

# State Level Historic Documentation Report

State Project No. S352-12-2.04

Federal Project No. N/A

## GARRISON BRIDGE Wetzel County



**Prepared by:**

**Tracy D. Bakic, Structural Historian**

Department of Transportation  
Division of Highways  
Engineering Division  
Environmental Section

**July 15, 2013**

STATE LEVEL HISTORIC DOCUMENTATION  
GARRISON BRIDGE

Location: County Route 12, over Long Drain Creek  
Outside Littleton (Approx. 3 Miles South of)  
Wetzel County  
West Virginia

USGS Littleton Quadrangle

Date of Construction: 1928

Builder: Lutten Bridge Company

Present Owner: West Virginia Department of Transportation  
Division of Highways  
1900 Kanawha Boulevard, Building 5, Room A-110  
Charleston, WV 25305

Present Use: Vehicular Bridge

Significance: The Garrison Bridge as an example of an early bridge type constructed by a master builder.

Project Information: The project has been undertaken due to the poor condition of the bridge. Any future deterioration of the bridge would result in its closure. Therefore, the existing bridge warrants replacement. This documentation was undertaken in July 2013 in accordance with a Memorandum of Agreement among the West Virginia Department of Transportation and West Virginia State Historic Preservation Office. These measures are required prior to replacement of this National Register eligible structure.

Tracy D. Bakic, Structural Historian  
West Virginia Division of Highways  
Charleston, WV 25305  
July 15, 2013

The Garrison Bridge spans Long Drain Creek and is located in northeastern Wetzell County, West Virginia on County Route 12, approximately 2 miles north of West Virginia Route 7.



The existing structure was built in 1928 by the Luten Bridge Company of York, PA. It is a single, simple arch span reinforced concrete deck supported by two reinforced concrete skewback abutments with full height pilasters. The bridge's overall length, measured from end to end of the deck, is 84'-5". The arch span length, measured at the springing line, is 60'-0". The wearing surface is comprised of a ½" single seal. The 8" thick reinforced concrete deck is 18'-2" wide having a 16'-4" roadway between railing posts. The railings consist of posts and rails made of reinforced concrete; each post is 3'-0" high by 9" square. The bridge does not include sidewalks. The Average Daily Traffic (ADT) in 2008 was 50 vehicles.

The latest bridge inspection report was completed in 2010 and lists the bridge in poor condition with no posted weight restrictions. The structure is classed as a dual lane bridge but is used as a single lane structure by mail carriers, school buses and local traffic and is in poor condition. The upstream and downstream arched spandrel walls continue to display a full depth 1/16" crack with spalls and exposed reinforcing steel at mid-span. Both spandrels still exhibit full depth, ¼" wide diagonal cracks extending down to the skewback of joint of Abutment No. 1 (south abutment). The underside of the deck exhibits full width cracks, spalls with exposed reinforcing steel and cracks with efflorescence. The upstream wingwall at Abutment No. 2 (north abutment) displays cracks, spalls with exposed reinforcing steel and backfill erosion. The concrete railing posts continue to exhibit spalls.

Daniel B. Luten is nationally recognized as an important figure in bridge building and the design of reinforced concrete arch bridges. The central idea of Luten's design practice was to "produce a more efficient structure" by reducing the material required to build for a given strength. His innovative approaches to reinforcing concrete arches with longitudinal tension rods resulted in efficient bridge designs. Luten patented his designs and they were utilized throughout the US. Luten often provided agents and builders with drawings and a license to use his plans for a set



price. One such agent was Alex B. Whittaker who in 1909 incorporated his own company - the Luten Bridge Company of York, Pennsylvania - and was joined by his brother John Whittaker, Lucius G. Brown, and G. W. Drury. The Garrison Bridge has been identified as an example of a spandrel-braced arch - an uncommon bridge type that is closely associated with Luten's work (KCI Technologies et al. 2013).

The Garrison Bridge is eligible for the National Register of Historic Places under Criterion C as an example of an uncommon type of concrete arch bridge that represents the individuality or variation of features particular to this bridge type constructed by a master builder.

## BIBLIOGRAPHY

KCI Technologies, Inc. and Mead & Hunt, Inc., *Draft West Virginia Statewide Historic Bridge Survey*, February 2013.

