Maryland Historical Trust

Maryland Inventory of Historic Properties number: M:10-78

Name: 15053/MD 355 over Little Bennett 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 bridge received the following determination of eligibility.

MARYLAND HISTORICAL TRUST

Eligibility Recommended _____ Eligibility Not Recommended __X____

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 **MHT No.** M:10-78
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

SHA Bridge No. 15053 **Bridge name** MD 355 over Little Bennett Creek

LOCATION:
Street/Road name and number [facility carried] MD 355 (Frederick Road)

City/town Hyattstown **Vicinity** _____

County Montgomery

This bridge projects over: Road ____ **Railway** _____ **Water** X **Land** ____

Ownership: State X **County** _____ **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 _____ **Concrete Slab** ____ **Concrete Beam** X **Rigid Frame** _____
Other _____ **Type Name** _____

M:10-T8

DESCRIPTION:

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

Describe Setting:

Bridge No. 150533 carries MD 355 (Frederick Road) over Little Bennett Creek in Montgomery County. MD 355 runs north-south and Little Bennett Creek flows east to west. The bridge is located in Hyattstown, south of the Hyattstown Historic District, and is surrounded by open space and commercial buildings.

Describe Superstructure and Substructure:

Bridge No. 15053 is a 1-span, 2-lane concrete T-beam bridge. The bridge was originally built in 1925. The structure is 40 feet long and has a clear roadway width of 24 feet; there are no sidewalks. The superstructure consists of five (5) T-beams which support a concrete deck and concrete parapets. The beams measure 3 feet x 1 foot, 2 inches and are spaced approximately 5 feet apart. The concrete deck is covered with approximately 6 inches of asphalt. The structure has solid, raised-panel parapets and the roadway approaches have w-section guard rails. The substructure consists of two (2) concrete abutments and four (4) flared wing walls. The bridge is not currently posted and has a sufficiency rating of 53.7.

According to the 1996 inspection report, this structure was in fair condition with cracking, spalling, exposed reinforcement bars and rusting. The superstructure has deterioration of the roadway, deck and parapets. The deck surface has fine longitudinal cracks along the traveled edge, with hollow sounding areas along both outside edges. The concrete T-beams are heavily spalling, with many patched areas. The concrete girders have exposed reinforcement bars with rusting, hollow sounding areas and delaminated areas. The substructure has had extensive patching of the abutments and wingwalls.

Discuss Major Alterations:

According to the 1996 bridge inspection report, there have been no major alterations to the bridge. Minor repairs to the bridge include patching of the girders, abutments and wing walls.

HISTORY:

WHEN was the bridge built: 1925
This date is: Actual ___X___ **Estimated** _____
Source of date: Plaque _____ **Design plans** ___ **County bridge files/inspection form** ___
Other (specify): State Highway Administration bridge files/inspection forms

WHY was the bridge built?

The bridge was constructed in response to the need for a more efficient transportation network and increased load capacity.

WHO was the designer?

Unknown

WHO was the builder?

Unknown

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 _____

The bridge does not have National Register significance.

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

The earliest concrete beam bridges in the nation were deck girder spans that featured concrete slabs supported by a series of longitudinal concrete beams. This method of construction was conceptually quite similar to the traditional timber beam bridge which had found such widespread use both in Europe and in America. Developed early in the twentieth century, deck girder spans continued to be widely used in 1920 when noted bridge engineer Milo Ketchum wrote *The Design of Highway Bridges of Steel, Timber and Concrete* (Ketchum 1920).

Although visually similar to deck girder bridges, the T-beam span features a series of reinforced concrete beams that are integrated into the concrete slab, forming a monolithic mass appearing in cross section like a series of upper-case "T"s connected at the top. Thaddeus Hyatt is believed to have been the first to come upon the idea of the T-beam when he was studying reinforced concrete in the 1850s, but the first useful T-beam was developed by the Belgian Francois Hennebique at the turn of the present century (Lay 1992:293). The earliest references to T-beam bridges refer to the type as concrete slab and beam construction, a description that does not distinguish the T-beam design from the concrete deck girder. Henry G. Tyrrell was perhaps the first American bridge engineer to use the now standard term "T-beam" in his treatise *Concrete Bridges and Culverts*, published in 1909. Tyrrell commented that "it is permissible and good practice in designing small concrete beams which are united by slabs, to consider the effect of a portion of the floor slab and to proportion the beams as T-beams" (Tyrrell 1909:186).

