DETERMINATION OF EFFECT REPORT
S.R. 2069, Section 001 Bridge Rehabilitation Project
Moreland Township Road over Little Muncy Creek

Moreland Township, Lycoming County, Pennsylvania

ER #2003-6155-081

Prepared for:

Pennsylvania Department of Transportation
Engineering District 3-0
P.O. Box 218
715 Jordan Avenue
Montoursville, Pennsylvania 17754

Prepared by:

A.D. Marble & Company
3913 Hartzdale Drive
Suite 1302
Camp Hill, Pennsylvania 17011

DRAFT

May 2012

DETERMINATION OF EFFECT REPORT

S.R. 2069, Section 001 Bridge Rehabilitation Project
Moreland Township Road over Little Muncy Creek

Moreland Township, Lycoming County, Pennsylvania

ER #2003-6155-081

Prepared for:

Pennsylvania Department of Transportation
Engineering District 3-0
P.O. Box 218
715 Jordan Avenue
Montoursville, Pennsylvania 17754

Prepared by:

A.D. Marble & Company
3913 Hartzdale Drive
Suite 1302
Camp Hill, Pennsylvania 17011

May 2012

ABSTRACT

This Determination of Effect report documents an assessment of the potential effect of the Pennsylvania Department of Transportation's (PennDOT's) proposed S.R. 2069, Section 001 (S.R. 2069-001) bridge rehabilitation project on historic resources listed in or eligible for listing in the National Register of Historic Places (National Register). The proposed project is located approximately 4 miles southwest of Lairdsville in Moreland Township, Lycoming County, Pennsylvania. This work was conducted in January and February 2012 for PennDOT Engineering District 3-0 in conjunction with the Federal Highway Administration (FHWA) as part of the Section 106 process. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings.

The S.R. 2069-001 (Moreland Township Road) bridge is individually not eligible; however, the bridge was previously determined eligible for listing in the National Register as a contributing resource to the Smith/Wallis Gristmill Historic District (Appendix A). The National Register-eligible historic district is the only historic property (resources 50 years of age or older that have been listed in or determined eligible for listing in the National Register) within the established Area of Potential Effect (APE).

Archaeological investigations were not undertaken for the project. The APE is included within areas of mixed deciduous trees and has been previously disturbed by roadway and bridge construction. No previously recorded archaeological sites are located within the APE. All ground disturbances associated with this project will occur in previously disturbed areas. Therefore, no archaeological work was recommended.

The proposed S.R. 2069-001 bridge rehabilitation project will impact the Smith/Wallis Gristmill Historic District. Under the direction of 36 CFR 800.5 and 800.6, the Definition of Effect and Criteria of Adverse Effect were applied. This analysis resulted in a finding that the proposed project will have No Adverse Effect on the National Register-eligible Smith/Wallis Gristmill Historic District.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

Figures

Photographs

Tables

1.0 Introduction

1.0 INTRODUCTION

This report presents the results of a Determination of Effect conducted in association with the proposed rehabilitation of the S.R. 2069, Section 001 (S.R. 2069-001) bridge, which carries S.R. 2069 (Moreland Township Road) over Little Muncy Creek in Moreland Township, Lycoming County, Pennsylvania (Figure 1). The S.R. 2069-001 bridge was determined not individually eligible for listing in the National Register by the Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation (PHMC-BHP) as part of the Pennsylvania Historic Bridge Survey (A.G. Lichtenstein & Associates 2000). In 2004, the S.R. 2069-001 Bridge was determined eligible as a contributing resource to the Smith/Wallis Gristmill Historic District.

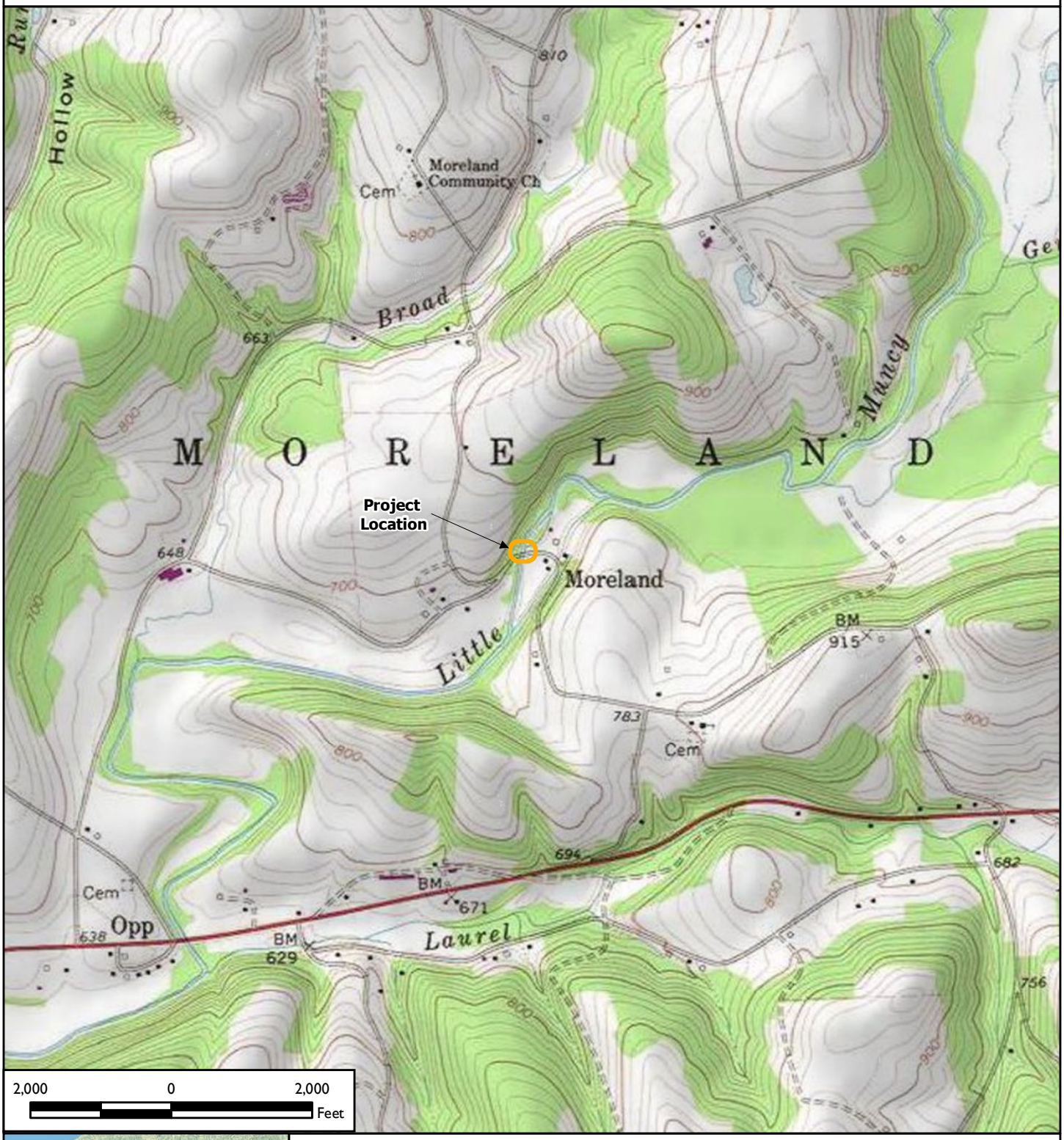
The purpose of the Determination of Effect report is to document the potential effects of the proposed project on historic properties located within the Area of Potential Effect (APE). The bridge is a contributing resource to the surrounding National Register-eligible Smith/Wallis Gristmill Historic District (Appendix A). Application of the Definition of Effect and Criteria of Adverse Effect has indicated that the proposed improvements will have No Adverse Effect on the Smith/Wallis Gristmill Historic District. The APE and the boundary of the National Register-eligible historic district property are depicted in Figure 2.

Archaeological investigations were not undertaken for the project. The APE is included within areas of mixed deciduous trees and has been previously disturbed by roadway and bridge construction. No previously recorded archaeological sites are located within the APE. All ground disturbances associated with this project will occur in previously disturbed areas. Therefore, no archaeological work was recommended.