West Virginia Division of Highways Bridge Inspection Report, September 28, 2010.

West Virginia Division of Highways, Bridge Files, Maintenance Division, Building 5, Capitol Complex, Charleston, West Virginia, September 2010.

West Virginia Division of Highway, Bridge Replacement Study, Engineering Division, Building 5, Capitol Complex, Charleston, West Virginia, 2009, updated 2012.

West Virginia Division of Highways, Historic Property Inventory Form, Engineering Division, Building 5, Capitol Complex, Charleston, West Virginia, May 2012.

West Virginia Division of Highways, Phase 1 Cultural Resource Management Report, Engineering Division, Building 5, Capitol Complex, Charleston, West Virginia, May 2012.

STATE LEVEL HISTORIC DOCUMENTATION

INDEX TO PHOTOGRAPHS

Garrison Bridge

County Route (CR) 12, over Long Drain Creek

Wetzel County, West Virginia

Photographers: Ginger Williford

Aug. 8, 2011 and June 4, 2012

Jennifer Williamson

September 13, 2012

- |             |  |
|-------------|--|
| GARRISON -1 | East Elevation Looking Upstream, View West   |
| GARRISON -2 | West Elevation Looking Upstream, View East   |
| GARRISON -3 | Overview, West Side of Bridge in Forefront, View Southeast   |
| GARRISON -4 | Overview, CR 12 Looking Toward Bridge and Nearby Residence, View North/Northwest   |
| GARRISON -5 | North Portion of Bridge Deck, View Northeast Along CR 12   |
| GARRISON -6 | South Portion of Bridge Deck, View Southwest Along CR 12   |
| GARRISON -7 | Bridge Plate on North End of West Railing, View Northwest; Reads "1928/LUTEN BRIDGE CO./YORK, PA."   |
| GARRISON -8 | Bridge Plate on South End of East Railing, View Southeast; Reads "ALBERT GARNER, PRES./W. A. MORGAN./GEO. CHURCH [left brace identifies all previous as 'COUNTY COURT.'"]/G. A. HARMAN, CLERK./W. H. RAMP, COUNTY ROAD ENGINEER" |
| GARRISON -9 | North End of Bridge, Exhibiting West Side Deck Overhang and Terminus of Arched Spandrels at North Abutment, View Northeast   |
| GARRISON-10 | North End of Bridge, Exhibiting East Side Deck Overhang, Railing and Terminus of Arched Spandrel at North Abutment   |

No original bridge plans exist for this bridge.