By 1920, reinforced concrete, T-beam construction had found broad application in standardized bridge design across the United States. In his text, *The Design of Highway Bridges of Steel, Timber and Concrete*, Milo S. Ketchum included drawings of standard T-beam spans recommended by the U.S. Bureau of Public Roads as well as drawings of T-beam bridges built by state highway departments in Ohio, Michigan, Illinois, and Massachusetts (Ketchum 1920). By the 1930s the T-beam bridge was widely built in Maryland and Virginia.

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 which 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.

In the early years, there was a need to replace the numerous single lane timber bridges. Walter Wilson Crosby, Chief Engineer, stated in 1906, "the general plan has been to replace these [wood bridges] with pipe culverts or concrete bridges and thus forever do away with the further expense of the maintenance of expensive and dangerous wooden structures." Within a few years, readily constructed standardized bridges of concrete were being built throughout the state.

In 1930, the roadway width for all standard plan bridges was increased to 27 feet in order to accommodate the increasing demands of automobile and truck traffic (State Roads Commission 1930). The range of span lengths remained the same, but there were some changes designed to increase the load bearing capacities. The reinforcing bars increased in thickness. Visually, the 1930 design can be distinguished from its predecessors by the pierced concrete railing that was introduced at this time.

In 1933, a new set of standard plans were introduced by the State Roads Commission. This time their preparation was not announced in the Report; new standard plans were by this time nothing special - they had indeed become standard. Once again accommodating the ever-increasing demands of traffic, the roadway was increased, this time to 30 feet. The slab span's reinforcing bars remained the same diameter but were placed closer together to achieve still more load capacity.

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 which 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 south of the Hyattstown Historic District in an area which does not appear to be eligible for historic designation.

Is the bridge a significant example of its type?

A significant example of a concrete beam bridge should possess character-defining elements of its type, and be readily recognizable as an historic structure from the perspective of the traveler. The integrity of distinctive features visible from the roadway approach, including parapet walls or railings, is important in structures which are common examples of their type. In addition, the structure must be in excellent condition. Despite the retention of such features as the parapets, this bridge has considerable deterioration and is an undistinguished example of a concrete beam bridge.

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

The bridge retains much of the character-defining elements of its type, however, the integrity of these elements has been compromised by severe deterioration.

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

This bridge is not a significant example of the work of a manufacturer, designer, and/or engineer.

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

Ketchum, Milo S.
1908 *The Design of Highway Bridges and the Calculation of Stresses in Bridge Trusses.* The Engineering News Publishing Co., New York.

1920 *The Design of Highway Bridges of Steel, Timber and Concrete.* Second edition. McGraw-Hill Book Company, New York.

Lay, Maxwell Gordon
1992 *Ways of the World: A History of the World's Roads and of the Vehicles That Used Them.* Rutgers University Press, New Brunswick, New Jersey.

Luten, Daniel B.
1912 Concrete Bridges. *American Concrete Institute Proceedings* 8:631-640.

1917 *Reinforced Concrete Bridges.* National Bridge Company, Indianapolis, Indiana.

Maryland State Roads Commission
1930a *Report of the State Roads Commission for the Years 1927, 1928, 1929 and 1930.* State of Maryland, State Roads Commission, Baltimore.

1930b *Standard Plans.* State of Maryland, State Roads Commission, Baltimore.