This study was conducted in January and February 2012 for the Pennsylvania Department of Transportation (PennDOT) Engineering District 3-0 in conjunction with the Federal Highway Administration (FHWA) as part of the Section 106 process. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings. The work was conducted in accordance with all state and federal guidelines for architectural survey,

Figure 1: Project Location Map

S.R. 2069, Section 001 Bridge Rehabilitation Project
Moreland Township Road over Little Muncy Creek
Moreland Township, Lycoming County, Pennsylvania



Project Location

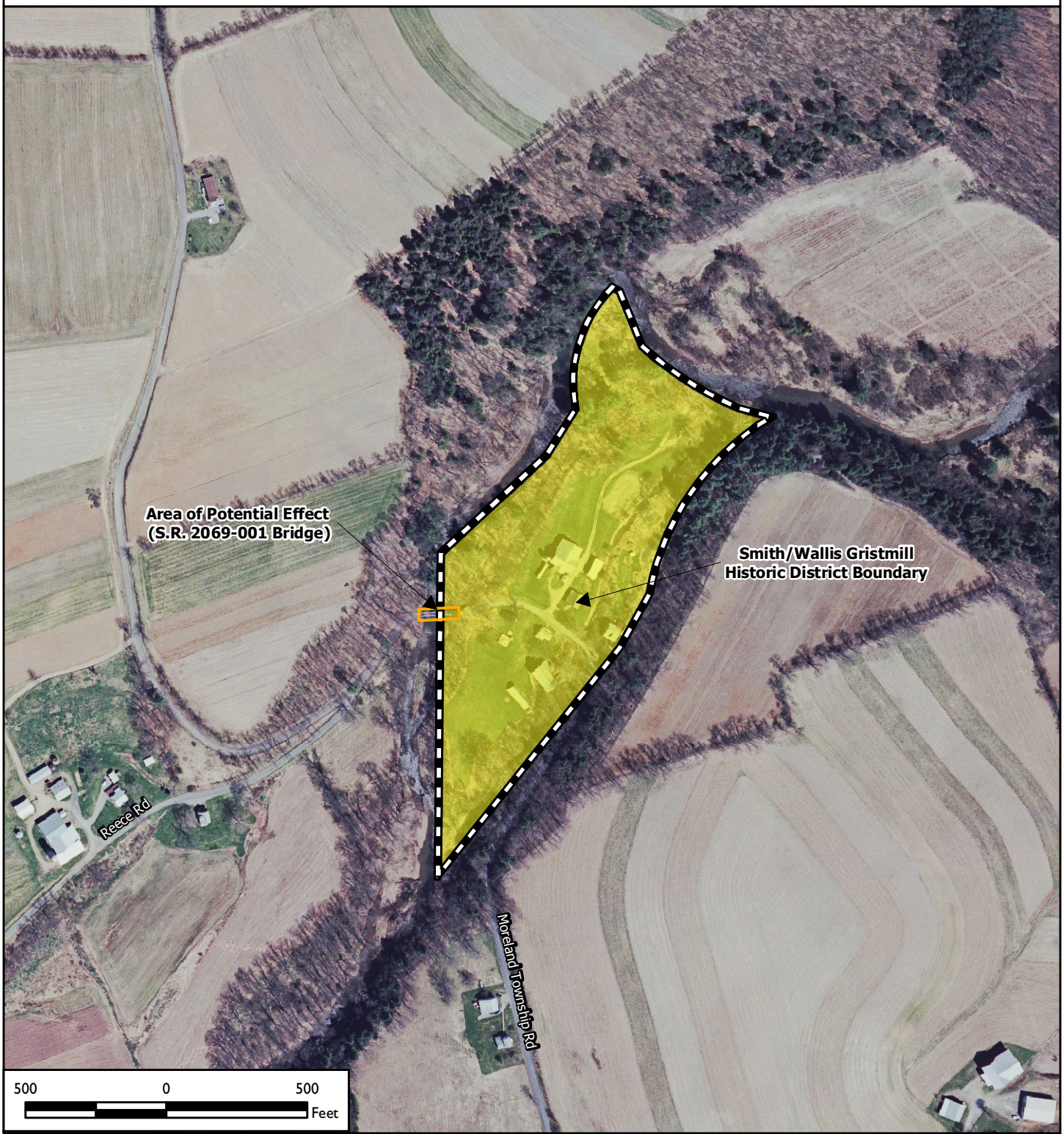
USGS 7.5' Qudrangle for Hughesville, Pennsylvania (1983)

P:\GIS\Projects\P1201\MXD\Historic\Fig01ProjLoc.mxd
March 07, 2012 03:56 PM

Map Source:

Figure 2: Area of Potential Effect and Historic Resource Location

S.R. 2069, Section 001 Bridge Rehabilitation Project
Moreland Township Road over Little Muncy Creek
Moreland Township, Lycoming County, Pennsylvania



P:\GIS\Projects\P1201\MXD\Historic\Fig02APE.mxd
March 07, 2012 04:11 PM

including: Section 106 of the National Historic Preservation Act of 1966, as amended; the Procedures for the Protection of Historic and Cultural Properties set forth in 36 CFR 800, as amended; 23 CFR 771, as amended; guidance published by the Advisory Council on Historic Preservation (ACHP); Sections 1(3) and 2(b) of Executive Order 11593; the National Environmental Policy Act of 1969, as amended; the ACHP Section 106 Regulations (36 CFR 800.4[a] [1] and 36 CFR 800.4[b][1]), as amended; and Publication 689, PennDOT Cultural Resources Handbook. This legislation requires that the effect of any federal undertaking on historically significant buildings, structures, objects, or sites be taken into account during the project planning process. Significant resources are those listed in or determined eligible for listing in the National Register.

2.0 Project Description

2.0 PROJECT DESCRIPTION

2.1 Existing Conditions

The proposed project is located in the rural area of central Moreland Township, Lycoming County (Figure 1). The S.R. 2069-001 bridge is a contributing resource to the Smith/Wallis Gristmill Historic District, which is primarily located to the east of the bridge. The district includes approximately 14 buildings that date from ca. 1796 to 1953, as well as two bridges and one well. The area surrounding the bridge and district generally consists of farmland interspersed with swaths of trees (Photographs 1 to 4).

The existing S.R. 2069-001 bridge (built in 1904) is a single-lane, single-span, 113-foot long steel Pratt through truss that carries S.R. 2069 (Moreland Township Road) over Little Muncy Creek (Photographs 4 to 6). The structure has a curb-to-curb width of 16 feet and is in poor condition. The steel members of the bridge are held together by iron pins, a popular construction technique that enabled the bridge to be prefabricated in the workshop and erected on-site. The bridge rests on stone abutments with flared wingwalls. The timber deck, which was previously replaced, is in poor condition (Photographs 6 to 8). The trusses are composed with built-up box section upper chords, vertical members with lacing, and diagonals and lower chords composed of eye bars. The steel floor beams are suspended by pin plates that are framed into both the ends of the floor beams and the bottoms of the verticals. To compensate for deterioration at the lower ends of the verticals, U-shaped hangers over a batten plate at the bottom of the verticals were added at an unknown date. The hangers were replaced in-kind in 1995 (A.G. Lichtenstein & Associates 2000). The lower chords have undergone section loss, which dictates the current 5-ton limit. The preferred ton limit, in order to accommodate township vehicles, school buses, and emergency vehicles, is 17 tons.

2.2 Project Purpose and Need and Description

The existing S.R. 2069-001 bridge is deteriorated and in need of repair in order to accommodate a 17-ton weight restriction that would allow for the passage of township vehicles, emergency vehicles, including ambulances and fire trucks, in addition to its continued use by township residents. The S.R. 2069-001 Bridge is classified as structurally deficient, with a posted weight

Photograph 1: View of the project area looking northeast, showing the S.R. 2069-001 bridge **(**in background, just left of center) and wooded surroundings (January 2012).

Photograph 2: View looking south from the S.R. 2069-001 bridge, showing the surrounding landscape (January 2012).

