REHABILITATION FEASIBILITY STUDY

MILLER FARM ROAD BRIDGE PROJECT
VENANGO COUNTY BRIDGE NO. 34
CARRYING S.R. 7212, SECTION L00 OVER OIL CREEK
OIL CREEK AND CHERRYTREE TOWNSHIPS
VENANGO COUNTY, PENNSYLVANIA

ER# 2010-8015-121

Prepared for:

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, DISTRICT 1-0

October 2011

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A cultural resource management report for final submission to:

Bureau for Historic Preservation
Pennsylvania Historical and Museum Commission
P.O. Box 1026, Harrisburg, Pennsylvania 17108-1026

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1.0 INTRODUCTION

The purpose of this report is to evaluate the feasibility of rehabilitating the National Register-eligible Miller Farm Road Bridge, which crosses over Oil Creek between Oil Creek and Cherrytree Townships, Venango County, Pennsylvania. Christine Davis Consultants, Inc. (*CDC*) was retained by **Taylor Engineering** of New Castle, Pennsylvania to prepare this document. This report has been prepared in support of the Section 106 consultation process.

2.0 DESCRIPTION OF THE PROPOSED UNDERTAKING

The proposed project involves the Miller Farm Road Bridge over Oil Creek in Oil Creek and Cherrytree Townships, Venango County, Pennsylvania (Appendix I). This project is being sponsored by Venango County with support from the Pennsylvania Department of Transportation, District 1-0 (PENNDOT) and the Federal Highway Administration (FHWA).

The Miller Farm Road Bridge is posted with a weight limit of 7 tons and is considered structurally deficient mainly due to its inadequate load carrying capacity. In addition, the current bridge railing, 2 inch pipe attached to the truss members, does not meet the current safety standards. The superstructure has a National Bridge Inspection Standards (NBIS) rating of 5. Miller Farm Road (T-635) is classified as a rural, local road and the ADT is 100 vehicles per day.

Purpose

The purpose of the project is to address the structural deficiencies of the Miller Farm Road Bridge to provide safe and efficient access across Oil Creek to serve local residences, emergency services, etc.

Need

The safety performance of the Miller Farm Road Bridge, a single lane steel through truss located in Oil Creek State Park, is considered deficient based on the structural capacity.

The owner of the bridge, Venango County, desires a minimum posting of 15 tons to allow for emergency vehicles, school buses, smaller winter maintenance

vehicles, etc. The existing bridge is posted with a weight limit of seven (7) tons. The member that controls the current posting is the stringers. The weight limit restricts the access of emergency vehicles thereby diminishing the safety of the area residents.

3.0 PUBLIC INVOLVEMENT

A public meeting was held on July 26, 2010 to provide information about the Miller Farm Road Bridge project and to give the public an opportunity to provide any comments about the undertaking. The meeting was advertised in the local newspaper and individual invitations were sent to the Oil Region Alliance (ORA), Venango County Historical Society, and Oil Creek State Park, as well as adjacent land owners, local officials, township supervisors, and county commissioners. Feedback Forms were made available to all attendees. Attendees were given the opportunity to submit the form at the end of the meeting or return it by mail. As a result, two organizations, the Department of Conservation and Natural Resources, Bureau of State Parks (DCNR) and Oil Region Alliance (ORA), returned forms stating each was interested in becoming a Consulting Party for this project (Appendix IV).

Mr. Jake Weiland, Park Manager of the Oil Creek State Park attended the Public Meeting as a representative of the park and DCNR. Mr. Weiland returned a Feedback Form stating that the he wanted the project team to consider "recreation access to the East and West side of Oil Creek State Park…" and also consider "the Natural, Cultural and Historical resources surrounding the structure." He also stated "DCNR, Bureau of State Parks is supportive of the replacement alternative with a single lane bridge, constructed on the existing alignment, minimizing impact to the surrounded foot print. An interpretive panel, describing the historical relevance of the replaced structure placed on each side

of the new bridge, available to motorized and non-motorized users, is highly suggested. DCNR has no interest in owning the structure."

4.0 AREA OF POTENTIAL EFFECT AND HISTORIC PROPERTIES

The area of potential effect (APE) encompasses approximately 6967.7 square (sq) meters (m) (75,000 sq feet or 1.7 acres) and has been established in accordance with 36 CFR 800.2 and 36 CFR 800.16 (Appendix I). The APE is approximately 1500 feet long (north-south limits) and 50 feet wide (east-west limits) and includes the limits of approach work on each side of the bridge.

The APE was submitted by PENNDOT on January 26, 2010. The Pennsylvania Historic and Museum Commission/Bureau for Historic Preservation (PHMC/BHP) concurred with the boundaries of the APE on February 16, 2010 (Appendix III).

On June 15, 2010, PENNDOT submitted a Negative Survey Form for archaeological resources. The report concluded that the project will have no effect on archaeological resources and that no further archaeological studies will be necessary (Appendix III).

The **Miller Farm Road Bridge** is the only NRHP-eligible resource within the APE (Appendix I). The rural setting is sparsely developed and forested. No other buildings are within the line of sight of the bridge; however, the Oil Creek Railroad, an NRHP-eligible resource, is located immediately south of the bridge. In addition, the bridge is located within the Oil Creek State Park and within the Oil Region National Heritage Area.

4.1 DESCRIPTION OF MILLER FARM ROAD BRIDGE

Miller Farm Road Bridge was constructed in 1888 by the Massillon Bridge Company of Massillon, Ohio. This single-lane, single-span, pin-connected Pratt thru truss is 154 feet long and 16.2 feet wide. The trusses have built-up upper chords and verticals. The lower chords and diagonals are eye bars. The verticals and portal struts have lattice bracing with decorative sun bursts in the top corners of each portal. There are inclined end posts. The original pole railings remain. The steel superstructure rests on ashlar abutments with flared wingwalls. This bridge presumably replaces an earlier bridge at the same location and the abutments may be from that bridge.

According to a plaque placed near the bridge, Miller Farm Road Bridge was rehabilitated in October 2000 when the deck was replaced. No other major work was done.

4.2 SIGNIFICANCE OF MILLER FARM ROAD BRIDGE

The Miller Farm Road Bridge retains integrity and the builder is documented. The bridge was built in 1888. It is eligible under Criterion C as a historically and technologically significant early example of its technology. “One of 16 surviving pin connected truss bridges in Venango County, the bridge stands out as a complete example of its type and design. Adding to its significance is the documentation to the Massillon Bridge Company of Massillon Ohio, a regional fabricator of metal truss bridges” (A. G. Lichtenstein & Associates, Inc. 1998).

5.0 PROJECT ALTERNATIVES

NO BUILD ALTERNATIVE

The existing steel through truss bridge, located within Oil Creek State Park, is considered structurally deficient mainly due to its inadequate load carrying capacity. This alternative would maintain the Miller Farm Road Bridge as it exists and as it would normally be maintained without providing any major long-term improvement. Deterioration of the structural members will continue and result in further loss of load carrying capacity. School/tour buses, maintenance vehicles, fire trucks, and other emergency vehicles will continue to be restricted from using the bridge due to the posted weight limit.

REHABILITATION ALTERNATIVE

This alternative considers rehabilitating the existing bridge to improve its load carrying capacity. The existing steel through truss bridge is posted with a weight limit of seven (7) tons based on a structural analysis completed in 2004. The rehabilitation would have to be completed without altering the bridge's proportions, materials, or character defining features in accordance with the criteria established by the Secretary of the Interior. The condition of the Miller Farm Road Bridge is summarized below.

Deck

The deck is in satisfactory condition. It was given a **Condition Rating** of 6 during the National Bridge Inspection Standards (NBIS) inspection completed in 2010. The deck is constructed of 2" x 4" timbers. There are two small areas

that exhibit fire damage and there are minor splits and splintering at scattered locations.