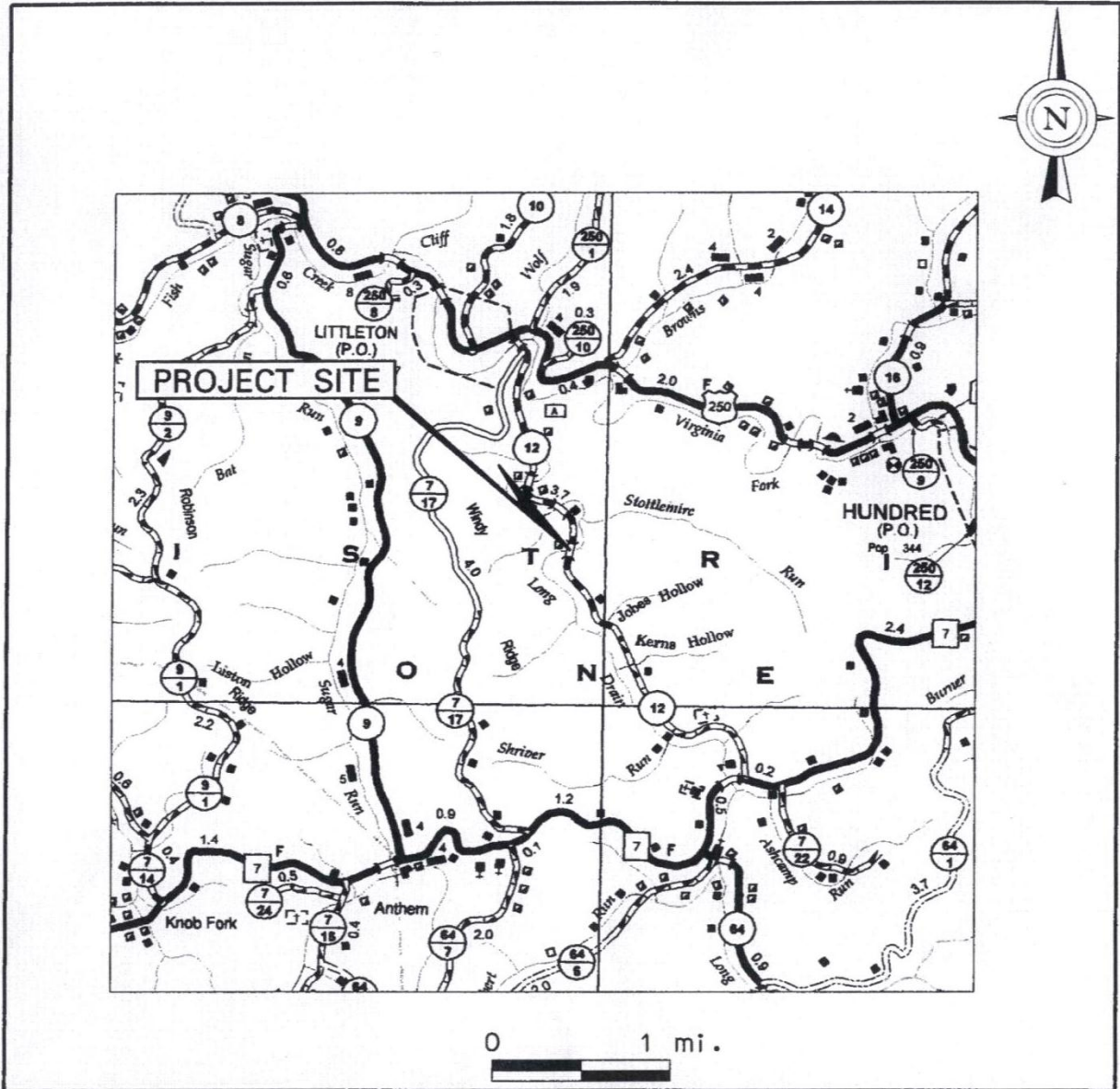


# BRIDGE REPLACEMENT STUDY

GARRISON BRIDGE (52-12-2.08)