Photograph 3: View of the Smith/Wallis Gristmill Historic District, looking east from the east portal of the S.R. 2069-001 bridge (January 2012).

Photograph 4: View looking east toward the west portal of the S.R. 2069-001 bridge. Buildings within the Smith/Wallis Gristmill Historic District are visible in the background (January 2012).

Photograph 5: Overview of S.R. 2069-001 bridge, looking southeast (January 2012).

Photograph 6: View looking west toward the east portal of the S.R. 2069-001 bridge. The portal, top struts, and upper lateral bracing will be retained through minor repair work. The previously repaired timber deck will be replaced with a galvanized steel open deck (January 2012).

Photograph 7: View underneath the S.R. 2069-001 bridge, looking northeast, showing the deterioration of floor beams, stringers, and lower lateral bracing (January 2012).

Photograph 8: Detail of the north side of the S.R. 2069-001 bridge, looking east, showing the deterioration of the floor beams, lower chord, and vertical and diagonal members (January 2012).

restriction of 5 tons due to the current section loss of vertical members around pins and floor beam deterioration. S.R. 2069 serves the local rural community of central Moreland Township, and bridge studies done in 2007 and 2011 documented the township residents' desire to keep the existing bridge (Appendices B and C). In 2007, PennDOT undertook a bridge removal study for the S.R. 2069-001 bridge (Appendix B). The study took into account the use of the bridge by the local community, including farmers, the township, and a local church, as well as emergency management services and school districts. The traffic count in 2004 noted 41 vehicles and four two-axle truck or buses utilized the bridge daily. The report also noted that Moreland Township vehicles extensively use the bridge during the summer when they are maintaining township roadways, as the S.R. 2069-001 bridge provides the main connection between the northern and southern halves of the township. Four of the five farmers interviewed as part of the 2007 study stated they use the current bridge, which, at the time, did not restrict their operations or passage of large machinery. The posting in 2007 was 10 tons. The church secretary for the local Moreland Baptist Church, located southeast of the bridge, estimated that at least half of the congregation used the bridge when traveling to the church. In addition, the study also noted that the bridge is a contributing resource to the Smith/Wallis Gristmill Historic District (Appendices A and B).

The 2007 study took into account the concerns of replacing or completely removing the bridge. As evidenced by the survey of the local community, combined with the 2011 Board of Supervisors Meeting (Appendix C), it was noted that the local community wishes to retain the existing bridge.

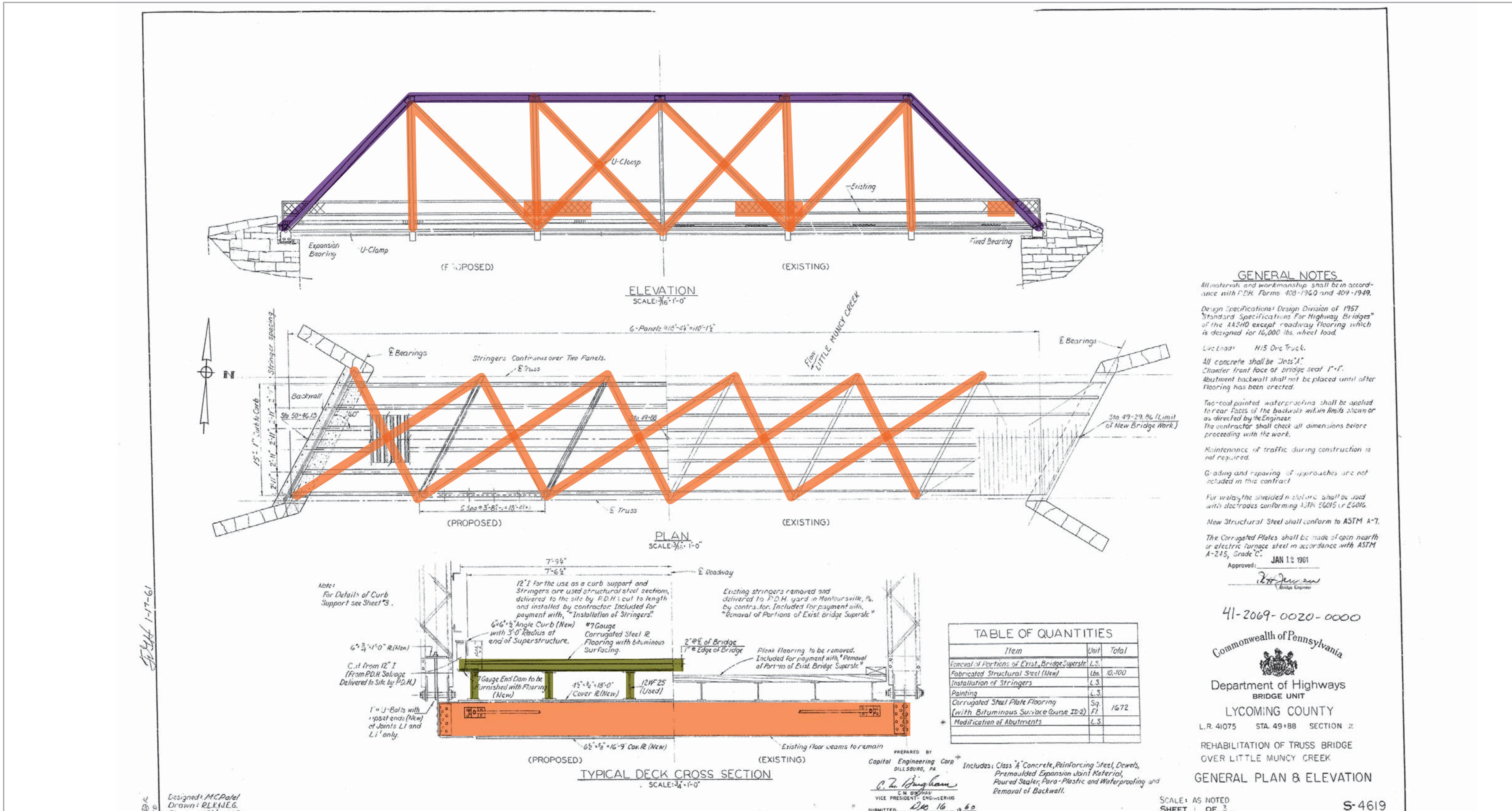
Due to the overall poor condition of the floor system members, continued exposure to the elements, and difficulties in obtaining a quality paint system, attempts to repair, partially replace, or strengthen existing floor systems on open steel or timber deck bridges are often ineffective. Existing floor system members have typically deteriorated to a point where repairs would be needed to most, if not all, of the members, and due to inaccessible areas, some deficiencies may go unnoticed until a point in the future where deterioration progresses enough to become evident. Also, the ability to apply a quality paint system under field conditions is difficult due to inaccessible areas and unfavorable elemental conditions. It is not uncommon for a rehabilitated

floor system to continue to need maintenance repairs, decreased weight limits, and/or additional rehabilitation in a relatively short period of time.

The proposed bridge rehabilitation will utilize a galvanized floor system due to the significant section loss of the members and joints below. The galvanized members will provide a protective coating to the members that is far superior to a paint-based coating system.

All of the lower chord members rate at or below the desirable 17-ton weight limit; the existing weight restriction is 5 tons, requiring the replacement of the bottom chord or supplemental members for strengthening. Considering all of these factors, replacement in-kind utilizing shop-painted members fabricated from modern steel for the lower chord and members connecting to the lower chord joint members is preferred. This will result in the desired 17-ton weight limit.