Superstructure

The superstructure is in fair condition. It was given a **Condition Rating** of 5 during the NBIS inspection completed in 2010. The outside 2' of the floorbeams is covered with light to moderate surface rust. The stringers have light to moderate rust with minor pitting. There is minor section loss on the bottom chords around the bottom pins (right truss). The inside member of the diagonal between L4 and U5 on the right side is loose with a similar condition at L3-U4 right. The portals/bracing are covered with scale rust and have minor pitting. The existing bearings are in poor condition. The paint system is in poor condition with areas of loose and peeling paint.

It should be noted that the overall **Condition Rating** of 5 is based on standard NBIS inspection **Condition Rating** codes.

Substructure

The substructure is in satisfactory condition. It was given a **Condition Rating** of 6 during the NBIS inspection completed in 2010. The near abutment sandstone wings are in satisfactory condition. The fixed end cap stones are missing. Minor movement was noted in some of the stones. The stone abutment stem is also in satisfactory condition with minor missing or loose mortar. No settlement was observed. The footing was below the streambed and could not be inspected. No scour or undermining of the abutments or wings was

noted. The far abutment and adjacent wingwalls are in the same satisfactory condition.

Current condition photographs of the Miller Farm Road Bridge are located in Appendix II.

Load Carrying Capacity Evaluation

Miller Farm Road Bridge is currently posted at seven (7) tons. Postings are based on the member with the lowest load carrying capacity; therefore, even though the floorbeams are rated at 26 tons and the critical truss member, or the lowest load rated member, is rated at 15 tons, the member that controls the current seven (7) ton posting is the stringers because they are only rated for seven (7) tons. For a rehabilitation project, Venango County would like the rehabilitated bridge to have a minimum posting of 15 tons to allow for emergency vehicles, school/tour buses, smaller winter maintenance vehicles, etc. Vehicles weighing over 15 tons that could not use the rehabilitated structure would have to travel approximately 8 miles to detour around the bridge.

To increase the weight limit of the structure to 15 tons, it would require the replacement of all of the stringers and the existing wood deck system. The rehabilitation would most likely include a lightweight concrete deck to protect the steel below deck level and some type of standard barrier to protect the truss members from vehicle impact.

Due to the age of the structure (123 years old), any rehabilitation option should include replacement of all of the floor beam hangers as well as all pins in the truss. Based on the current **Load Ratings** of the existing truss members, the

heavier deck and bridge barrier would require the replacement or rehabilitation of 50 percent of the truss members (36 out of 72) in order for each member to reach a **Load Rating** above the targeted 15 tons. The required replacement/rehabilitation of these existing bridge components are not "simple" tasks when considering the shoring/stabilization that is required for the nearby existing bridge members. These types of repairs are time consuming and expensive. The entire structure would need to be blast cleaned and painted. Bridge cleaning and painting is also an extremely expensive undertaking due to the required containment and disposal of the blast waste (hazardous or non-hazardous) and other current environmental protection requirements. Due to the crevices between the lower chords, cleaning and painting is difficult and crevice corrosion and rusting would be expected within five (5) years of any rehabilitation.

Sampling and testing of the existing steel should be performed to determine its composition and to verify analysis and assumptions. Lastly, a thorough study should be completed to determine how to introduce redundancy of this fracture critical bridge. Introducing redundancy could require additions to the truss that may affect the structure from a historic standpoint.

Geometry and Safety Features Evaluation

The existing bridge deck measures 15.9', bridge rail to bridge rail. The current bridge railing is 2" pipe attached to the truss members. The gravel approaches are approximately 10' in width. The structure is located on a tangent section with a slight positive grade at the near approach and a steep negative

grade on the far approach. There is also a curve to the right on the far approach. Miller Farm Road (T-635) is classified as a rural, local road and the ADT is 100 vehicles per day.

Due to the low ADT, a single lane 15' bridge deck width is permissible according to current PENNDOT standards and the approach roadway geometry is adequate (horizontal and vertical curvature, sight distance, etc.). However, the current bridge railing does not meet current safety standards. If a standard concrete, crashworthy traffic barrier was added to each side, the remaining bridge deck width would be less than 15' (14' or even less) which does not meet the PENNDOT design criteria for a single lane bridge.

REPLACEMENT OF EXISTING STRUCTURE

The replacement of the bridge on the existing alignment would eliminate the substandard features of the existing bridge, specifically the load carrying capacity. It is possible that the existing abutments can be reused by adding a cap on the top of each one. In addition, a pier would be added. Form liners for the abutment caps and the pier may be used in an attempt to match the pattern of the existing stone abutments. Replacement would meet the needs of the project by addressing the structural deficiencies of the existing bridge and providing safe and efficient access across Oil Creek.

6.0 APPLICATION OF HISTORIC BRIDGE REHABILITATION/ REPLACEMENT GUIDELINES

The four-step American Association of State Highway and Transportation Officials (AASHTO) guidelines for the rehabilitation and replacement of historic bridges (AASHTO 2007) has been applied as follows:

UNDERSTANDING WHAT MAKES A BRIDGE HISTORICAL

Historically Significant Members/Components of the Miller Farm Road Bridge:

- Pin-Connections
- Configuration of Pratt thru truss

Members/Components of the Miller Farm Road Bridge That Are Not Vital to Retain:

- Deck
- Substructure
- Stringers and floorbeams
- Exact dimension and strength of structural steel
- Existing railings if replaced with compatible ones that meet safety considerations and reflect the original design

APPLYING STRUCTURAL AND FUNCTIONAL CONSIDERATIONS

Analysis of Structure Condition and Waterway Adequacy

Deck

The deck is in satisfactory condition. It was given a Condition Rating of 6 during the National Bridge Inspection Standards (NBIS) inspection completed in 2010. The deck is constructed of 2” x 4” timbers. There are two small areas that

exhibit fire damage and there are minor splits and splintering at scattered locations.

Superstructure

The superstructure is in fair condition. It was given a Condition Rating of 5 during the NBIS inspection completed in 2010. The outside 2' of the floorbeams is covered with light to moderate surface rust. The stringers have light to moderate rust with minor pitting. There is minor section loss on the bottom chords around the bottom pins (right truss). The inside member of the diagonal between L4 and U5 on the right side is loose with a similar condition at L3-U4 right. The portals/bracing are covered with scale rust and have minor pitting. The existing bearings are in poor condition. The paint system is in poor condition with areas of loose and peeling paint.

It should be noted that the overall rating of 5 is based on standard NBIS inspection condition rating codes and does not represent a more detailed member by member rating that would be applicable in an element level inspection.

Substructure

The substructure is in satisfactory condition. It was given a condition rating of 6 during the NBIS inspection completed in 2010. The near abutment sandstone wings are in satisfactory condition. The fixed end cap stones are missing. Minor movement was noted in some of the stones. The stone abutment stem is also in satisfactory condition with minor missing or loose mortar. No settlement was observed. The footing was below the streambed and

could not be inspected. No scour or undermining of the abutments or wings was noted. The far abutment and adjacent wingwalls are in the same satisfactory condition.

- **NBIS Rating = 5**

Analysis of Load-Carrying Capacity

Miller Farm Road Bridge is currently posted at seven (7) tons. The member that controls the current seven (7) ton posting is the stringers because it is the lowest rated member. The floorbeams are rated at 26 tons and the critical truss member is rated at 15 tons. For a rehabilitation project, Venango County would like the rehabilitated bridge to have a minimum posting of 15 tons to allow for emergency vehicles, school/tour buses, smaller winter maintenance vehicles, etc. Vehicles weighing over 15 tons that could not use the rehabilitated structure would have to travel approximately 8 miles to detour around the bridge.