STATE PROJECT NO. S352-12-2.04

WETZEL COUNTY



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

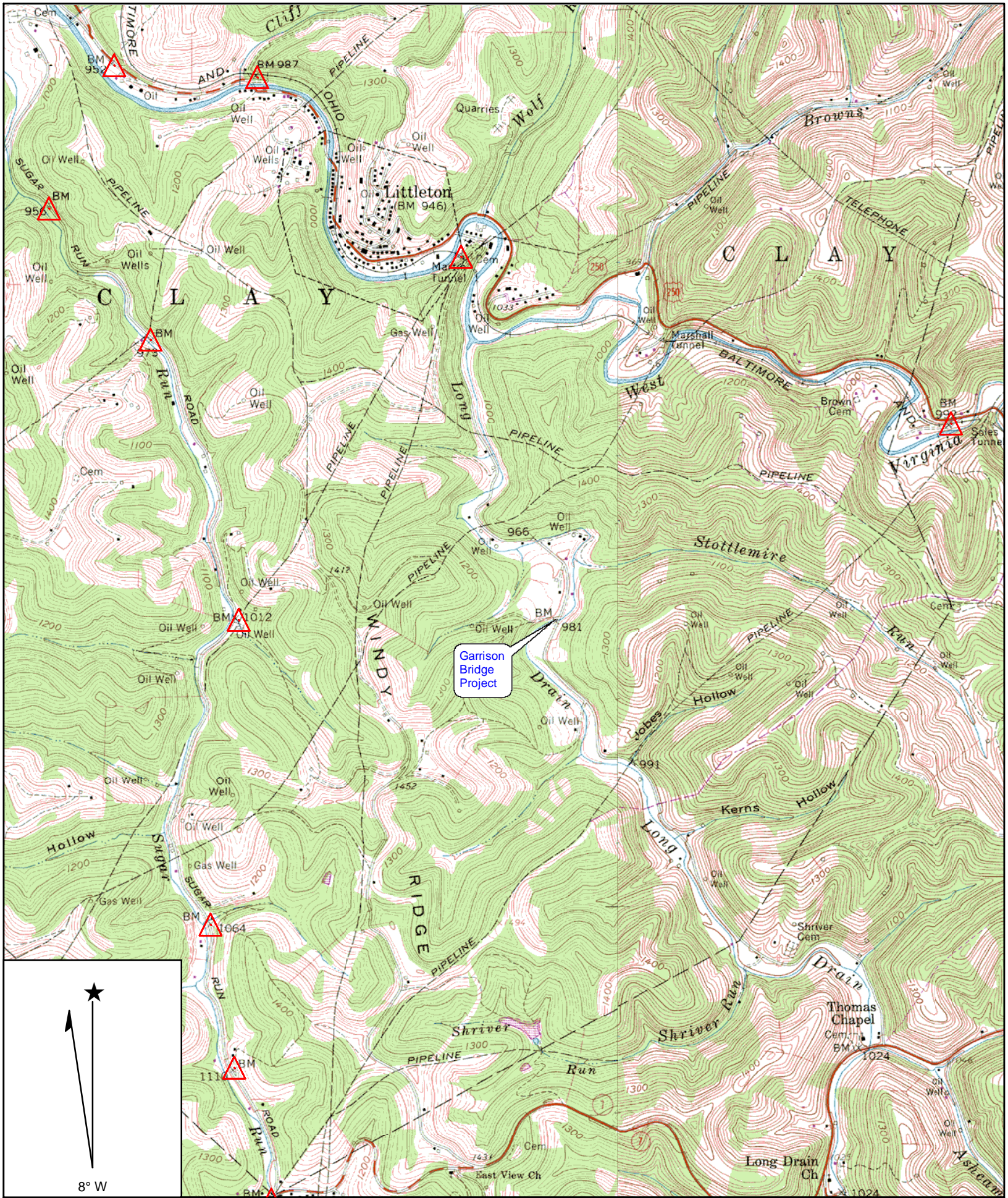
DIVISION OF HIGHWAYS

DISTRICT SIX BRIDGE DEPARTMENT

DISTRICT ENGINEER

DATE 12-17-09





Garrison  
Bridge  
Project

Name: LITTLETON  
Date: 7/16/2013  
Scale: 1 inch equals 2000 feet


Location: 039° 40' 51.13" N 080° 30' 24.48" W  
Caption: GARRISON BRIDGE  
Wetzel County  
State Project S352-12-2.04

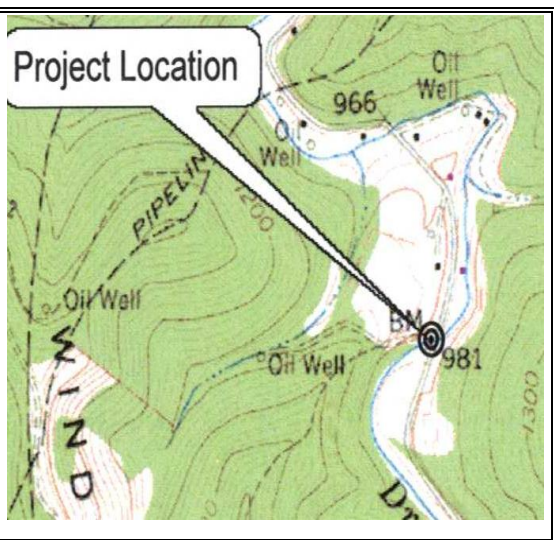


Internal Rating: \_\_\_\_\_



## WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

<b>Street Address</b> County Route (CR) 12, approximately 2 miles north of WV Route 7.	<b>Common/Historic Name/Both</b> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<b>Field Survey #</b> 1	<b>Site # (SHPO Only)</b>
<b>Town or Community</b> Rural	<b>County</b> Wetzel	<b>Negative No.</b>	<b>NR Listed Date</b>
<b>Architect/Builder</b> Daniel Luten	<b>Date of Construction</b> 1928	<b>Style (SHPO Only)</b> Concrete Arch	
<b>Exterior Siding / Materials</b> Concrete	<b>Roofing Material</b> Deck Material: Single Seal	<b>Foundation</b> Rock	
<b>Property Use or Function</b> Transportation Bridge	<b>UTM</b> Zone 17 NAD 1927 Easting 39.6793921 Northing 80.5033644		
	<b>Quadrangle Name</b> Littleton		
<b>Survey Organization &amp; Date</b> WVDOH May 10, 2012	<b>Part of What Survey / FR#</b> Garrison Bridge Replacement Wetzel County State Project: S352-12-2.04 Federal Project: NA		



Site No.