To address loading deficiencies associated with the deteriorated condition of the existing structure, the proposed S.R. 2069-001 bridge rehabilitation project will include the replacement and repair of several original features (Figures 3A to 3C). Repairs or replacements to the bridge will be made in keeping with the overall historic design as described below. The bridge will be constructed on the existing roadway alignment, and the width of the new superstructure will match that of the existing structure. The previously replaced timber deck will be replaced with a galvanized open steel deck (Photograph 6). The floor system, including stringers and floor beams, will be replaced utilizing galvanized steel beams (Photographs 7 to 9). The new floor system will be similar to the existing floor system, but sizing, shape, and spacing will change. The stringers were previously replaced, and the existing floor beams have been modified with cover plates. The lower chord will be replaced due to section loss, and new eye bars will retain the approximate size and shape of the existing eye bars (Photographs 9 and 10). The upper chord will be retained, including the top plate and lattice. Some minor patches and repairs may occur, including replacing some of the rivets with bolts. The vertical members will be replaced; the bottoms of the existing verticals have been previously modified through repairs (Photographs 11 and 12). All diagonal members will be replaced with steel approximately the same shape and size. The method of attaching the members to the pins has not been determined to date.



Orange	Replace (Original Materials)
Purple	Retain
Olive	Replace (Previously Replaced Materials)

Figure 3A

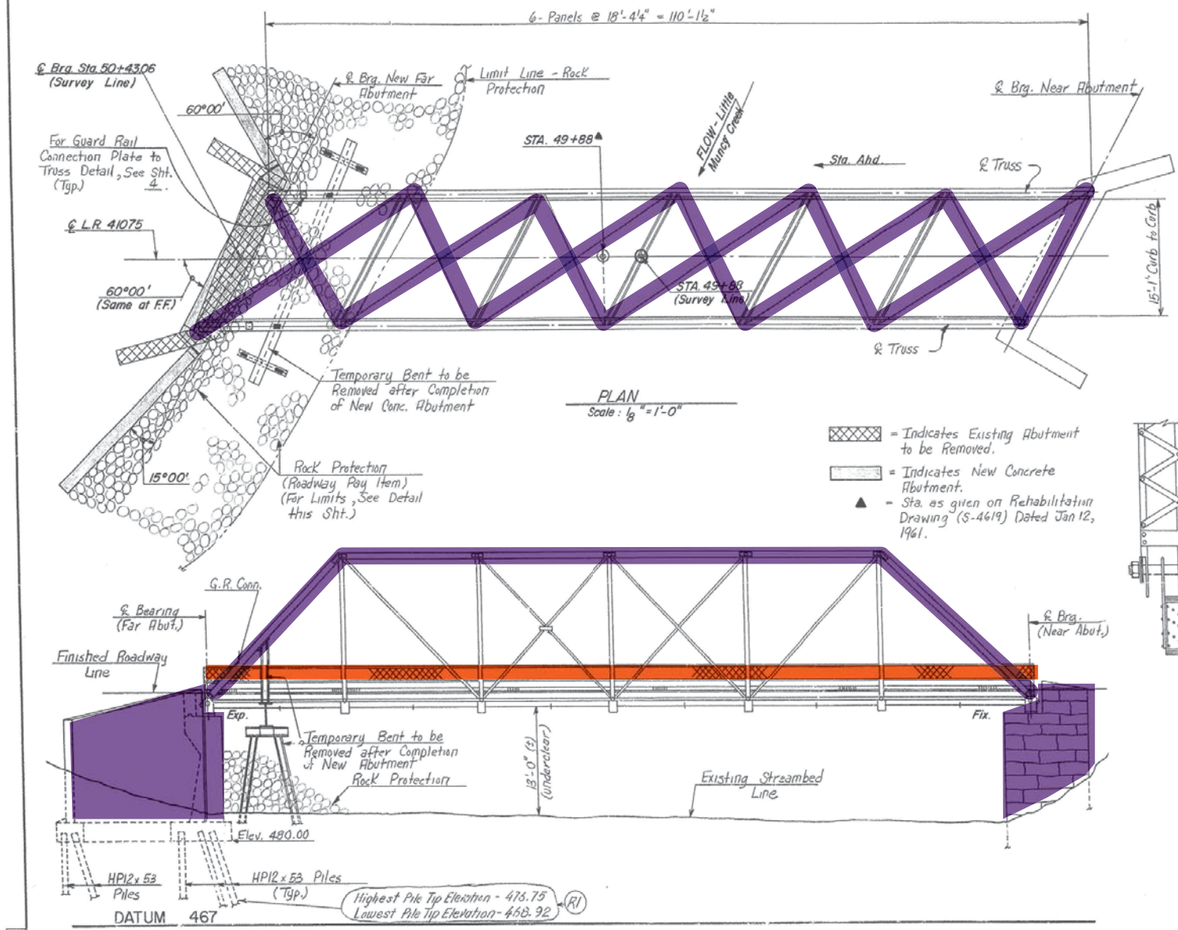
Proposed S.R. 2069, Section 001 Bridge Rehabilitation Plan Detail

S.R. 2069, Section 001 Bridge Rehabilitation Project

Moreland Township Road over Little Muncy Creek

Moreland Township, Lycoming County, Pennsylvania

7530-3350-0350



GENERAL NOTES

- Materials and Workmanship shall be in accordance with Specification Forms 408/93 and 409/93.
- Structural Steel shall conform to ASTM-A36 Designation except where noted otherwise.
- Design Specifications: Design Division of 1993 AASHO, "Standard Specifications for Highway Bridges" (including 1995 Interim Specifications), and as Supplemented by the Design Manual, Part 4, Structures (including 3-93 Revisions).
- Live Loads: HS20-44 Loading.
- 2" Concrete Cover shall be provided on reinforcement bars except where noted otherwise.
- Class 'A' Cement Concrete shall be used in Abutment and Wing stems, including backwall and cheekwalls.
- Class 'B' Cement Concrete shall be used in Abutment and Wing footings.

- Exposed concrete edges shall be chamfered 1"x1" except as noted.
- The contractor shall verify all dimensions and elevations of the existing structure in the field.
- Construction Details other than those shown on these drawings shall conform to the Supplemental Drawings.
- Protective Coating shall be applied to the Top of backwall, Top and front face of Abutment and Wings (down to a line two (2) foot below rock line, and rear face of Wingwalls down to a line one (1) foot below finished ground line.

- Two-coat painted Waterproofing shall be applied to the rear face of Abutment and Wings up to a line one foot below the finished Ground Line. The payment of this waterproofing shall be incidental to the class of concrete to which it is applied.
- Space below the bottom of the footing caused by removal operations of Existing Structure shall be filled with Select Borrow Excavation (Struct. Bkfill) and shall be paid for at the Contract Unit price of the item.
- Weepholes shall be provided as shown or as directed by the Engineer. The cost of such weepholes shall be incidental to the class of concrete.
- Any portion of the existing structure damaged by the contractor shall be replaced at his expense.
- Maximum Design Pile Load: _____ Abut. = 40 Tons. _____ Wings = 46 Tons.
- The stone material taken from the existing abutment may be used as part of Rock Protection (R'way item).
- The bearing piles shall be driven to "Absolute Refusal" on bedrock. Absolute refusal shall be conceded at a bearing value of 95 Tons, with a hammer having an approved energy of 14,260 ft.-lbs. The capacity of the hammer selected by the Contractor to properly drive the piles shall be verified by the Engineer from the test pile driving results.

NOTE:

B.M. Elev. 500.000 (assumed)

□ Cut in N.E. Corner of Wingwall, 7.5' Rt. of Sta. 49+25 (L.R. 41075)

HYDRAULIC DATA

- Hydraulic Data remains same as Existing.

June, 1972 H.W. Elev. = 495.65

* = Includes 78 lbs. of swedge anchor bolts used in bearing plates which are incidental to the Conc.

Item	Unit	TOTAL
Jacking Bridge Superstructure	L.S.	Lump Sum
Fabricated Structural Steel	L.S.	778 lbs.
Removal Portions of Exist. Structure	L.S.	Lump Sum
Removal of Temporary Bent	L.S.	Lump Sum
No. 2B Coarse Aggregate	C.Y.	3
Protective Coating for Reinf. Conc. Surfs.	S.Y.	46
HP12 x 53 Piles	L.F.	336
HP12 x 53 Test Piles	L.S.	90 L.F.
Select Borrow Excavation (Struc. Bkfill)	C.Y.	306
Class 3 Excavation	C.Y.	172
Reinforcement Bars	lbs.	12,775
Class 'B' Cement Concrete	C.Y.	81
Class 'A' Cement Concrete *	C.Y.	88

SUMMARY OF APPROXIMATE QUANTITIES

Description	Dwg. No.	App. Date
Backfill at Structures	RC-12	12-1-71
Classification of Earthwork for Struct.	RC-11	3-7-73
Reinforcement Bar Fabrication Details	BC-336	4-1-71
Construction & Expansion Joint Details ●	BC-995	4-1-71

SUPPLEMENTAL DRAWINGS

● = Waterstop shall be provided at all Vert. Constr. Jts.