To increase the weight limit of the structure to 15 tons, it would require the replacement of all of the stringers and the existing wood deck system. The rehabilitation would most likely include a lightweight concrete deck to protect the steel below deck level and some type of standard barrier to protect the truss members from vehicle impact.

Due to the age of the structure (123 years old), any rehabilitation option should include replacement of all of the floor beam hangers as well as all pins in the truss. Based on the current ratings of the existing truss members, the heavier deck and bridge barrier would require the replacement or rehabilitation of 50 percent of the truss members (36 out of 72) in order for each member to rate

above the targeted 15 tons. The required replacement/rehabilitation of these existing bridge components are not "simple" tasks when considering the shoring/stabilization that is required for the nearby existing bridge members. These types of repairs are time consuming and expensive. The entire structure would need to be blast cleaned and painted. Bridge cleaning and painting is also an extremely expensive undertaking due to the required containment and disposal of the blast waste (hazardous or non-hazardous) and other current environmental protection requirements. The option of removing and transporting the bridge to a shop for rehabilitation, cleaning, and painting was examined; however, this option is more costly than completing the rehabilitation work in place. Due to the crevices between the lower chords, cleaning and painting is difficult and crevice corrosion and rusting would be expected within five (5) years of any rehabilitation.

Sampling and testing of the existing steel should be performed to determine its composition and to verify analysis and assumptions. Lastly, a thorough study should be completed to determine how to introduce redundancy of this fracture critical bridge. Introducing redundancy could require additions to the truss that may affect the structure from a historic standpoint.

- **Load carrying capacity is deficient and cannot be improved**

Analysis of Geometry and Safety Features

The existing bridge deck measures 15.9', bridge rail to bridge rail. The current bridge railing is 2" pipe attached to the truss members. The gravel approaches are approximately 10' in width. The structure is located on a tangent

section with a slight positive grade at the near approach and a steep negative grade on the far approach. There is also a curve to the right on the far approach. Miller Farm Road (T-635) is classified as a rural, local road and the ADT is 100 vehicles per day.

Due to the low ADT, a single lane 15' bridge deck width is permissible according to current PENNDOT standards and the approach roadway geometry is adequate (horizontal and vertical curvature, sight distance, etc.). However, the current bridge railing does not meet current safety standards. If a standard, crashworthy traffic barrier was added to each side, the remaining bridge deck width would be less than 15' (14' or even less) which does not meet the PENNDOT design criteria for a single lane bridge.

This alternative does not appear to be prudent due to the following reasons:

- Future maintenance costs of the steel truss structure
- The lack of redundancy in the structure
- The excessive cost required to blast clean and paint the existing bridge, located over Oil Creek
- The excessive cost to replace all truss pins and floor beam hangers and to replace or rehabilitate 50 percent of the existing truss members
- The rehabilitated bridge's deck width does not meet the PENNDOT Single Lane Bridge Design Criteria for bridge deck width (15' minimum)

- **Geometry is sufficient; however, safety features are deficient and cannot be improved in a way that meets the project purpose and need**

HISTORICAL AND ENVIRONMENTAL CONSIDERATIONS

There are no known environmental constraints associated with this project. The required work needed to address the deficiencies in the existing structure exceeds what is generally considered as prudent. Rehabilitation of the existing structure is not prudent because it will not meet the project purpose of providing a safe access across Oil Creek. Rehabilitation will not provide a safe access across Oil Creek because providing the necessary crashworthy traffic barrier will cause the bridge width to be inadequate. A bridge that is too narrow does not meet current safety standards. In addition, the rehabilitation work is not prudent because it will be too cost prohibitive (Appendix V). No prudent and feasible alternative exists to keep the bridge and address the structural deficiencies of the bridge to provide safe and efficient access across Oil Creek. Since this project involves minimal roadway approach work, the project need and purpose are appropriate for this setting.

- **There are no methodologies that achieve the project goals of addressing the structural deficiencies of the existing bridge to provide safe and efficient access across Oil Creek while preserving what makes the bridge historic**

APPLYING THE DECISION-MAKING THRESHOLDS

Feasible and Prudent

The only feasible and prudent alternative that meets the project purpose and need of addressing structural deficiencies to provide a safe and efficient crossing at this location is the Replacement Alternative. The No Build Alternative is not feasible and prudent because it results in the continuation of severe safety problems and structural deficiencies. The Rehabilitation Alternative is feasible;

however, it is not prudent because the bridge cannot be made adequate. The bridge will have a substandard width. In addition, the Rehabilitation Alternative is not prudent because it results in extraordinary initial and life cycle costs.

Application of Thresholds Based on Aspects of Adequacy

The superstructure of the Miller Farm Road Bridge has an NBIS rating of 5 and is classified as a Group III bridge. In Group III bridges, the load carrying capacity is inadequate but the superstructure/substructure and geometry are adequate. The load carrying capacity is less than design requirements and it is not possible to rehabilitate the bridge to meet capacity requirements in a cost effective manner. The bridge roadway width is equal to the approaches but, if the railing is improved, the width of the bridge will no longer meet the design requirements.

7.0 REFERENCES

American Association of State Highway and Transportation Officials
2007 *Guidelines for Historic Bridge Rehabilitation and Replacement.*

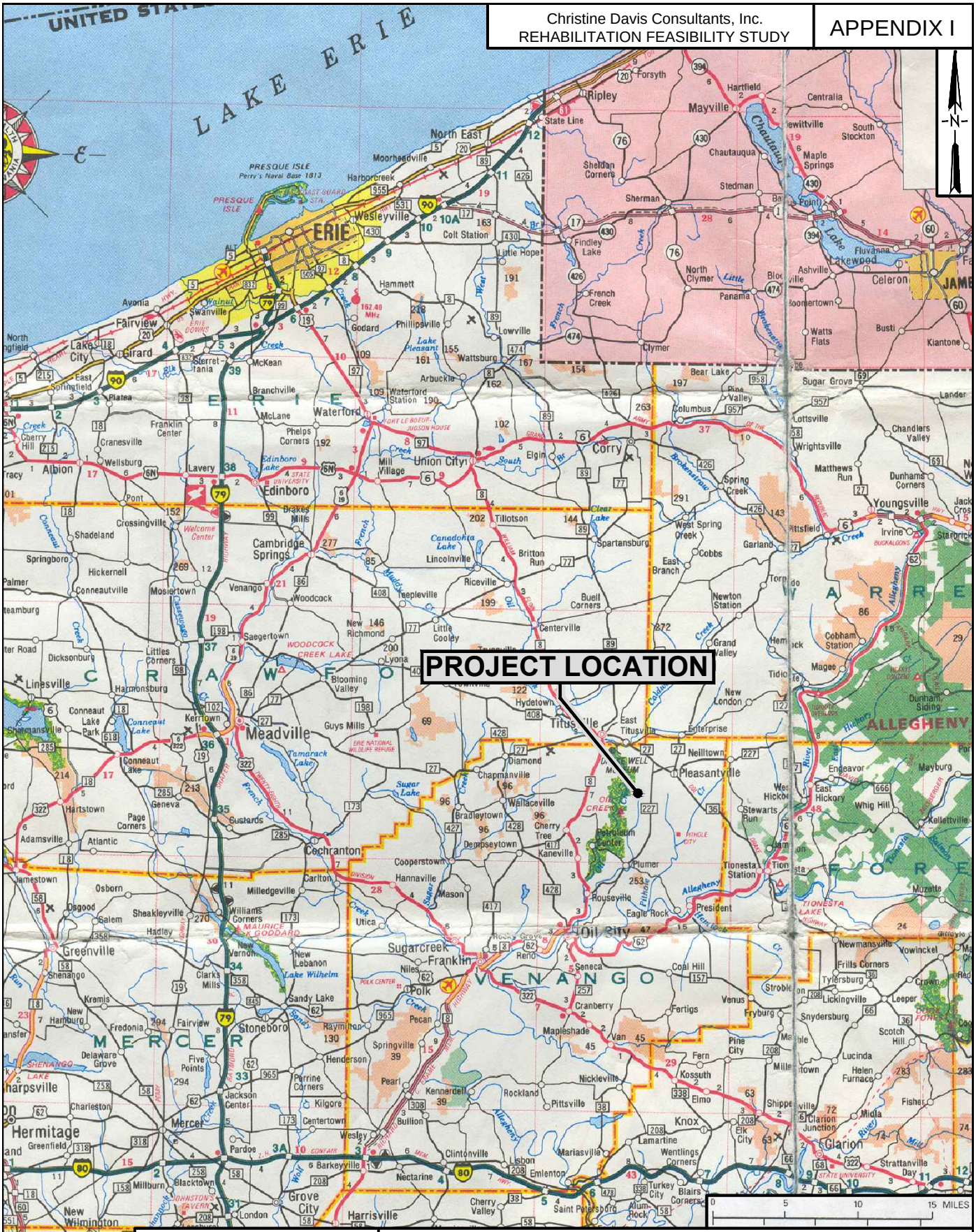
A. G. Lichtenstein & Associates, Inc.
1998 *Miller Farm Road Bridge.* Pennsylvania Historic Bridge Inventory & Evaluation form, completed for the Pennsylvania Department of Transportation, Bureau of Environmental Quality.