Name: Garrison Bridge Replacement  
Survey #: State Project: S352-12-2.04  
Survey / FR#:

<b>Present Owners</b> WVDOH	<b>Owners Mailing Address</b> 1900 Kanawha Blvd. East Building 5, Room 450 Charleston, WV 25305
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**Describe Setting** Unknown -- <1 Acres  
 Archaeological Artifacts Present

The bridge is in a rural location with one residence located within a half a mile. The bridge is located on County Route 12, approximately 2 miles north of WV Route 7. The direction of the survey of the road is from south to north.

**Description of Buildings or Site (Original and Present)** Stories      Front Bays

The bridge is a single, simple span reinforced concrete deck arch bridge. It is supported by two reinforced concrete skew back abutments with full height pilasters. The foundation is rock. There are no curbs or sidewalks. The railing consists of posts and rails made of reinforced concrete.

**Alterations**     Yes     No    If yes, describe

**Additions**     Yes     No    If yes, describe

**Describe All Outbuildings**  
None

**Statement of Significance:**  
See Continuation Sheet

**Bibliographical References**  
A Context For Common Historic Bridge Types, Prepared by Parsons Brinckerhoff and Engineering and Industrial Heritage, October 2005  
KCI Technologies: Draft Historic context, WV Statewide Historic Bridge Survey, October 2006.  
West Virginia Historic Bridges by Emory L. Kemp, May 1984

**Form Prepared By:** **Date:** May 10, 2012

Name/Organization: Ginger Williford  
Address: WV Division of Highways  
Capitol Complex  
Building 5, Rm. 463  
Charleston, WV 25305

Phone #: 558-9676

# WEST VIRGINIA HISTORIC PROPERTY FORM

## CONTINUATION SHEET

Name: Garrison Bridge Replacement  
Survey Number: State Project: S352-12-2.04  
Project / FR#: NA

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The Garrison Bridge was constructed in 1928 by the Luten Bridge Company of York, PA and is located on County Route 12, approximately 2 miles north of WV Route 7, Wetzel County. The Garrison Bridge is located in a rural section of Wetzel County with the community of Littleton being the closest with that being approximately 3 miles away. The community of Littleton is one of three towns, the other two being Burton and Hundred that collectively make up the Hundred community and were settled in the early 1800's. County Route 12 is one of several routes within this area including County Route 7 and 9 as well as West Virginia Route 250. County Route 12 was not a part of any toll road or is it associated with any roads movement or event. It is not a main transportation corridor and the bridge is currently classified as a dual lane bridge. Therefore, the Garrison Bridge is not eligible for listing in the National Register of Historic Places under Criterion A for its local significance as a transportation link.

The Garrison Bridge was constructed in 1928 by the Luten Bridge Company of York, PA. Daniel B. Luten is nationally recognized as an important figure in bridge building and the design of reinforced concrete arch bridges. However, the Garrison Bridge is not directly associated with Daniel B. Luten as an individual. Therefore, the Garrison Bridge is not eligible for listing in the National Register of Historic Places under Criterion B.

The Garrison Bridge was constructed in 1928 by the Luten Bridge Company of York, PA. Daniel B. Luten is nationally recognized as an important figure in bridge building and the design of reinforced concrete arch bridges. Luten was a Purdue University professor, bridge designer, and engineer based in Indianapolis. The central tenet of Daniel Luten's design practice was to "produce a more efficient structure," by reducing the material required to build for a given strength. His innovative approaches to reinforcing concrete arches with longitudinal tension rods resulted in efficient bridge designs that he protected through the patent system. The Garrison Bridge is a single, simple span reinforced concrete deck bridge. It is supported by two reinforced concrete skew back abutments with full height pilasters. The railing consists of posts and rails made of reinforced concrete. The Garrison Bridge is an example of a spandrel-braced arch, an uncommon bridge type that is closely associated with the work of Daniel B. Luten. Therefore, it is our recommendation that the Garrison Bridge is eligible for listing in the National Register of Historic Places under Criterion C for its local significance as a concrete arch bridge constructed by a company recognized as a master builder.