Scale as Noted

Mark	Description	By	Chk'd.	App'd.	Date
R1	As Built Plans	A.C.E.			

REVISIONS

Commonwealth of Pennsylvania
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

LYCOMING COUNTY
L.R. 41075 SEC. 001
L.R. 41075-001 Sta. 49+88.00
over Little Muncy Creek
FAR ABUTMENT REPLACEMENT
GENERAL PLAN & STAKE-OUT SKETCH

APPROVED 10-27-75
R.C. Amus
DIST. BRIDGE ENGINEER

SHEET 1 OF 4
+ Supplemental Dwgs.
S-12503

Des. by: P.N.B. Dwn. by: D.W.R. Ck'd. by: R.D.B.

Replace (Original Materials)

Retain

Replace (Previously Replaced Materials)

Figure 3B
Proposed S.R. 2069, Section 001 Bridge Rehabilitation Plan Detail
S.R. 2069, Section 001 Bridge Rehabilitation Project
Moreland Township Road over Little Muncy Creek
Moreland Township, Lycoming County, Pennsylvania

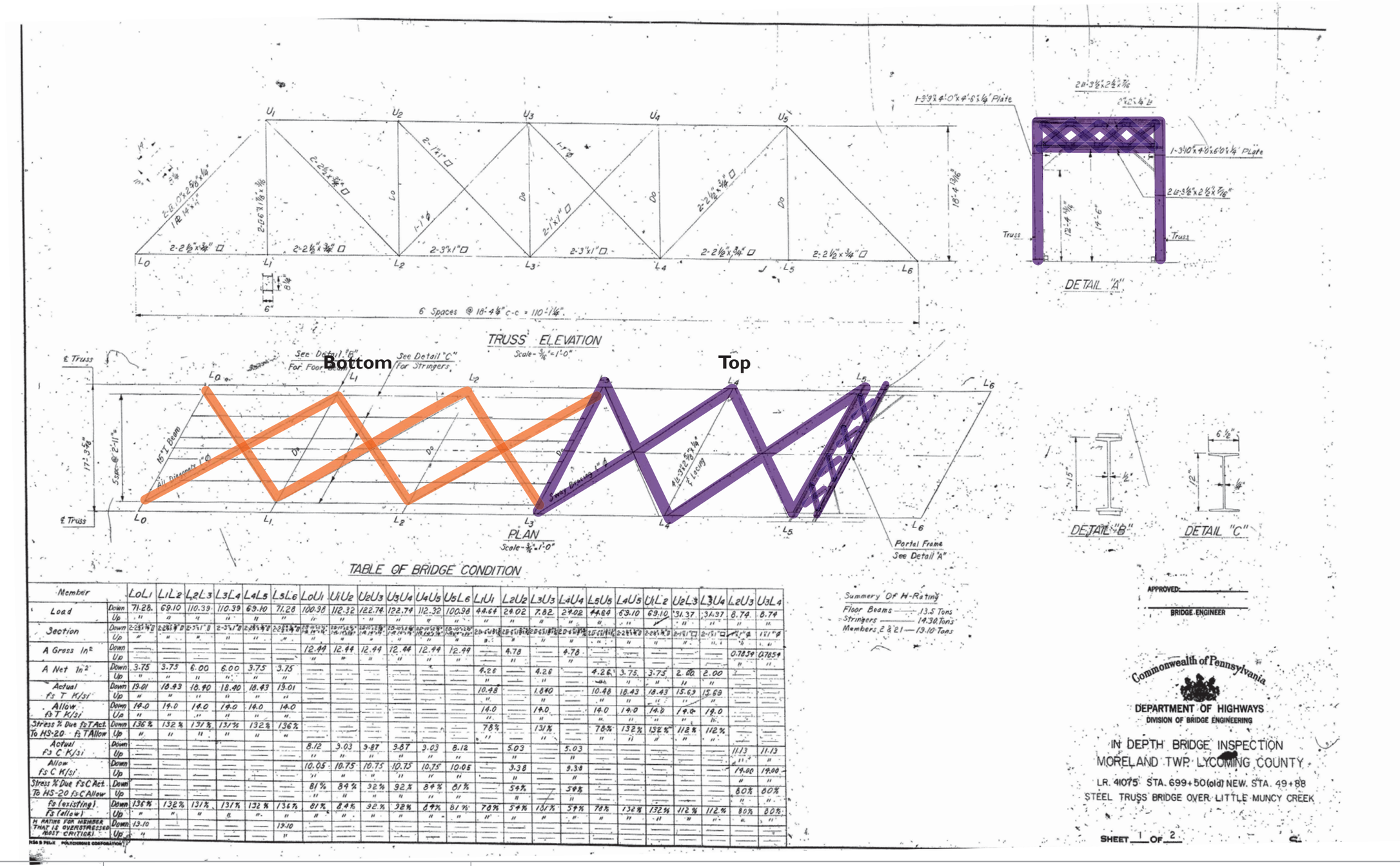
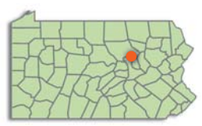


TABLE OF BRIDGE CONDITION

Member		L0L1	L1L2	L2L3	L3L4	L4L5	L5L6	L0U1	U1U2	U2U3	U3U4	U4U5	U5L6	L1U1	L2U2	L3U3	L4U4	L5U5	L4U5	U1L2	U2L3	L3U4	L2U3	U3L4
Load	Down	71.28	69.10	110.39	110.39	69.10	71.28	100.98	112.32	122.74	122.74	112.32	100.98	44.64	28.02	7.82	24.02	44.64	63.10	69.10	31.37	31.37	8.74	8.74
	Up	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Section	Down	2-2½"x½" □	2-2½"x½" □	2-3½"x½" □	2-3½"x½" □	2-2½"x½" □	2-2½"x½" □	2-L6"x3½"x⅜" 1 PL 14"x½"	2-2½"x¾" □	2-2½"x¾" □	1-1"ø	2-2½"x¾" □	2-2½"x¾" □	2-L6"x3½"x⅜"	2-2½"x¾" □	2-2½"x¾" □	2-L6"x3½"x⅜"	2-2½"x¾" □	2-3½"x½" □	2-2½"x¾" □	2-2½"x¾" □	2-3½"x½" □	2-L5"x3½"x½"	2-L5"x3½"x½"
	Up	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
A Gross In²	Down	—	—	—	—	—	—	12.44	12.44	12.44	12.44	12.44	12.44	—	4.78	—	4.78	—	—	—	—	—	0.785¢	0.785¢
	Up	—	—	—	—	—	—	"	"	"	"	"	"	—	"	—	"	—	—	—	—	—	"	"
A Net In²	Down	3.75	3.75	6.00	6.00	3.75	3.75	—	—	—	—	—	—	4.26	—	4.26	—	4.26	3.75	3.75	2.00	2.00	—	—
	Up	"	"	"	"	"	"	—	—	—	—	—	—	"	—	"	—	"	"	"	"	"	—	—
Actual fs T K/si	Down	19.01	18.43	18.40	18.40	18.43	19.01	—	—	—	—	—	—	10.48	—	1.840	—	10.48	18.43	18.43	15.69	15.69	—	—
	Up	"	"	"	"	"	"	—	—	—	—	—	—	"	—	"	—	"	"	"	"	"	—	—
Allow fs T K/si	Down	14.0	14.0	14.0	14.0	14.0	14.0	—	—	—	—	—	—	14.0	—	14.0	—	14.0	14.0	14.0	14.0	14.0	—	—
	Up	"	"	"	"	"	"	—	—	—	—	—	—	"	—	"	—	"	"	"	"	"	—	—
Stress % Due fs T Act. To HS-20 fs T Allow	Down	136%	132%	131%	131%	132%	136%	—	—	—	—	—	—	78%	—	131%	—	78%	132%	132%	112%	112%	—	—
	Up	"	"	"	"	"	"	—	—	—	—	—	—	"	—	"	—	"	"	"	"	"	—	—
Actual fs C K/si	Down	—	—	—	—	—	—	8.12	3.03	3.87	3.87	3.03	8.12	—	5.03	—	5.03	—	—	—	—	—	11.13	11.13
	Up	—	—	—	—	—	—	"	"	"	"	"	"	—	"	—	"	—	—	—	—	—	"	"
Allow fs C K/si	Down	—	—	—	—	—	—	10.05	10.75	10.75	10.75	10.75	10.05	—	3.38	—	9.38	—	—	—	—	—	19.00	19.00
	Up	—	—	—	—	—	—	"	"	"	"	"	"	—	"	—	"	—	—	—	—	—	"	"
Stress % Due fs C Act. To HS-20 fs C Allow	Down	—	—	—	—	—	—	81%	89%	92%	92%	89%	81%	—	54%	—	54%	—	—	—	—	—	60%	60%
	Up	—	—	—	—	—	—	"	"	"	"	"	"	—	"	—	"	—	—	—	—	—	"	"
fs (existing)	Down	136%	132%	131%	131%	132%	136%	81%	89%	92%	92%	89%	81%	78%	54%	131%	54%	78%	132%	132%	112%	112%	80%	80%
fs (allow)	Up	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
H RATING FOR MEMBER THAT IS OVERSTRESSED (MOST CRITICAL)	Down	13.10	—	—	—	—	13.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Up	"	—	—	—	—	"	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Replace (Original Materials)