Commonwealth of Pennsylvania
1986 *Historic Highway Bridges in Pennsylvania.* Pennsylvania Historical and Museum Commission and Pennsylvania Department of Transportation.

Giddens, Paul H.
1947 *Pennsylvania Petroleum 1750-1872, A Documentary History.* Commonwealth of Pennsylvania, Drake Well Memorial Park, Pennsylvania Historical and Museum Commission, Titusville.

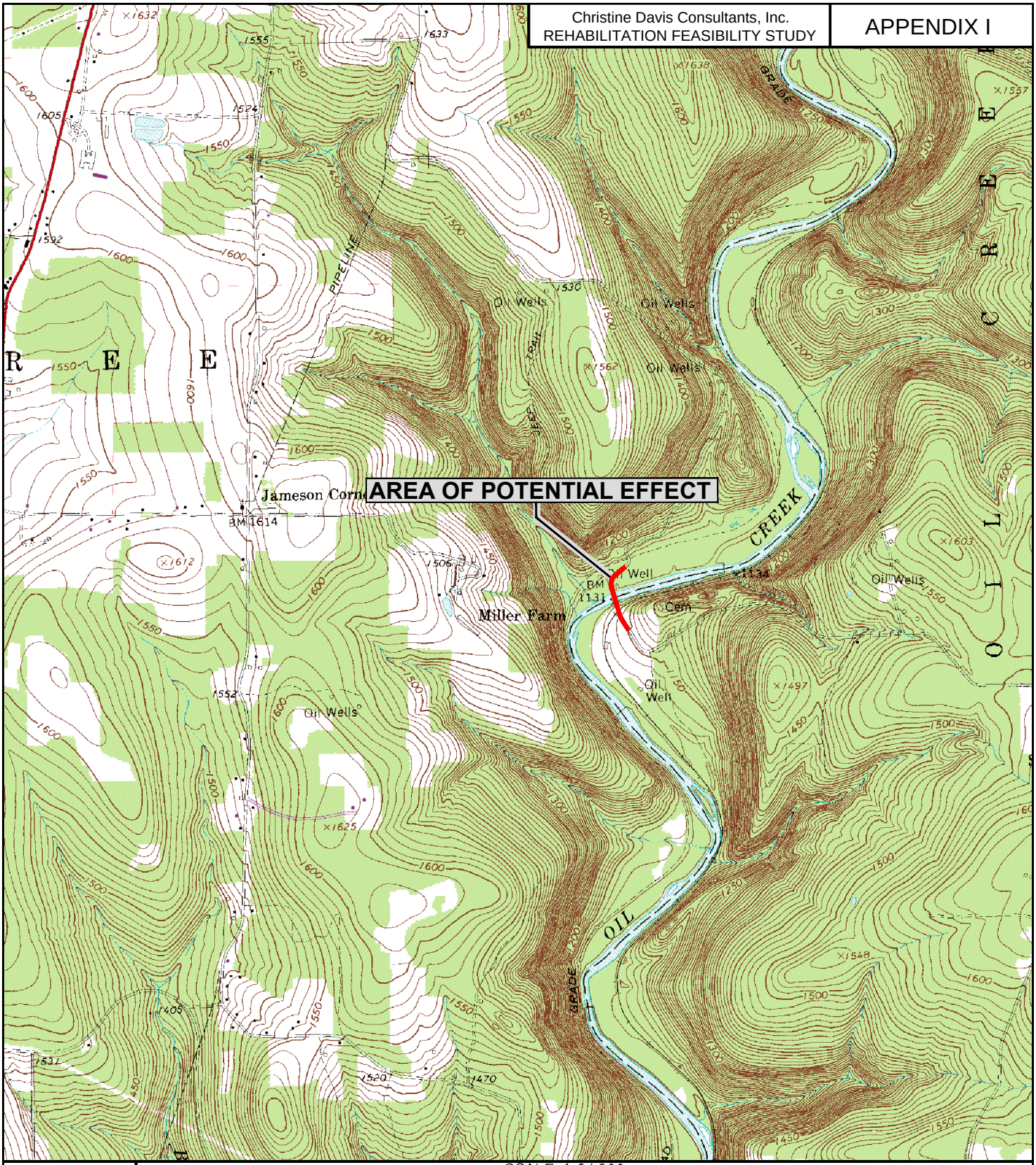
PENNDOT
2008 "Summary of Metal Truss Bridge Re-Evaluation: 9/4-5/08 and 10/15/08."

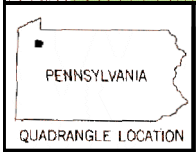
Appendix I
MAPPING



REFERENCE:
PENNSYLVANIA
TRANSPORTATION MAP

Project Location
MILLER FARM ROAD BRIDGE PROJECT
VENANGO COUNTY BRIDGE NO. 34 CARRYING S.R. 7212,
SECTION L00 OVER OIL CREEK, ER#2010-8015-121
Oil Creek and Cherrytree Townships, Venango County, Pennsylvania