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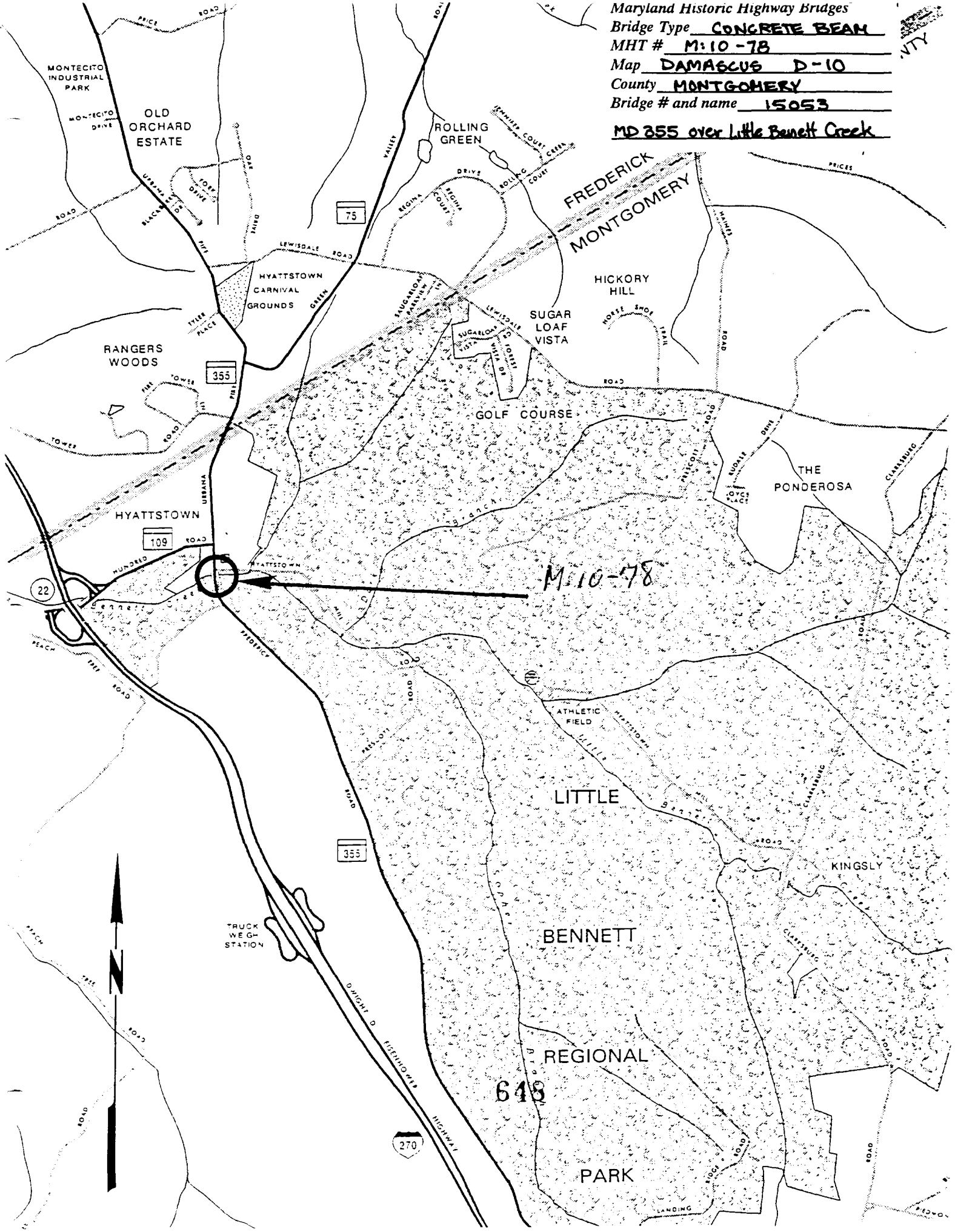
Taylor, Frederick W., Sanford E. Thompson, and Edward Smulski
1939 *Reinforced-Concrete Bridges with Formulas Applicable to Structural Steel and Concrete*. John Wiley & Sons, Inc., New York.

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 2/25/97
Name of surveyor Caroline Hall/Tim Tamburrino
Organization/Address P.A.C. Spero & Co., 40 W. Chesapeake Avenue, Baltimore, MD 21204
Phone number (410) 296-1685 **FAX number** (410) 296-1670

Maryland Historic Highway Bridges
Bridge Type CONCRETE BEAM
MHT # M:10-78
Map DAMASCUS D-10
County MONTGOMERY
Bridge # and name 15053
MD 355 over Little Bennett Creek