Retain

Replace (Previously Replaced Materials)

Figure 3C
Proposed S.R. 2069, Section 001 Bridge Rehabilitation Plan Detail

S.R. 2069, Section 001 Bridge Rehabilitation Project
Moreland Township Road over Little Muncy Creek
Moreland Township, Lycoming County, Pennsylvania

Photograph 9: Detail of the lower connection of vertical members and floor beam, looking southeast. The floor beams, lower chord, and vertical members will all be replaced. The eye bars will be replaced in-kind (January 2012).

Photograph 10: Detail of the deterioration at the connection of the lower chord, lower lateral bracing, and east portal of the S.R. 2069-001 bridge, looking southwest (January 2012).

Photograph 11: Detail of the north side of the S.R. 2069-001 bridge, looking northwest, showing the deteriorated vertical and diagonal members, which will be replaced (January 2012).

Photograph 12: Detail of the vertical member and railing, looking southeast. The vertical members will all be replaced, and the railing will be replaced in-kind with a new W-beam railing (January 2012).

New bearings will be placed. The lower lateral bracing will be replaced with new rods of similar size. The portals, built-up sway struts, and steel upper lateral bracing will be retained through minor repair work. A new W-beam railing will be installed that replicates the previous railing. The east abutment will be retained through the placement of drainage behind the abutment, repointing of the existing stone masonry, and application of a new concrete cap (Photograph 13). The west abutment, which was replaced in 1975, will be retained (Photograph 14).

The proposed rehabilitation will result in the bridge remaining free from future rehabilitation for at least 30 years.

2.3 Area of Potential Effect

According to 36 CFR 800: Protection of Historic Properties 1986, revised 1999, the Area of Potential Effect (APE) is defined as:

> …the geographic area within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist. The APE includes resources that may be directly or indirectly impacted by project activities, including acquisition of property, property easements, and/or visual and audible effects.

The historic resources APE is defined as the area within which the proposed project might have a direct or indirect effect on aboveground resources 50 years of age or older. The potential types of effects, including physical and secondary effects, were considered in the development of the APE.

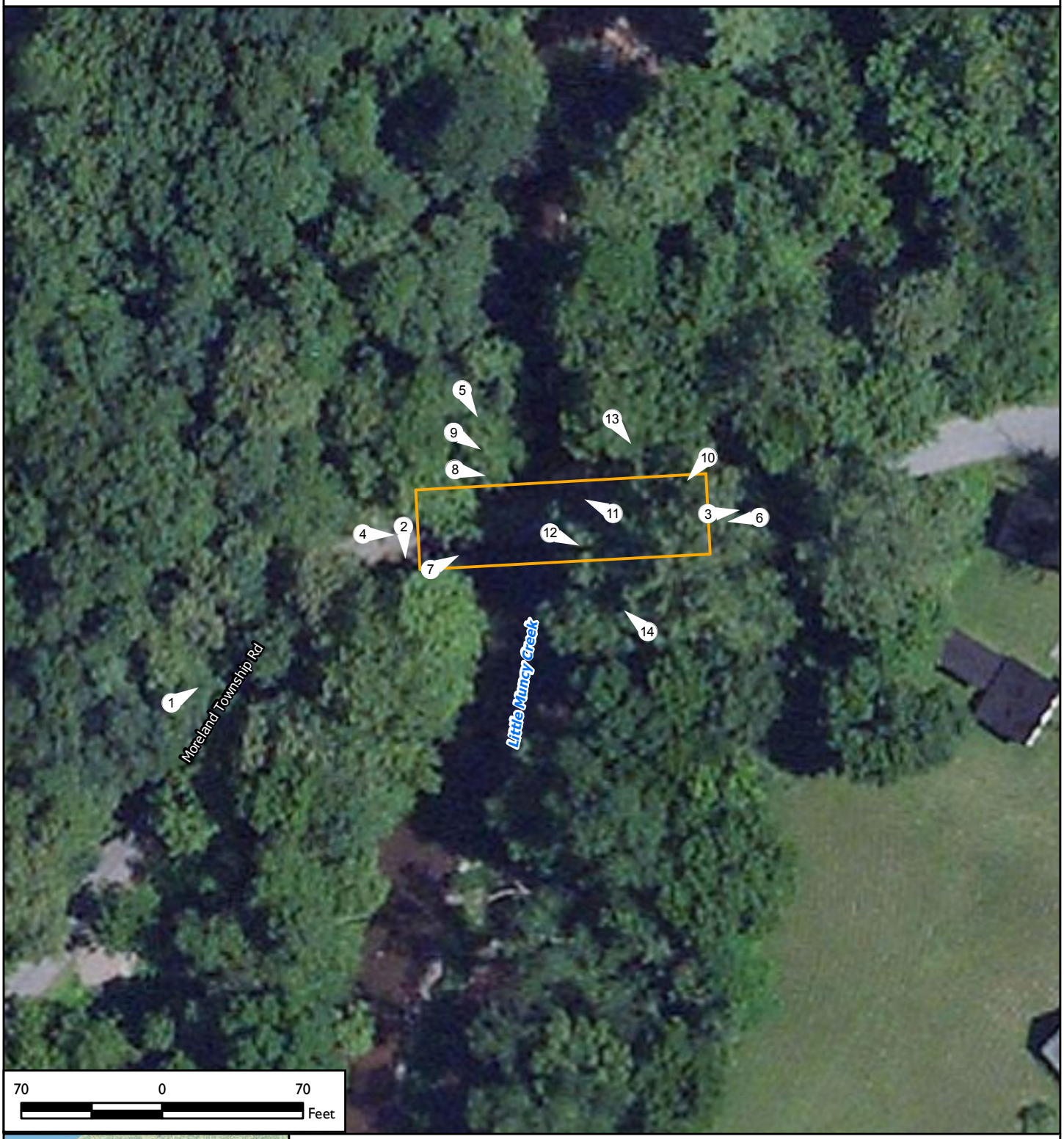
The APE for the proposed S.R. 2069-001 bridge rehabilitation project is the footprint of the bridge, as all work will take place on the existing alignment and will utilize the existing footprint of the bridge. The APE and the locations of identified resources are depicted in Figure 2. Photographs 1 to 6 depict current conditions within the APE. Figure 4 illustrates the photograph locations.