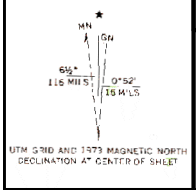




SCALE 1:24 000

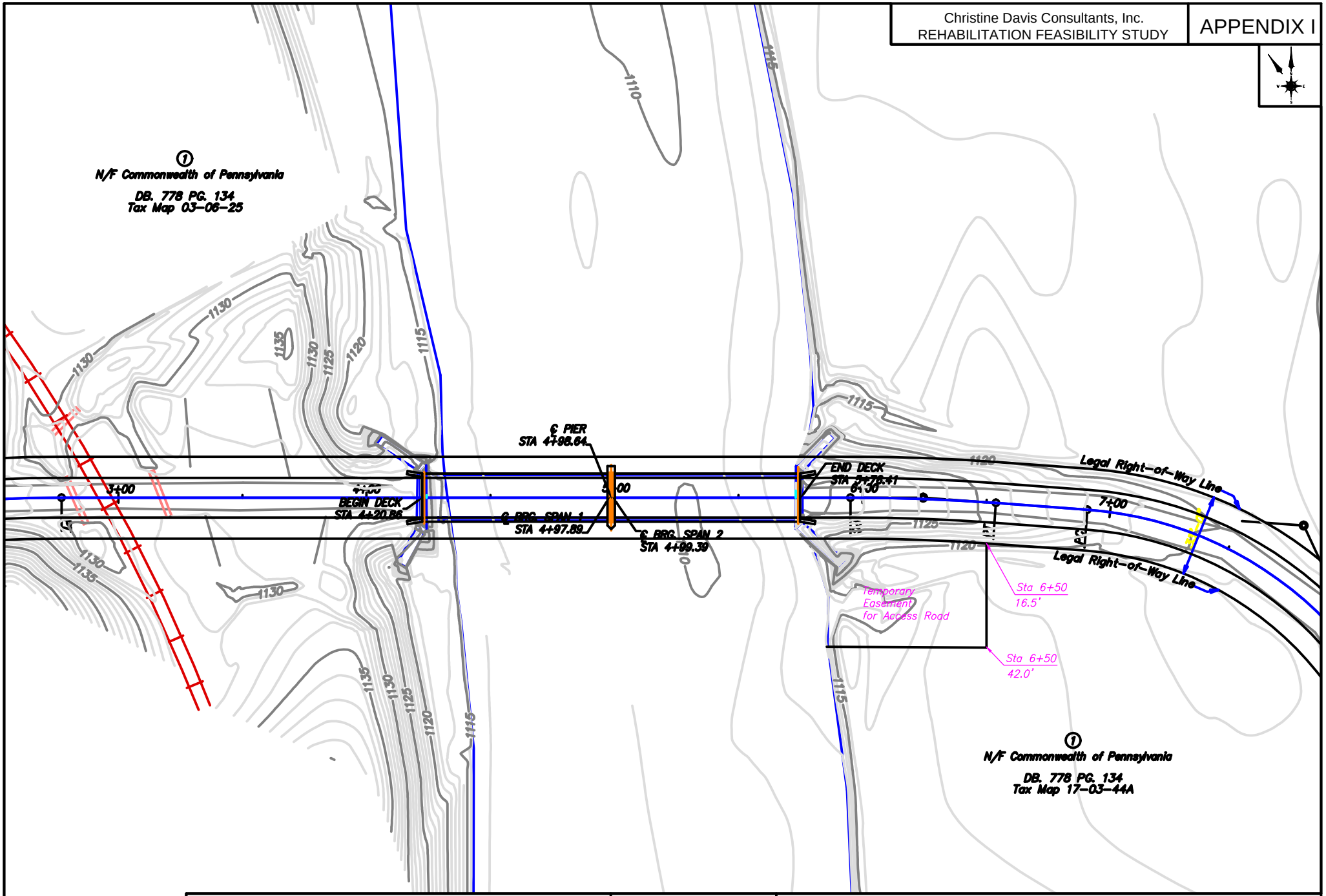
1 MILE
7000 FEET
1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



REFERENCE:
USGS 7.5 MINUTE QUADRANGLE
TITUSVILLE SOUTH, PA 1968
(PHOTOINSPECTED 1977)
(PHOTOREVISED 1973)

Area of Potential Effect (APE)
MILLER FARM ROAD BRIDGE PROJECT
VENANGO COUNTY BRIDGE NO. 34 CARRYING S.R. 7212,
SECTION L00 OVER OIL CREEK, ER#2010-8015-121
Oil Creek and Cherrytree Townships, Venango County, Pennsylvania



REFERENCE:
TAYLOR ENGINEERING
2009

Miller Farm Road Bridge
MILLER FARM ROAD BRIDGE PROJECT
VENANGO COUNTY BRIDGE NO. 34 CARRYING S.R. 7212,
SECTION L00 OVER OIL CREEK, ER#2010-8015-121
Oil Creek and Cherrytree Townships, Venango County, Pennsylvania

Appendix II
PHOTOGRAPHS

PHOTO 1: NORTHERN APPROACH, LOOKING SOUTH

PHOTO 2: SOUTHERN APPROACH, LOOKING NORTH

PHOTO 3: WEST ELEVATION, LOOKING EAST

PHOTO 4: FLOORBEAMS, HANGERS, AND ABUTMENT

PHOTO 5: BRIDGE RAILING AND PIN CONNECTION

Appendix III

PREVIOUS SECTION 106 CORRESPONDENCE

08035

OS-600

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

PENNDOT Cultural Resources Submission

DATE: January 26, 2010

SUBJECT: Venango County, Oil Creek and Cherrytree Townships (District 1-0)
SR 7212 Sec L00 – Miller Farm Road Bridge
Area of Potential Effect
ER #:10-8015-121-A MPMS#: 02263 FPN#: H680-X015-148

TO: Jean H. Cutler, Director
Bureau for Historic Preservation
PA Historical and Museum Commission

FROM: Brian G. Thompson, PE, Director
for: Bureau of Design

We are submitting for your review the area of potential effect for the above project. The proposed undertaking is the replacement or rehabilitation of the Miller Farm Road Bridge over Oil Creek. The bridge (BMS # 60-7212-0635-3034) has been determined eligible for listing on the National Register of Historic Places and is located in Oil Creek State Park

Area of Potential Effect

The area of potential effect (APE) is approximately 1500 feet long (north-south limits) and 50 feet wide (east-west limits). This definition of the APE includes the limits of approach work on each side the bridge.

We request your concurrence that the APE is appropriate for this project. If you have any questions, please contact David Anthony at 412-429-4861.

Attachment: USGS location map

4380/DRA/da

cc: J. D. Bucher, P.E., KB 7N, BOD
K.H. Russell, KB 7W, EQAD (with attachment)
R. Mantione, FHWA (with attachment; electronic copy)
T. L. Minnich, District 1-0
D.R. Anthony, District 11-0
Kitty Henderson, Historic Bridge Foundation (with attachment; electronic copy)

Concurrence: Susan Zacher for Date: 2/16/10
Douglas C. McLearen, Chief
Archaeology and Compliance Division

Received
JAN 27 2010
Environmental Quality

OS-600

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

PENNDOT Cultural Resources Submission

DATE: June 15, 2010

SUBJECT: Venango County, Oil Creek and Cherrytree Townships (District 1-0)
S.R. 7212, L00 Miller Farm Road Bridge (T-635) over Oil Creek
Archaeology clearance letter
ER #: 2010-8015-121 – 8 MPMS#: 2263

TO: Jean H. Cutler, Director
Bureau for Historic Preservation
PA Historical and Museum Commission

FROM: Brian G. Thompson, PE, Director
Bureau of Design

Joseph M. Verbka

Digitally signed by Joseph M. Verbka
DN: cn=Joseph M. Verbka, o=PENNDOT, ou=EQAD, email=jverbka@state.pa.us, c=US
Date: 2010.06.21 15:20:51 -04'00'

The above referenced project consists of the replacement of Miller Farm Road Bridge (T-635) over Oil Creek, Venango County. The existing bridge will be replaced on the existing alignment with a new two-lane, two-span-bridge which will be 22 feet curb to curb. Also planned are minor modifications to both approaches to accommodate a wider structure and possible roadway grade adjustments. Due to the project setting and proposed earth disturbances, a Phase IA was recommended in order to assess the potential for intact cultural deposits.

Attached please find a copy of the negative survey Form prepared by Christine Davis Consultants, Inc. The form documents the results of the background research, field reconnaissance and geomorphological testing. The study revealed that the two southern quadrants were occupied by coarse rubble full, thus retaining no potential for in situ deposits. In the northern quadrants, evidence of the fill deposits was not encountered. Specifically, soils in the northwest quadrant were found to be saturated and typical of a wetland, thus requiring no further study. Finally, the northeast quadrant contained very course grained soils of a young age with poor drainage conditions. No further work was recommended for this or any of the four quadrants.

We are therefore requesting your concurrence with the conclusion that this project will have no effect on archaeological resources and that no further archaeological studies area necessary. Should you have any questions, please contact Joseph Verbka at (412) 429-4998.