1. M.10-78

2 (15053) MD 355 OVER LITTLE BENNETT CREEK

3 MONTGOMERY CO, MD

4. TIM TAMBURRINO

5. 3-97

6. MD SHPO

7. SOUTH APPROACH

8. 1 of 5

1. M: 0-78

2. (15053) MD 355 OVER LITTLE BENNETT CREEK

3. MONTGOMERY CO MD

4. TIM TAMBURRINO

5. 3-97

6. MD SHPO

7. NORTH APPROACH

8. 2 of 5

1. M:10-78

2 (15053) MD 355 OVER LITTLE BENNETT CREEK

3 MONTGOMERY CO. MD

4. TIM TAMBURRINO

5. 3.97

6. MD SHPO

7. UNDERSIDE OF SUPERSTRUCTURE

8. 3 of 5

WARNING
STREAM POLLUTED
NO SWIMMING
OR WADING

1 M:10-78

2 (15053) MD 355 OVER LITTLE BENNETT CREEK

3. MONTGOMERY CO, MD

4 TIM TAMBURRINO

5 3-97

6 MD SHPO

7. EAST ELEVATION

8. 4 of 5

1 M, 10-78

2 (15053) MD 355 OVER LITTLE BENNETT CREEK

3. MONTGOMERY CO MD

4 TIM TAMBURRINO

5 3-97

6. MD SHPO

7. WEST ELEVATION

8. 5 of 5

9203727

INDIVIDUAL PROPERTY/DISTRICT
MARYLAND HISTORICAL TRUST
INTERNAL NR-ELIGIBILITY REVIEW FORM

Property/District Name: Bridge #15053 Survey Number: MO: 10-78

Project: Mainten. BR15053, MD355 over Little Bennet Cr. Agency: SHA

Site visit by MHT Staff: X no ___ yes Name _____ Date _____

Eligibility recommended ____ Eligibility not recommended X

Criteria: ___A ___B X C ___D Considerations: ___A ___B ___C ___D ___E ___F ___G ___None

Justification for decision: (Use continuation sheet if necessary and attach map)

According to information provided by SHA, Bridge #15053 does not meet the criteria for individual listing on the National Register of Historic Places. It is a 1925 concrete grider bridge. Concrete girder bridges were constructed in great number, often built to standards, by which the amount of material, excavation requirements and other quantities were predetermined based on the length of span. Many similar structures remain in the state. The structure has no engineering or historical significance. In addition, the bridge, located outside the Hyattstown Historic District, is not in any known historic district.

Documentation on the property/district is presented in: Project File

Preparedby: RitaSuffness

Elizabeth Hannold February 1, 1993
Reviewer, Office of Preservation Services Date

NR program concurrence: X yes ___ no ___ not applicable

R Kuhrman 2-2-93
Reviewer, NR program Date

Survey No. ~~MO~~ M:10-78

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA - HISTORIC CONTEXT

I. Geographic Region:

____ Eastern Shore (all Eastern Shore counties, and Cecil)
____ Western Shore (Anne Arundel, Calvert, Charles, Prince George's and St. Mary's)
_X_ Piedmont (Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery)
____ Western Maryland (Allegany, Garrett and Washington)

II. Chronological/Developmental Periods:

____ Paleo-Indian 10000-7500 B.C.
____ Early Archaic 7500-6000 B.C.
____ Middle Archaic 6000-4000 B.C.
____ Late Archaic 4000-2000 B.C.
____ Early Woodland 2000-500 B.C.
____ Middle Woodland 500 B.C. - A.D. 900
____ Late Woodland/Archaic A.D. 900-1600
____ Contact and Settlement A.D. 1570-1750
____ Rural Agrarian Intensification A.D. 1680-1815
____ Agricultural-Industrial Transition A.D. 1815-1870
_X_ Industrial/Urban Dominance A.D. 1870-1930
____ Modern Period A.D. 1930-Present
____ Unknown Period (___ prehistoric ___ historic)

III. Prehistoric Period Themes:

____ Subsistence
____ Settlement
____ Political
____ Demographic
____ Religion
____ Technology
____ Environmental Adaption

IV. Historic Period Themes:

____ Agriculture
_X_ Architecture, Landscape Architecture, and Community Planning
____ Economic (Commercial and Industrial)
____ Government/Law
____ Military
____ Religion
____ Social/Educational/Cultural
____ Transportation