Photograph 13: Detail of the east abutment, which will be retained, looking southeast. The stone will be repointed, drainage will be placed behind the abutment, and a new concrete cap will be applied (January 2012).

Photograph 14: Overview of the S.R. 2069-001 bridge, looking northwest. The west abutment was replaced in 1975 and will be retained (January 2012).

Figure 4: Photograph Location Map

S.R. 2069, Section 001 Bridge Rehabilitation Project
Moreland Township Road over Little Muncy Creek
Moreland Township, Lycoming County, Pennsylvania



P:\GIS\Projects\P1201\MXD\Historic\Fig04PhotoLoc.mxd
March 07, 2012 04:46 PM

2.4 Agencies Consulted and Public Participation

The coordination for this project with public officials and local property owners is currently ongoing through PennDOT. A meeting was held with the Moreland Township Board of Supervisors on January 18, 2011 (Appendix C). In addition, early consulting party coordination took place via ProjectPATH, and coordination with consulting parties is ongoing.

2.5 Archaeology

Archaeological investigations were not undertaken for the project. The APE is included within areas of mixed deciduous trees and has been previously disturbed by roadway and bridge construction. No previously recorded archaeological sites are located within the APE. All ground disturbances associated with this project will occur in previously disturbed areas. Therefore, no archaeological work was recommended.

3.0 Description of Historic Properties

3.0 DESCRIPTION OF HISTORIC PROPERTIES

There is one National Register-eligible property (Smith/Wallis Gristmill Historic District) within the APE for the proposed project. A description, historical narrative, and eligibility discussion for the property are provided below.

Table 1. Summary of Historic Properties.

Resource Name	Eligibility Status	NR Criteria
Smith/Wallis Gristmill Historic District	Determined Eligible, 2004	A, C

3.1 Smith/Wallis Gristmill Historic District

3.1.1 Description

The Smith/Wallis Gristmill Historic District was determined eligible for listing in the National Register in 2004 under Criteria A and C for significance in the areas of agriculture and community development, with a period of significance of ca. 1796 to 1953. The district includes 17 contributing resources divided between the properties at 2050 and 2071 Moreland Township Road, both of which were originally part of the same larger parcel.

The buildings associated with the district date from ca. 1796 to ca. 1953, and include a gristmill, two single-family dwellings, a garage, two poultry houses, a piggery, barn, milk house, tractor shed, two corncribs, and two small sheds. The property at 2071 Moreland Township Road also includes a well, which is the only non-contributing resource within the National Register boundary. In addition, the district includes two contributing bridges: the S.R. 2069-001 1904 truss bridge, and a ca. 1915 to 1930 concrete bridge that carries S.R. 2069 over the Smith/Wallis Gristmill millrace.

3.1.2 Historical Narrative[1]

The rural community of Moreland is centrally located in Moreland Township, Lycoming County, and centered on the buildings in the Smith/Wallis Gristmill Historic District. Colonel George Smith, a Revolutionary War veteran, and his family settled the area on a 410-acre tract of land in

[1] The historical narrative is taken from Robert F. Panepinto and Sarah Farley, "Smith/Wallis Gristmill Historic District Historic Resources Survey Form," (2003).

1790, and subsequently erected the gristmill, the first in Moreland Township, in 1796. Moreland took its name from the post office located in Smith's gristmill. In addition, the gristmill also accommodated a store.

The 1861 H.F. Walling Map of Lycoming County, Pennsylvania, show the gristmill as well as a sawmill (no longer extant) and surrounding property in the possession of J.D. Smith, grandson of Colonel Smith. The mill property remained in the Smith family until April 1, 1869, when J.D. Smith sold 164 acres, including the mill, to George W. Crawford, for $1,200. On April 30, 1881, Crawford sold 121 acres and 72 perches to Matthias Welliver for $12,000, who continued to operate the mill until they sold the building, along with the six acres and 82 perches that today make up part of 2050 Moreland Township Road, to Henry Johnson, Esquire, in a Sherriff's sale in 1889.

The gristmill and farm property was acquired by the family of the current owners (as of 2003) when Samuel P. Wallis purchased the property from Henry Johnson in December 1898. The Lycoming County Deed Books recorded the purchase of two tract of land: (1) 6 acres, 82 perches with the millrace and (2) 114 acres of farm land (known today as 2050 and 2071 Moreland Township Road). Samuel Wallis's son, Ralph, acquired the properties in 1905, and they passed to his son, Joseph, upon his death in 1933.

The mill continued to operate well into the twentieth century, producing flour from wheat and buckwheat and ground feed for cattle from grain and corn. The production of flour ceased in the late 1940s/early 1950s, but the mill continued to produce feed for cattle until about 1980. The undershot wheel remains in place; however, Wallis installed a diesel engine in the mill during the mid-twentieth century to free its operation from water dependence.

As of 2003, the gristmill at 2050 Moreland Township Road remains but stands vacant, as do the piggery and chicken coops. The relatives of Samuel Wallis continue to work the farm at 2071 Moreland Township Road.

3.1.3 National Register Evaluation

The Smith/Wallis Gristmill Historic District is eligible for listing in the National Register under Criterion A as a resource important to the development of Moreland, Pennsylvania. Colonel George Smith was the first settler of the area, and the grouping of buildings he created adjacent to Little Muncy Creek would become the hub of the Moreland community. The construction of the first gristmill in what would become Moreland Township was significant for its central location, and its large size indicates a need for the structure to store large quantities of grain as it was one of only two gristmills in operation throughout its use. Over the years, it became the focal point for the community, providing many services, including a post office and store, for the Moreland residents. The gristmill offered its services to the community for over 175 years, before shutting down in the early 1980s. The resource is also eligible under Criterion C as a district possessing a significant concentration, linkage, and continuity of buildings and structures united historically and aesthetically by plan and physical development. The period of significance begins ca. 1796, at the time that Colonel George Smith erected the gristmill, and ends in 1953, 50 years from the time of the property's survey in 2003.

3.1.4 National Register Boundary

The boundary of the Smith/Wallis Historic District is shown on Figure 2 and includes all of those extant structures and landscape features, both contributing and non-contributing, that fall within the period of significance (ca. 1796 to 1953) that are historically and currently associated with the Smith/Wallis Gristmill Historic District.

4.0 Methodology

4.0 METHODOLOGY

4.1 Effect Evaluation

Since a National Register-eligible resource (Smith/Wallis Gristmill Historic District) exists within the project APE, it was necessary to assess potential project effects on historic resources in the area. Project effects were assessed based upon the guidelines specified in the Section 106 Regulations (1999; revised 2004), specifically 36 CFR Part 800, Protection of Historic and Cultural Properties, as published in the Federal Register and on the ACHP Internet website (accessed 16 February 2012).

In accordance with 36 CFR Part 800, Section 800.5, it is necessary to apply the Criteria of Adverse Effect. In consultation with PHMC, the agency official (PennDOT) shall apply the Criteria of Adverse Effect to historic properties within the APE. The agency official shall consider any views concerning such effects that have been provided through public involvement.

4.2 Definition of Effect

An *Effect* is defined as an alteration to the characteristics of a historic property that qualify it for inclusion in or eligibility for listing in the National Register. The two possible results of identification and evaluation are presented below.

4.2.1 No Historic Properties Affected

If the agency finds that either there are no historic properties present, or that there are historic properties present but the undertaking will have no effect upon them as defined in Section 800.16(i), the agency official shall provide documentation of this finding, as set forth in Section 800.11(d), to the State Historic Preservation Office/Tribal Historic Preservation Office (SHPO/THPO). The agency official shall notify all consulting parties, including Native American tribes and Native Hawaiian organizations, and make the documentation available for public inspection prior to approving the undertaking. If the SHPO/THPO or the ACHP (if it has entered the Section 106 process) do not object within 30 days of receipt of an adequately documented finding, the agency official's responsibilities under Section 106 are fulfilled.

4.2.2 Historic Properties Affected

If the agency official finds that there are historic properties that might be affected by the undertaking, or the SHPO/THPO or the ACHP object to the agency official's finding under paragraph (d)(1) of Section 800.5, the agency official shall notify all consulting parties, including Native American tribes or Native Hawaiian organizations, and invite their views on the affects and assess adverse effects, if any, in accordance with Section 800.5.