Attachment

4380/JMV/jv

cc: J. D. Bucher, P.E., KB 7N, BOD
R.Mantione, FHWA (Electronic notification)
T.L. Minnich, Environmental (District 1-0) (Electronic notification)

Concurrence: [signature] (for)
Douglas C. McLearen, Chief
Archaeology and Compliance Division

Date: 22 June 2010

2010-8015-121-B

Appendix IV
PUBLIC INVOLVEMENT

Frank B. Taylor Engineering

149 Taylor Drive
New Castle, PA 16101
Phone 724-654-6141 Fax 724-654-5827
Consulting - Engineering - Surveying

Frank B. Taylor, P.E., Founder
J. Ross Taylor, P.L.S., Managing Partner
John W. Taylor, Business Manager & Chief of Survey
Mark A. Miller, P.E.

July 16, 2010

Oil Creek Railway Historical Society
408 South Perry Street
Titusville, PA 16354

RE: Miller Farm Road (T-635) Bridge
Oil Creek & Cherrytree Townships
Venango County
Public Meeting Notification

To Whom It May Concern:

On behalf of our client, Venango County, you are hereby invited to attend a Public Meeting which has been scheduled for Monday, July 26, 2010, to discuss the plans for the proposed replacement of the Miller Farm Road (T-635) Bridge on Township Rd. T-635 in Oil Creek & Cherrytree Townships, Venango County. The meeting will be held at the Oil Creek State Park Amphitheater, 1080 Petroleum Center Road, Oil City, PA 16301, from 6:00 PM to 7:00 PM. County and PennDOT representatives will be available to answer questions and receive public comments.

If you have any questions or require additional information, please do not hesitate to contact this office.

Sincerely,
FRANK B. TAYLOR ENGINEERING

William A. Humphrey

William A. Humphrey, P.E.

Frank B. Taylor Engineering

149 Taylor Drive
New Castle, PA 16101
Phone 724-654-6141 Fax 724-654-5827
Consulting - Engineering - Surveying

Frank B. Taylor, P.E., Founder
J. Ross Taylor, P.L.S., Managing Partner
John W. Taylor, Business Manager & Chief of Survey
Mark A. Miller, P.E.

July 16, 2010

Mr. Jake Weiland
Oil Creek State Park
305 State Park Road
Oil City, PA 16301

RE: Miller Farm Road (T-635) Bridge
Oil Creek & Cherrytree Townships
Venango County
Public Meeting Notification

Dear Mr. Weiland:

On behalf of our client, Venango County, you are hereby invited to attend a Public Meeting which has been scheduled for Monday, July 26, 2010, to discuss the plans for the proposed replacement of the Miller Farm Road (T-635) Bridge on Township Rd. T-635 in Oil Creek & Cherrytree Townships, Venango County. The meeting will be held at the Oil Creek State Park Amphitheater, 1080 Petroleum Center Road, Oil City, PA 16301, from 6:00 PM to 7:00 PM. County and PennDOT representatives will be available to answer questions and receive public comments.

If you have any questions or require additional information, please do not hesitate to contact this office.

Sincerely,
FRANK B. TAYLOR ENGINEERING

William A Humphrey

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149 Taylor Drive
New Castle, PA 16101
Phone 724-654-6141 Fax 724-654-5827
Consulting - Engineering - Surveying

Frank B. Taylor, P.E., Founder
J. Ross Taylor, P.L.S., Managing Partner
John W. Taylor, Business Manager & Chief of Survey
Mark A. Miller, P.E.

July 16, 2010

Ms. Marilyn Black
Oil Region Alliance
217 Elm Street
Oil City, PA 16301

RE: Miller Farm Road (T-635) Bridge
Oil Creek & Cherrytree Townships
Venango County
Public Meeting Notification

Dear Ms. Black:

On behalf of our client, Venango County, you are hereby invited to attend a Public Meeting which has been scheduled for Monday, July 26, 2010, to discuss the plans for the proposed replacement of the Miller Farm Road (T-635) Bridge on Township Rd. T-635 in Oil Creek & Cherrytree Townships, Venango County. The meeting will be held at the Oil Creek State Park Amphitheater, 1080 Petroleum Center Road, Oil City, PA 16301, from 6:00 PM to 7:00 PM. County and PennDOT representatives will be available to answer questions and receive public comments.

If you have any questions or require additional information, please do not hesitate to contact this office.

Sincerely,
FRANK B. TAYLOR ENGINEERING

William A Humphrey

William A. Humphrey, P.E.

Frank B. Taylor Engineering

149 Taylor Drive
New Castle, PA 16101
Phone 724-654-6141 Fax 724-654-5827
Consulting - Engineering - Surveying

Frank B. Taylor, P.E., Founder
J. Ross Taylor, P.L.S., Managing Partner
John W. Taylor, Business Manager & Chief of Survey
Mark A. Miller, P.E.

July 16, 2010

Venango County Historical Society
301 S. Park Street
Franklin, PA 16323-1238

RE: Miller Farm Road (T-635) Bridge
Oil Creek & Cherrytree Townships
Venango County
Public Meeting Notification

To Whom It May Concern:

On behalf of our client, Venango County, you are hereby invited to attend a Public Meeting which has been scheduled for Monday, July 26, 2010, to discuss the plans for the proposed replacement of the Miller Farm Road (T-635) Bridge on Township Rd. T-635 in Oil Creek & Cherrytree Townships, Venango County. The meeting will be held at the Oil Creek State Park Amphitheater, 1080 Petroleum Center Road, Oil City, PA 16301, from 6:00 PM to 7:00 PM. County and PennDOT representatives will be available to answer questions and receive public comments.

If you have any questions or require additional information, please do not hesitate to contact this office.

Sincerely,
FRANK B. TAYLOR ENGINEERING

William A. Humphrey

William A. Humphrey, P.E.

PUBLIC NOTICE
NOTICE OF PLANS DISPLAY
VENANGO COUNTY COMMISSIONERS
MILLER FARM ROAD (T-635) BRIDGE REPLACEMENT PROJECT
over
OIL CREEK
OIL CREEK AND CHERRYTREE TOWNSHIPS
VENANGO COUNTY

A Public Plans Display will be held on Monday, July 26, 2010 from 6:00 to 7:00 PM in the Oil Creek State Park Amphitheater, 1080 Petroleum Center Road, Oil City, PA. The focus of the meeting will be a presentation of preliminary alternatives and current engineering and environmental studies for the Miller Farm Road (T-635) Bridge Replacement Project. Anyone interested in or affected by the project is invited to attend.

The project involves the proposed replacement of the bridge carrying Miller Farm Road (T-635) over Oil Creek, including minor approach roadway grade adjustments.

The public will have the opportunity to comment on the project and the information presented. Anyone with knowledge of or comments on the historic resources in the area of the proposed project is encouraged to attend. The comments of all individuals, groups and organizations are welcomed. The Venango County Commissioners and the PA Department of Transportation are particularly interested in the identification of historic resources and determining the effect that the project may have on such resources in order to seek ways to avoid, minimize or mitigate any adverse effects on historic resources.

Any persons having special needs or requiring special aid are requested to contact Frank B. Taylor Engineering prior to the meeting. The meeting location is accessible to persons with disabilities. If you require additional information concerning the meeting, please contact Mr. William A. Humphrey, P.E., Project Manager at (724) 654-6141 or write to: Frank B. Taylor Engineering, Mr. William A. Humphrey, P.E., Project Manager, 149 Taylor Drive, New Castle, PA 16101 or the Venango County Commissioners, Denise Jones, County Administrator/Chief Clerk, 1174 Elk Street, Franklin, PA 16323.