V. Resource Type:

Category: Structure

Historic Environment: Rural

Historic Function(s) and Use(s): Transportation

Known Design Source: Unknown

Please Return these
originals to
Dominic L. Catanzaro
Room 305 x2836

M. 10-78

BRIDGE NO. 15053

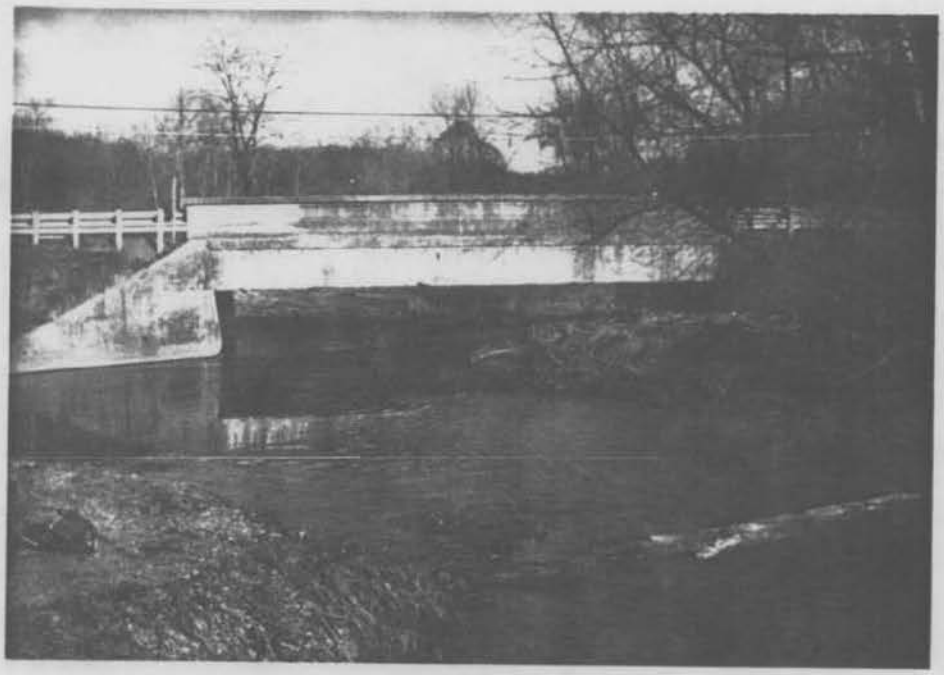


PHOTO NO. 5
WEST ELEVATION