The Garrison Bridge provides little potential to yield information important to history or prehistory. Therefore, the Garrison Bridge is not eligible for listing in the National Register of Historic Places under Criterion D.



**MEMORANDUM OF AGREEMENT  
BY AND AMONG  
THE WEST VIRGINIA STATE HISTORIC PRESERVATION OFFICER  
AND THE WEST VIRGINIA DIVISION OF HIGHWAYS**

**REGARDING IMPLEMENTATION OF THE GARRISON BRIDGE  
REPLACEMENT PROJECT  
STATE PROJECT #S352-12-2.04  
WETZEL COUNTY, WEST VIRGINIA  
June 2012**

**WHEREAS**, the West Virginia Division of Highways (WVDOH) proposes to replace Garrison Bridge, which spans Long Drain Creek in Wetzel County, hereinafter referred to as the Project. The improvements involve the construction of a new bridge at the existing location and the removal of the existing bridge; and

**WHEREAS**, the WVDOH has determined that the Project will have an adverse effect upon the Garrison Bridge, a property eligible for the National Register of Historic Places (NRHP); and

**WHEREAS**, the WVDOH has consulted with the West Virginia State Historic Preservation Officer (WVSHPO) pursuant to West Virginia Code Chapter 29, Article 1 and its implementing regulations (82 CSR 2), as well as 36 CFR Part 800.5 Implementing Section 106 of the National Historic Preservation Act; (16 U.S.C., 470f); and

**WHEREAS**, the WVDOH has determined that the Project will not affect archaeological properties; and

**NOW, THEREFORE**, the WVSHPO and the WVDOH agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

**STIPULATIONS**

The WVDOH shall ensure that the following stipulations are carried out:

**Garrison Bridge**

- I. Garrison Bridge will be documented in its present historic setting. The documentation package will include 5"x7" black and white digital prints in accordance with the National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion of March 2005.
- II. A brief history of the structure will be included along with fully completed West Virginia Historic Property Inventory forms and copies of plan sheets and drawings of the bridge from WVDOH bridge files if they are available.

- III. The Garrison Bridge will be included in any comprehensive mitigation plan developed collaboratively by the WVDOH the FHWA and the WVSHPO. The Garrison Bridge will be included as an example of a Luten Concrete Arch in educational materials developed as part of the comprehensive mitigation plan. These materials will be distributed to the Wetzel County Schools as appropriate for content and grade level. The WVSHPO will be given the opportunity to review all educational materials developed for this Stipulation.
- IV. The two bridge plaques, photos attached, will be removed along with some concrete/stone attached and given to the Wetzel County Museum for preservation and potential exhibit as requested by the Wetzel County Convention & Visitors Bureau.
- V. The bridge will be documented on a future website listing historic bridges once the West Virginia Historic Bridge Survey is complete.

#### **V. Duration**

This MOA will expire if its stipulations are not carried out within five (5) years from the date of its execution. At such time, and prior to work continuing on the undertaking, the WVDOH shall execute a MOA pursuant to 82 CSR 2.5.4.d. Prior to such time, WVDOH may consult with other signatories to reconsider the terms of the MOA and amend it in accordance. WVDOH shall notify the signatories as to the course of action it will pursue.

#### **VI. Post-Review Discoveries**

If any unanticipated discoveries of historic properties or archaeological sites, including human burial sites and/or skeletal remains, are encountered during the implementation of this undertaking, work shall be suspended in the area of the discovery until the

WVDOH has developed and implemented an appropriate treatment plan in consultation with the WVSHPO pursuant to 36 CFR 800.13 (b).

#### **VII. Monitoring and Reporting**

Each year following the execution of this MOA until it expires or is terminated, WVDOH shall provide all parties to this MOA a summary report detailing work carried out pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in WVDOH's efforts to carry out the terms of this MOA.