When: Monday, July 26, 2010, 6:00 PM to 7:00 PM
Where: Oil Creek State Park Amphitheater, 1080 Petroleum Center Road, Oil City, PA.

PUBLIC MEETING MINUTES
REPLACEMENT OF MILLER FARM ROAD (T-635) BRIDGE
JULY 26, 2010

A Public Meeting to discuss alternatives for improvements to the Miller Farm Road (T-635) Bridge was conducted on July 26, 2010 at the Oil Creek State Park Amphitheater. Six (6) people signed in for the Public Meeting.

Venango County's design consultant, Frank B. Taylor Engineering, was represented by Bill Humphrey. Mr. Humphrey presented a drawing that depicted the existing conditions at the bridge site. He described the condition of the existing bridge, which has been determined eligible for the National Register of Historic Places (NRHP). The bridge type, span length, clear roadway width, and current weight restriction were among the existing bridge features discussed.

The following alternatives were discussed for the project:

1) Do Nothing
2) Build on New Alignment Without Using the Existing Bridge
3) Rehabilitation
4) Replacement (Includes removal of existing bridge)

The positive and negatives for each alternative were discussed by all present. The purpose of the meeting was to obtain input from the public regarding possible improvements to this "eligible" structure.

Mr. Mike Henderson from the Oil Region Alliance was in attendance. He completed the comment form that was given to all present. On the form, Mr. Henderson requested that, if the improvements to the bridge involve a significant rehabilitation or replacement, two (2) interpretive panels be installed to provide information to visitors about the history of the bridge (images, etc.).

Mr. Jake Weiland of Oil Creek State Park and Mr. Lewis Staub of Cherrytree Township provided input regarding the "users" of the bridge and maintenance of the bridge and its approaches. Mr. Staub requested that the proposed improvements include bituminous paving of the bridge approaches.

These minutes represent the Consultant's understanding of the discussions that took place. If any participant has corrections or additions to the minutes, please advise Frank B. Taylor Engineering within five (5) working days of receipt.

William A. Humphrey

William A. Humphrey, P.E.

MILLER FARM ROAD (T-635) BRIDGE
REPLACEMENT PROJECT
CHERRYTREE AND OIL CREEK TOWNSHIPS, VENANGO COUNTY

SIGN IN SHEET

Name	Organization	Phone
Bill Humphrey	Taylor Eng.	724-654-6141
Jake Weiland	State Parks - OCSP	814 676 5915
Mike Henderson	Oil Region Alliance	814-677-3152
Tom Alcorn	PennDot	814-678-7365
Autumn Kelley	PennDot	8146787393
Lewis Staub	Cherrytree Township	814 827-3249
Scott Hutchinson	PA State Rep-64th	814-677-6363

MILLER FARM ROAD (T-635) BRIDGE REPLACEMENT PROJECT
CHERRYTREE & OIL CREEK TOWNSHIPS, VENANGO COUNTY

Your Feedback Is Important!

Thank you for attending tonight's Public Meeting. Your input is important, so please take a few moments to respond to the following statements and questions. Be sure to use the extra comment spaces provided if needed to help us better understand your responses and opinions.

Upon completing the form, please leave it with the County Representatives tonight, or fold, seal, affix postage, and mail it to our project team by **August 9, 2010.**

1. What interest do you represent?
   ☐ Resident ☐ Community Organization ☐ Community Facility ☐ Public Official ☐ Property Owner
   ☒ Other (Please Explain) DCNR - Bureau of State Parks

2. How often do you (or other household members) cross the bridge on foot or on bicycle?
   ☐ Never ☐ Occasionally (once per month or less) ☐ Regularly (once a week)
   ☒ Frequently (daily, several times per week)

3. What socioeconomic or environmental features (i.e. access, noise, traffic, wetlands, cultural resources, water resources, bicycle trail, etc.) do you value within the project area and want the Project Team to consider while developing this project?
   Recreational access to the East and West side of Oil Creek State Park. Also, considering the Natural, Cultural and Historical resources surrounding the structure.

4. Are you interested in becoming a consulting party member? ☒ Yes ☐ No
   If you are interested, please return this form to the address listed below with your name, address and telephone number noted in the Additional Comments section.

5. How did you learn of the public meeting?
   ☒ Letter ☒ Newspaper Ad ☐ Friends/Relatives ☐ Other

6. Was the format of the meeting suitable for you to learn about and understand the project? ☒ Yes ☐ No

7. Were your questions and/or concerns addressed? ☒ Yes ☐ No _____

Frank B. Taylor Engineering
149 Taylor Drive | New Castle, PA 16101
(P) 724-656-3687 (F) 724-654-5827

Additional Comments: DCNR, Bureau of State Parks is supportive of the replacement alternative with a single lane bridge, constructed on the existing alignment, minimizing impact to the surrounding foot print. An interpretive panel, describing the historical relevance of the replaced structure placed on each side of the new bridge, available to motorized and non-motorized users, is highly suggested. DCNR has no interest in owning the structure.

Fold Here

Fold Here

Affix Postage Here

Mr. William A. Humphrey
Frank B. Taylor Engineering
149 Taylor Drive
New Castle PA 16101

MILLER FARM ROAD (T-635) BRIDGE REPLACEMENT PROJECT
CHERRYTREE & OIL CREEK TOWNSHIPS, VENANGO COUNTY

Your Feedback is Important!

Thank you for attending tonight's Public Meeting. Your input is important, so please take a few moments to respond to the following statements and questions. Be sure to use the extra comment spaces provided if needed to help us better understand your responses and opinions.

Upon completing the form, please leave it with the County Representatives tonight, or fold, seal, affix postage, and mail it to our project team by **August 9, 2010.**

1. What interest do you represent?
   ☐ Resident ☑ Community Organization ☐ Community Facility ☐ Public Official ☐ Property Owner
   ☐ Other (Please Explain) _____

2. How often do you (or other household members) cross the bridge on foot or on bicycle?
   ☐ Never ☑ Occasionally (once per month or less) ☐ Regularly (once a week)
   ☐ Frequently (daily, several times per week)

3. What socioeconomic or environmental features (i.e. access, noise, traffic, wetlands, cultural resources, water resources, bicycle trail, etc.) do you value within the project area and want the Project Team to consider while developing this project?
   CULTURAL RESOURCES / HISTORIC SIGNIFICANCE

4. Are you interested in becoming a consulting party member? ☑ Yes ☐ No
   If you are interested, please return this form to the address listed below with your name, address and telephone number noted in the Additional Comments section.

5. How did you learn of the public meeting?
   ☑ Letter ☐ Newspaper Ad ☐ Friends/Relatives ☐ Other

6. Was the format of the meeting suitable for you to learn about and understand the project? ☑ Yes ☐ No

7. Were your questions and/or concerns addressed? ☑ Yes ☐ No _____

Frank B. Taylor Engineering
149 Taylor Drive | New Castle, PA 16101
(P) 724-656-3687 (F) 724-654-5827

Additional Comments: MIKE HENDERSON
OIL REGION ALLIANCE
217 ELM ST.
OIL CITY, PA 16301

OIL REGION ALLIANCE WOULD LIKE TO SEE 2 INTERPRETIVE PANELS INSTALLED THAT PROVIDE INFORMATION TO VISITORS ABOUT THE HISTORY OF THE BRIDGE (IMAGES, ETC.)