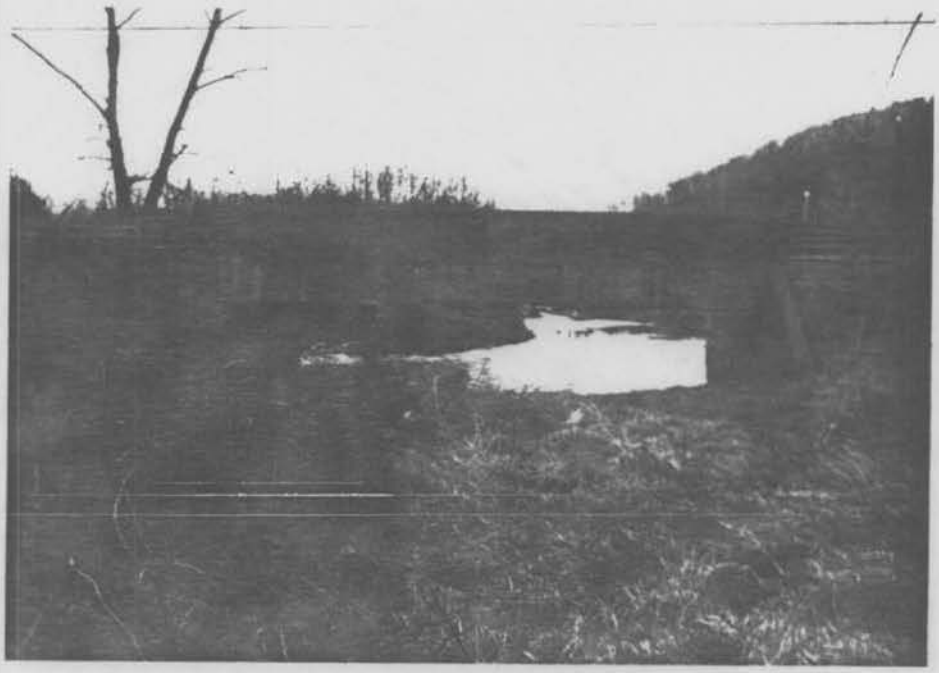
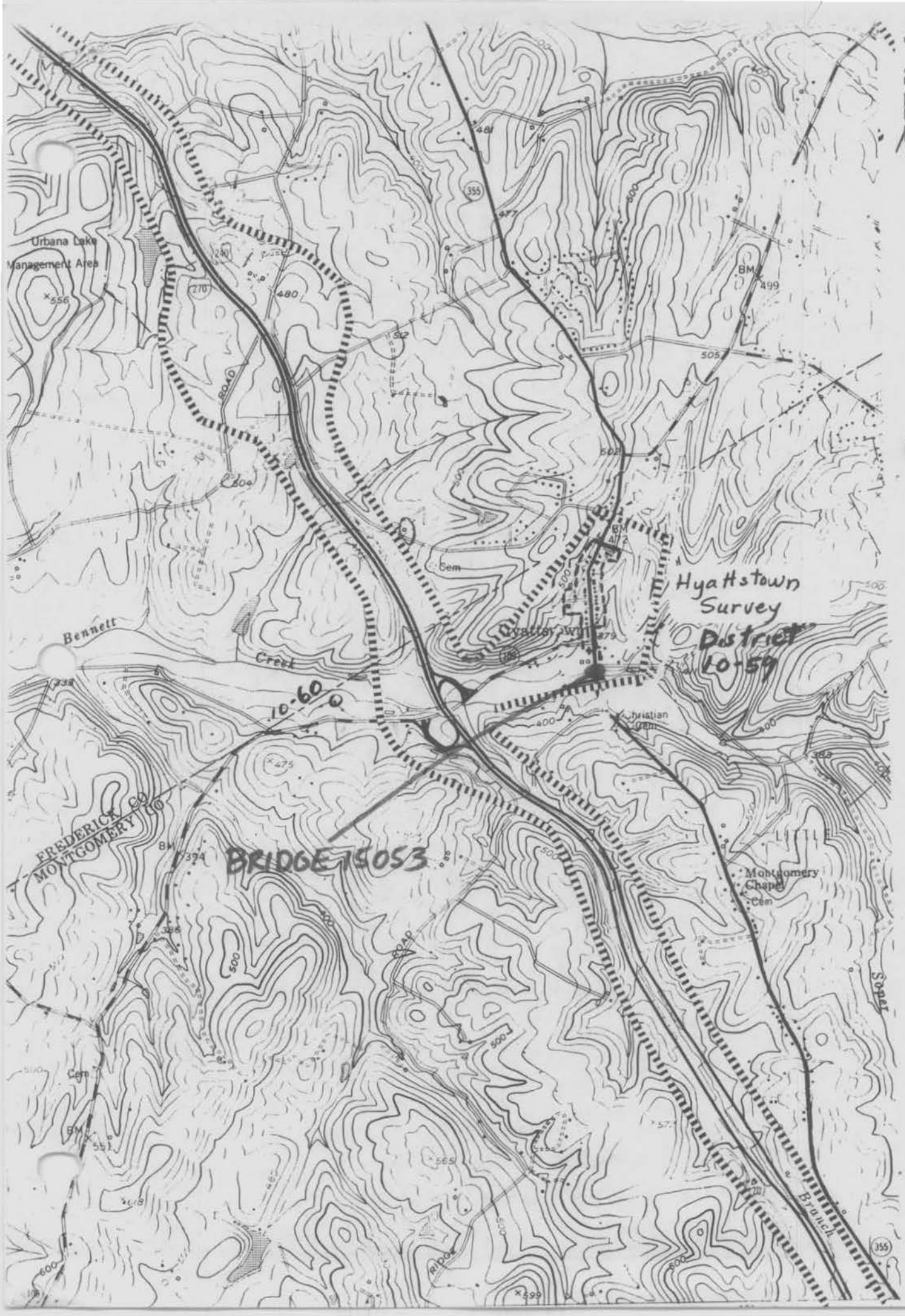


PHOTO NO. 6
EAST ELEVATION


M:10-78
Urbana Lake
Management Area
Hyattstown
Hyattstown Survey
District 10-59
10-60
Bennett
Creek
FREDERICK CO
MONTGOMERY CO
BRIDGE 15053
Christian
Cem
Montgomery
Chapel
Cem
Sopel
Branch
ROAD
355
270
480
505
499
502
500
400
475
565
599