**VIII. Amendments**

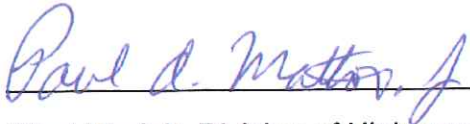
This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the SHPO.

**IX. Termination**

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VIII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, WVDOH must execute a MOA pursuant to 82 CSR 2.5.4.d.

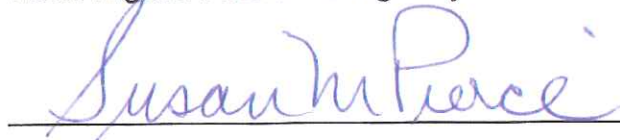
**EXECUTION** of the Memorandum of Agreement by the WWSHPO and the WVDOH, and implementation of its terms evidence that the WVDOH has afforded the SHPO an opportunity to comment on the Garrison Bridge Replacement project and its effects on historic properties, and that the WVDOH has taken into account the effects of the undertaking on the historic property.



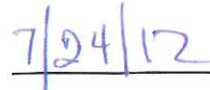
West Virginia Division of Highways



Date



West Virginia Deputy State Historic Preservation Officer



Date



Garrison Bridge Replacement  
Memorandum of Agreement  
Page 4

**Signature Page 2**

Consulting Parties

A handwritten signature in black ink, appearing to read "David Miller", written over a horizontal line.

Wetzel County Convention & Visitors Bureau

10/1/12

Date

**Signature Page 3**

Consulting Parties

*Danielle LaPota*

Preservation Alliance of West Virginia

*10/6/2012*

Date

Bcc: DDE, (STM)



Convention & Visitors Bureau

Denise Nielsen Tackett

136 Main Street  
New Martinsville, WV 26155

Tel: 304.398.4910  
Cell: 304.266.4813  
denise@WetzelCVB.org



Denise Nielsen Tackett

136 Main Street  
New Martinsville, WV 26155

phone 304.398.4910  
cell 304.266.4813  
email denise@wetzelcvb.org

10/1/12

Can I also get a  
copy of items I & II  
listed here?

thanks -

Denise Nielsen Tackett  
Wetzel County





 **COPY**

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

1900 Kanawha Boulevard East • Building Five • Room 110  
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin  
Governor

Paul A. Mattox, Jr., P. E.  
Secretary of Transportation/  
Commissioner of Highways

October 9, 2012

Wetzel County Convention & Visitors Bureau  
Ms. Denise Nielsen Tackett, Board Secretary  
136 Main Street  
New Martinsville, WV 26155

Dear Ms. Tackett:

State Project: S352-12-2.04  
Garrison Bridge Replacement  
Wetzel County

We have received your signed page for inclusion to the Memorandum of Agreement (MOA) for the Garrison Bridge Replacement Project. We have also noted your request to be provided a copy of the photographs and documentation as stated in Stipulations I & II. It generally takes a few months to complete the documentation but we will send you a copy once it is completed.

Should you require additional information, please contact Ginger Williford of our Environmental Section at (304) 558-9676 or [ginger.b.williford@wv.gov](mailto:ginger.b.williford@wv.gov).

Very truly yours

Gregory L. Bailey, P.E.  
Director  
Engineering Division

By: 

Ben L. Hark  
Environmental Section Head

GLB: Hj  
Attachments  
Bcc: DDE, (GW)





1. East Elevation Looking Upstream, View West



2. West Elevation Looking Downstream, View East



3. Overview, West Side of Bridge in Forefront, View Southeast



4. Overview of County Route 12 Looking Toward Bridge and Nearby Residence, View North/Northwest





5. North Portion of Bridge Deck, View Northeast Along County Route 12



6. South Portion of Bridge Deck, View Southwest Along County Route 12



7. Bridge Plate on North End of West Railing, View Northwest



8. Bridge Plate on South End of East Railing, View Southeast





9. North End of Bridge, Exhibiting West Side Deck Overhang and Terminus of Arched Spandrels at North Abutment, View Northeast



10. North End of Bridge, Exhibiting East Side Deck Overhang, Railing and Terminus of Arched Spandrel at North Abutment, View North/NW