Fold Here

Fold Here

Affix Postage Here

Mr. William A. Humphrey
Frank B. Taylor Engineering
149 Taylor Drive
New Castle PA 16101

Miller Farm Road Bridge Replacement Project
Venango County, Oil Creek Township
Consulting Party Response Form

4/15/10

TO: Pennsylvania Department of Transportation
Engineering District 1-0
Attn: Tom Minnich, Environmental Manager
255 Elm Street
Oil City, PA 16301
Phone: 814-678-7008 Fax: 814-678-7010

FOR FHWA OFFICIAL USE ONLY

FROM: OIL REGION ALLIANCE OF BUSINESS, INDUSTRY + TOURISM
217 ELM STREET
OIL CITY, PA 16301

DATE: 4/15/10

Telephone/Fax Numbers: (814) 677-3152 / (814) 677-5206

X **Yes.** I, or my organization, would like to be a consulting party in the Section 106 process for the Miller Farm Road Bridge Replacement Project.
OIL REGION ALLIANCE (Organization) will be represented by
MARILYN BLACK, V-P FOR HERITAGE DEVELOPMENT (Representative) (Please indicate above the mailing address of the representative if different than the addressee).
_____ I am a representative of a local government with jurisdiction over the area in which the project occurs. (If so, please go to the last question)

_____ **No.** I, or my organization, do(es) not wish to participate as a consulting party for the Miller Farm Road Bridge Replacement Project .

_____ **Future Participation.** As the project progresses into effects, I, or my organization, would like the opportunity to reconsider participation.
_____ I am a representative of a local government with jurisdiction over the area in which the project occurs. (If so, please go to the last question)

Individual's or Organization's Demonstrated Interest
Please Check Appropriate Box(es)

- ☐ 1. legal interest
- ☐ 2. economic interest
- ☒ 3. historic property(s) concerns

Briefly justify your Demonstrated Interest O.R.A. ADMINISTERS THE OIL REGION NATIONAL HERITAGE AREA.

Do you know of another potential consulting party for this project?
Please list their name and phone number below.

YES; OIL CREEK STATE PARK; 305 STATE PARK ROAD; OIL CITY, PA 16301; ATTN: JAKE WEILAND, PARK MANAGER; (814) 676-5915

NOTE: O.R.A. HAD AN EARLIER STUDY DONE TO LOCATE + DOCUMENT OIL-RELATE ARTIFACTS WITHIN O.C.S.P. SEVERAL ARE IN THE IMMEDIATE AREA OF MILLER

Appendix V

COST ANALYSIS-REHABILITATION VS REPLACMENT

MILLER FARM BRIDGE COST ANALYSIS
REHABILITATION VERSUS REPLACEMENT
VENENAGO COUNTY

10/26/2011

MILLER FARM BRIDGE - REHABILITATION COST ESTIMATE
15 TON WEIGHT RESTRICTION

ITEM DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	CONTRACT AMOUNT
CLASS AA CONCRETE	43	CY	$500.00	$21,500.00
CLASS AAA CONCRETE	61	CY	$600.00	$36,600.00
EPOXY CTD. REINFORCEMENT BARS	21000	LB	$1.50	$31,500.00
PIN REPLACEMENT (INCLUDES MATERIAL)	36	EA	$3,000.00	$108,000.00
HANGER REPLACEMENT (INCLUDES MATERIAL)	16	EA	$1,500.00	$24,000.00
FABRICATED STRUCTURAL STEEL (NEW STRINGERS)	27500	LB	$3.00	$82,500.00
TRUSS MEMBER REPLACEMENT (INCLUDES MATERIAL)	36	EA	$2,500.00	$90,000.00
REMOVAL OF PORTION OF EXISTING BRIDGE	1	LS	$25,000.00	$25,000.00
BLAST CLEAN & PAINT EXIST. STRUCTURAL STEEL	1	LS	$200,000.00	$200,000.00
DISPOSAL OF BRIDGE WASTE	1	LS	$100,000.00	$100,000.00
CONTAINMENT	1	LS	$200,000.00	$200,000.00
CAUSWAY (FOR CONTAINMENT & TEMPORARY TRUSS SUPPORT)	1	LS	$25,000.00	$25,000.00
WORKER HEALTH AND SAFETY	1	LS	$50,000.00	$50,000.00
			TOTAL	**$994,100.00**
			15% CONTINGENCY	$149,115.00
		GRAND TOTAL		$1,143,215.00 **

** ESTIMATE PREPARED ASSUMING THERE ARE NO PROBLEMS ENCOUNTERED WITH THE EXISTING STEEL MEMBERS TO BE RETAINED

MILLER FARM BRIDGE - REHABILITATION COST ESTIMATE
15 TON WEIGHT RESTRICTION
(REMOVE AND TRANSPORT BRIDGE TO SHOP FOR REHAB)

ITEM DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	CONTRACT AMOUNT
CLASS AA CONCRETE	43	CY	$500.00	$21,500.00
CLASS AAA CONCRETE	61	CY	$600.00	$36,600.00
EPOXY CTD. REINFORCEMENT BARS	21000	LB	$1.50	$31,500.00
PIN REPLACEMENT (INCLUDES MATERIAL)	36	EA	$500.00	$18,000.00
HANGER REPLACEMENT (INCLUDES MATERIAL)	16	EA	$250.00	$4,000.00
FABRICATED STRUCTURAL STEEL (NEW STRINGERS)	27500	LB	$3.00	$82,500.00
DISSASSEMBLE EXISTING BRIDGE	1	LS	$150,000.00	$150,000.00
TRANSPORT BRIDGE MEMBERS TO SHOP FROM FIELD	1	LS	$10,000.00	$10,000.00
TRANSPORT BRIDGE MEMBERS FROM SHOP TO FIELD	1	LS	$10,000.00	$10,000.00
REASSEMBLE EXISTING BRIDGE	1	LS	$200,000.00	$200,000.00
TRUSS MEMBER REPLACEMENT (INCLUDES MATERIAL)	36	EA	$750.00	$27,000.00
PAINT STRUCTURAL STEEL (NEW AND EXISTING) IN SHOP	1	LS	$75,000.00	$75,000.00
BLAST CLEAN EXIST. STRUCTURAL STEEL (PRIOR TO DELIVERY TO SHOP)	1	LS	$100,000.00	$100,000.00
DISPOSAL OF BRIDGE WASTE	1	LS	$100,000.00	$100,000.00
CONTAINMENT	1	LS	$200,000.00	$200,000.00
CAUSWAY (FOR CONTAINMENT & TEMPORARY TRUSS SUPPORT)	1	LS	$25,000.00	$25,000.00
WORKER HEALTH AND SAFETY	1	LS	$50,000.00	$50,000.00
			TOTAL	**$1,141,100.00**
			15% CONTINGENCY	$171,165.00
		GRAND TOTAL		$1,312,265.00 **

** ESTIMATE PREPARED ASSUMING THERE ARE NO PROBLEMS ENCOUNTERED WITH THE EXISTING STEEL MEMBERS TO BE RETAINED

MILLER FARM BRIDGE - REPLACEMENT COST ESTIMATE (REUSE EXISTING ABUTMENTS, ADD PIER)
NO POSTING

ITEM DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	CONTRACT AMOUNT
CLASS 3 EXCAVATION	134	CY	$50.00	$6,700.00
CLASS AA CONCRETE	43	CY	$500.00	$21,500.00
CLASS AAA CONCRETE	70	CY	$600.00	$42,000.00
FABRICATED STRUCTURAL STEEL (NEW BEAMS)	123318	LB	$2.00	$246,636.00
EPOXY CTD. REINFORCEMENT BARS	22500	LB	$1.50	$33,750.00
SUBSTRUCTURES (PIER & ABUTMENT CAPS)	1	LS	$70,000.00	$70,000.00
REMOVAL OF PORTION OF EXISTING BRIDGE	1	LS	$25,000.00	$25,000.00
CAUSEWAY/COFFERDAM (PIER CONST. & BEAM ERECTION)	1	LS	$50,000.00	$50,000.00
			TOTAL	**$495,586.00**
			15% CONTINGENCY	$74,337.90
			GRAND TOTAL	$569,923.90