4.3 Criteria of Adverse Effect

An *Adverse Effect* is found when an undertaking may alter, directly or indirectly, the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified following the original evaluation of the property's eligibility for inclusion in the National Register. Adverse Effects may include reasonably foreseeable impacts that could be caused by the undertaking and that may be cumulative, may occur later in time, or may occur farther removed in distance. Adverse effects on historic properties include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property;
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
(iii) Removal of the property from its historic location;
(iv) Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features; and
(vi) Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance. (Section 800.5[a])

4.3.1 No Adverse Effect

The agency official shall maintain a record of the finding and provide information on the finding to the public on request, consistent with the confidentiality provisions of Section 800.11(c). Implementation of the undertaking in accordance with the finding, as documented, fulfills the agency official's responsibilities under Section 106 and 36 CFR Part 800, Section 800.11. If the agency official will not conduct the undertaking as proposed in the finding, the agency official shall reopen consultation under Section 800.5(a).

4.3.2 Adverse Effect

If an Adverse Effect is found, the agency official shall consult further to resolve the Adverse Effect pursuant to Section 800.6.

Section 800.6 of the regulations implementing the National Historic Preservation Act describes the resolution of Adverse Effect. The procedures for resolution include continuing consultation with the agency and the SHPO, resolving Adverse Effects, and preparing a Memorandum of Agreement (MOA).

5.0 Application of Definition of Effect and Criteria of Adverse Effect

5.0 APPLICATION OF DEFINITION OF EFFECT AND CRITERIA FOR ADVERSE EFFECT

5.1 Description of Proposed Project

The project entails the rehabilitation of the existing S.R. 2069-001 bridge over Little Muncy Creek. The bridge is a contributing resource to the National Register-eligible Smith/Wallis Gristmill Historic District.

5.2 Smith/Wallis Gristmill Historic District

The Smith/Wallis Gristmill Historic District was determined eligible for listing in the National Register in 2004 (Appendix A). The property was determined eligible for listing in the National Register under Criterion A in the areas of agriculture and community development and under Criterion C as a unified entity from the period from ca. 1796 to ca. 1953. The boundary, which encompasses approximately 120 acres, includes 17 contributing resources, including the S.R. 2069-001 bridge.

The significant characteristics of the historic district include the physical fabric of the contributing buildings and bridges, as well as the landscape features, including Little Muncy Creek and the millrace. The proposed S.R. 2069-001 bridge rehabilitation project includes repairs and alterations to the S.R. 2069-001 bridge, a contributing resource to the Smith/Wallis Gristmill Historic District. Therefore, it is necessary to apply the Definition of Effect (Table 2).

Table 2. Results of Effect Evaluation for the Smith/Wallis Gristmill Historic District.

Definition of Effect	**Evaluation**
An *Effect* may occur when there is an alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in Section 800.16(i).	The characteristics that qualify the Smith/Wallis Gristmill Historic District may be altered by the proposed project.
Finding:	The proposed project will have an *Effect* on the Smith/Wallis Gristmill Historic District because it has the potential to alter physical characteristics that qualify the property for inclusion in the National Register. The proposed rehabilitation project includes repairs and alterations to the S.R. 2069-001 bridge, a contributing resource to the National Register-eligible historic district. Pursuant to 36 CFR § 800.11(e), the Criteria of Adverse Effect must be applied.

The proposed improvements will have an *Effect* on the Smith/Wallis Gristmill Historic District; therefore, it is necessary to apply the Criteria of Adverse Effect (Table 3). The proposed project includes the rehabilitation of the S.R. 2069-001 bridge, a contributing resource to the Smith/Wallis Gristmill Historic District. In order to minimize effects to the National Register-eligible historic district while meeting the needs of the local community and the project purpose, all work will be carried out in accordance with the Secretary of Interior's Standards for the Treatment of Historic Properties—Rehabilitation (Appendix B). All original features will be repaired, where feasible, and those in need of replacement will be replaced in-kind (see Figures 3A to 3C).

Table 3. Application of the Criteria of Adverse Effect for the Smith/Wallis Gristmill Historic District.

An Adverse Effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.	
Criteria of Adverse Effect	**Evaluation**
Adverse Effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of the property;	The project will result in the physical destruction of various original features of the S.R. 2069-001 bridge, a contributing resource to the historic district. The bridge, however, is not architecturally significant; it contributes to the district for the role it served to connect the portions of the Moreland community separated by Little Muncy Creek. The proposed replacement of original materials will be done in-kind in order to maintain overall design, materials, and workmanship, thereby retaining the historic district's integrity of materials, workmanship, and design in its entirety.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;	The proposed project will not involve alteration of the S.R. 2069-001 bridge, a contributing resource to the historic district, that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties. Original features will be replaced in-kind in order to retain the original design of the bridge.
(iii) Removal of the property from its historic location;	None of the historic features that contribute to the historic district's significance will be removed from their historic location. The historic crossing at this location will be maintained.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;	The rehabilitation of the S.R. 2069-001 bridge will not result in changes to the historic character of the bridge or to its historic setting. The rehabilitation of the bridge will allow S.R. 2069 (Moreland Township Road) to maintain its existing alignment and use.

Criteria of Adverse Effect	Evaluation
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;	All changes to original features will be done in-kind; similar in size, scale, and materials; and will not visually detract from the integrity of the historic district. As the existing crossing and roadway will be maintained, the project will not introduce any visual, atmospheric, or audible elements that will diminish the integrity of the historic district; therefore, the resource's integrity of setting, association, and feeling will be maintained.
(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and	The proposed project will not result in the neglect of the historic district.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.	The proposed project will not result in the transfer, lease, or sale of the historic district, including the S.R. 2069-001 bridge, a contributing resource.
Finding: The proposed project will have *No Adverse Effect* on the Smith/Wallis Gristmill Historic District.	

6.0 Summary

6.0 SUMMARY

This Determination of Effect report describes the evaluation of the potential effects of the proposed S.R. 2069-001 bridge rehabilitation project to historic resources that are listed in or determined eligible for listing in the National Register. The project is located in Moreland Township, Lycoming County, Pennsylvania. The proposed improvements have the potential to affect the National Register-eligible Smith/Wallis Gristmill Historic District (Appendix A). The proposed project includes the rehabilitation of the S.R. 2069-001 Bridge, a contributing resource to the historic district. The bridge is structurally deficient and functionally obsolete, and therefore will undergo rehabilitation in order to meet existing and future traffic needs in a safe and efficient manner while meeting the needs of the community.

The proposed project would involve the rehabilitation of the S.R. 2069-001 bridge, including repairs and replacement of various features. All work will be consistent with the Secretary of Interior's Standards for the Treatment of Historic Properties. Application of the Definition of Effect and Criteria of Adverse Effect has indicated that the proposed S.R. 2069-001 bridge Rehabilitation Project will have *No Adverse Effect* on the National Register-eligible Smith/Wallis Gristmill Historic District if the project is carried out as planned, in a manner sensitive to the integrity of the historic district.

Archaeological investigations were not undertaken for this project. The APE is included within areas of mixed deciduous trees and has been previously disturbed by roadway and bridge construction. No previously recorded archaeological sites are located within the APE. All ground disturbances associated with this project will occur in previously disturbed areas. Therefore, no archaeological work was recommended.

References

REFERENCES

A.G. Lichtenstein & Associates, LLC
2000 Pennsylvania Historic Bridge Inventory and Evaluation form for the S.R. 2069 Bridge over Little Muncy Creek. Prepared for the Pennsylvania Department of Transportation.

Panepinto, Robert F. and Sarah Farley
2003 "Smith/Wallis Gristmill Historic District Historic Resources Survey Form." Prepared by A.D. Marble & Company for the Pennsylvania Department of Transportation, Engineering District 3-0.

Internet Resources

Advisory Council on Historic Preservation (ACHP) website
http://www.achp.gov, accessed 16 February 2012.