SIGNIFICANCE

PERIOD *(Check One or More as Appropriate)*

- ☐ Pre-Columbian
- ☐ 15th Century
- ☐ 16th Century
- ☐ 17th Century
- ☐ 18th Century
- ☐ 19th Century
- ☒ 20th Century

SPECIFIC DATE(S) *(If Applicable and Known)* 1906 - Nelson Construction Company

AREAS OF SIGNIFICANCE *(Check One or More as Appropriate)*

- Aboriginal
  - ☐ Prehistoric
  - ☐ Historic
- ☐ Agriculture
- ☒ Architecture
- ☐ Art
- ☐ Commerce
- ☐ Communications
- ☐ Conservation
- ☐ Education
- ☒ Engineering
- ☐ Industry
- ☐ Invention
- ☐ Landscape Architecture
- ☐ Literature
- ☐ Military
- ☐ Music
- ☐ Political
- ☐ Religion/Philosophy
- ☐ Science
- ☐ Sculpture
- ☐ Social/Humanitarian
- ☐ Theater
- ☒ Transportation
- ☐ Urban Planning
- ☐ Other *(Specify)*

STATEMENT OF SIGNIFICANCE

The Barnes Road concrete bridge is significant for its architecture, as reflecting the engineering abilities of its builder and as an aid to locate transportation.

Architecturally, the bridge is an example of very few concrete bridges which remain in use in Washington County. This structure, dated 1906, is the oldest of the three concrete arched bridges which have been included in the County Survey. Since so few of these structures, representing a significant type of bridge construction, are present in the County, they are worthy of being recorded.

The Barnes Road bridge also reflects the engineering capabilities of its builder, the Nelson Construction Company, as evidenced by its having withstood daily use since 1906 with minimal repairs.

The bridge has served as an aid to transportation on Barnes Road, a secondary County Road with an average daily traffic load of 214.

SEE INSTRUCTIONS

WA-II-128

9. MAJOR BIBLIOGRAPHICAL REFERENCES

Baker-Wibberley & Associates, Inc., "Bridge Repair And Replacement Program, Washington County, Md., " Washington County Engineering Dept: Hagerstown, September, 1974

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY							OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES					
CORNER	LATITUDE			LONGITUDE				LATITUDE			LONGITUDE		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NW	°	'	"	°	'	"		°	'	"	°	'	"
NE	°	'	"	°	'	"							
SE	°	'	"	°	'	"							
SW	°	'	"	°	'	"							

APPROXIMATE ACREAGE OF NOMINATED PROPERTY:

Acreage Justification:

SEE INSTRUCTIONS

11. FORM PREPARED BY

NAME AND TITLE:
Paula Stoner Dickey, Consultant

ORGANIZATION
Washington County Historical Sites Survey

DATE
August 1975

STREET AND NUMBER:
Court House Annex

CITY OR TOWN:
Hagerstown

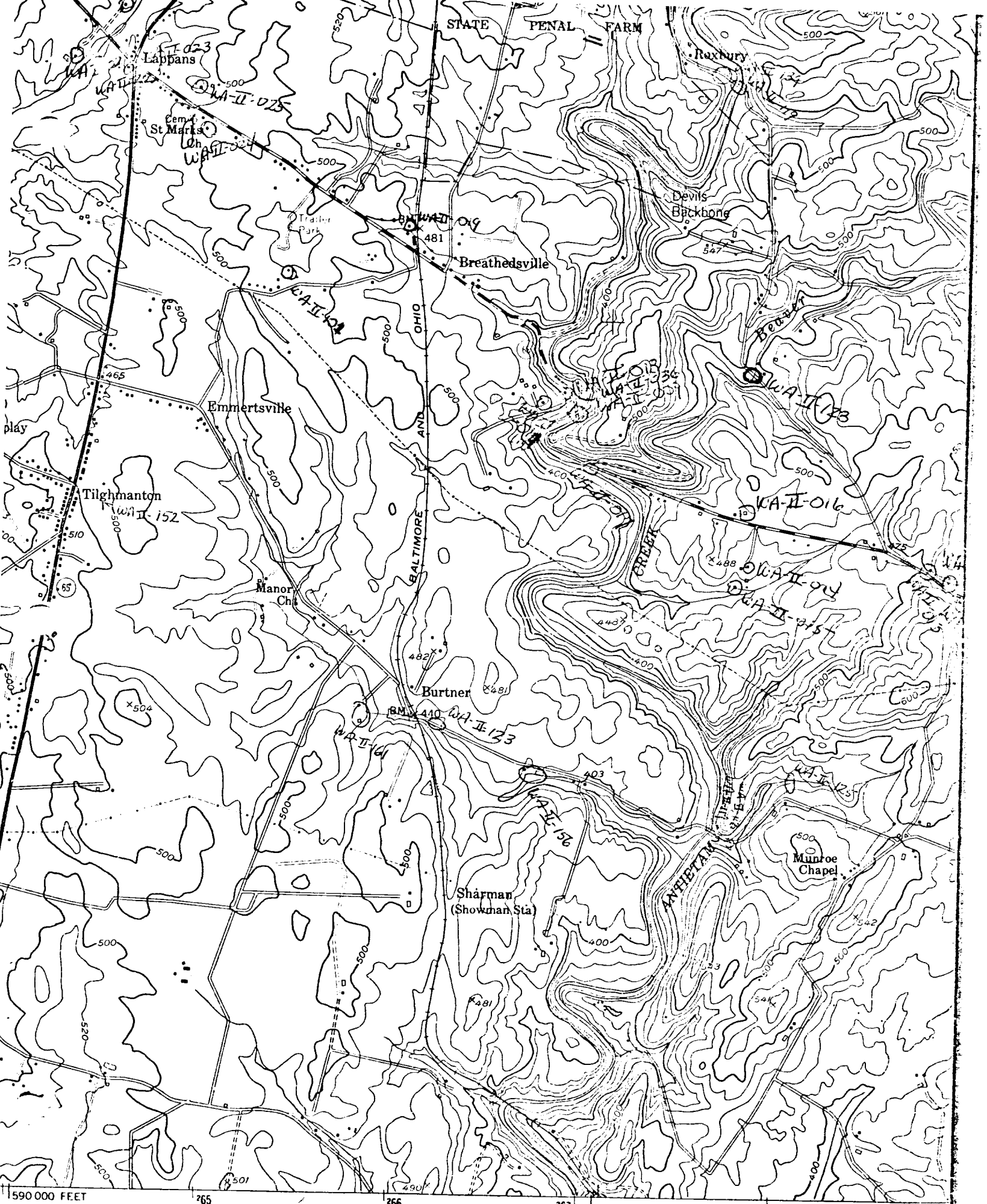
STATE
Maryland

12. State Liaison Officer Review: (Office Use Only)

Significance of this property is:

National ☐ State ☐ Local ☐

Signature



he Corps of Engineers, U. S. Army
ublished by the Geological Survey

BUILT BY
NELSON CONST CO
CHAMB & PITTSBG
1906

WA-II-128
Detail W. wall
March, 1915

PAULA STONER DICKEY
CONSULTANT, WASHINGTON CO.
HISTORICAL SITES SURVEY

WA-II-128
S.E.
March 1975

PAULA STONER DICKEY
CONSULTANT, WASHINGTON CO.
HISTORICAL SITES SURVEY

COMMISS
ERNST
DRAPER
AGAMAN SLK.
AGNER ATTY

WA-II-128
Detail E. wall
March. 1975

PAULA STONER DICKEY
CONSULTANT, WASHINGTON CO.
HISTORICAL SITES SURVEY

WA-II-12B
Detail E. wall
March, 1915

PAULA STONER DICKEY
CONSULTANT, WASHINGTON CO.
HISTORICAL SITES SURVEY