



February 3, 2025

Wayne County  
Damascus, PA  
State Route 1002, Skinners Falls Bridge

Art Suckewer  
Wrought Iron Bridge Works  
asuckewer@knite.com

Dear Art Suckewer:

Thank you for sharing your proposal regarding the Skinners Falls Bridge. The Skinners Falls Bridge and the Delaware River are considerably larger than the bridges and streams involved in the projects that you offer as examples. Furthermore, PennDOT is constrained by the emergency nature of this project. The public safety concern posed by the failure of the bridge must be addressed prior to the start of the recreational boating season, which typically starts on Memorial Day. As explained in more detail below, PennDOT has determined that your proposal cannot be implemented for a bridge of this size within the time available.

PennDOT responses to your correspondence are provided below:

*To address the emergency resulting from the failing abutment:*

*My suggestion is to create/erect a falsework of similar design to that used on Red Mill Road Bridge under the 1/4 - 1/3 of the NYS span which is over land above the low water mark, adjacent the abutment. The falsework would support the superstructure at the floorbeams and incorporate a hydraulic jacking feature at each attachment point. The falsework itself would rest on specialized bearing plates that do not require footings or significant ground disturbance. These features have significantly expedited permitting on previous projects.*

*The bearing plates are of sufficient size to reduce the ground load sufficiently to not disturb possible ecological/archeological features below the ground surface and provide sufficient friction to minimize lateral motion once under load.*

PennDOT does not agree that a falsework system for a structure the size of the Skinners Falls Bridge over the Delaware River could rest on bearing plates without foundations. Falsework on the overbank area in the recommended locations would be in excess of 30' tall. This would require a multi-column system and stability bracing magnifying the potential hydraulic forces from river and ice flows. That would require deep foundations to protect the falsework from those hydraulic forces.

A falsework system of this magnitude could not be designed, manufactured, permitted, and installed prior to the start of the recreational boating season. Implementing the falsework system would require extensive agency coordination and permits prior to initiating construction. Placing falsework at individual panel points would require detailed analysis of the selected joint with consideration for pin and truss member deteriorated conditions, and potential truss member stress reversals resulting from the modified support condition.

Furthermore, falsework buttressing of the abutment in the overland area would not address the safety concern posed by the deteriorating condition of the truss spans.

*The hydraulic jacks will allow adjustment and a gradual, minimal stress, unloading of the truss end bearings to safely facilitate abutment work.*

*Our existing falsework components are available and can be quickly modified to accommodate the specifics of this bridge.*

Falsework for the Skinners Falls Bridge would require much larger components than the example project. By comparison to the Cambria County project, the Skinners Falls Bridge span and height are two and a half times larger. The bridge is also twice as high over land. The Delaware River extends under approximately two-thirds of the New York span and three-quarters of the Pennsylvania span with variable channel depths up to 15 feet.

*The support of the falsework will also provide adequate safety to deploy netting under the remainder bridge while the abutment is being restored.*

Falsework would not suffice for safe deployment of netting under the bridge. The netting would need to be installed either from the deck of the bridge or from a causeway. Installing the netting from the deck would not be safe because of the critical condition of the superstructure. Installing the netting from a causeway would not be practicable because the causeway would need to be removed by start of the recreational boating season. PennDOT will need to access the netting each winter because the accumulation of ice on the netting during winter weather increases the dead load weight and horizontal wind load that the truss spans must be able to support. This means that the netting would need to be removed prior to each icing event. You have proposed a multi-year plan for restoring the superstructure. Removing the causeway before each recreational boating season and rebuilding it each winter would not be practicable and would have excessive ecological impacts.

*Flood protection would be provided by a gabion-based deflection/mass system placed upstream (on-shore). Preferably, the falsework would be tied to it via cable.*

A gabion-based deflection/mass system cannot substitute for deep foundations for the falsework. No such system could protect the falsework against all flood and ice events. A failure of the gabion-based system could cause catastrophic failure of a falsework system without deep foundations.

Also, long term access for installation and maintenance of an upstream gabion-based system would require a right-of-way agreement for a multi-year temporary construction easement that would add project complexity and delay work to install the falsework increasing the time period that the safety concerns are not addressed.

*Responsibility transfer:*

*One of the dilemmas being faced by PennDOT is that this is more of a historic preservation project than an infrastructure improvement. However, as this is part of an interstate agreement, its removal creates it's own headaches. By transferring the long-term responsibility for the bridge to the NPS (I believe they oversee the Roebling Aqueduct / bridge) or another local organization in a carefully structured agreement, the bridge's care would better align responsibility and purpose for what is a historic artifact. Also, the transfer of ownership/responsibility/liability may allow funds from a different source to be used to fund the restoration.*

PennDOT is willing to discuss transfer to any entity willing to take ownership. However, PennDOT has not received indication that NPS is in favor of taking ownership of the structure. Transfer would require legislative action.

*Restoration:*

*Assuming there is buy-in, the falsework approach could be implemented to safely and (relatively) cost effectively restore the entire substructure and superstructure.*

*Using the partial falsework approach, the bridge could be fully restored with a small crew over several years; minimizing risk, cost, environmental and cultural impacts. Techniques similar to those used in Indiana and Michigan would be implemented in order to fully restore the bridge in a manner that will meet both AASHTO and Secretary of the Interior standards. For the restoration, I would recommend the participation of Jim Barker PE (or his associates) as he is the technical editor of the NPS historic bridge restoration guide.*

Rehabilitation requires complete disassembly of the bridge. The disassembly is necessary to allow the cleaning between all faying surfaces and galvanization of the members for future protection, in addition to the replacement of all pins with new shouldered pins.

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Dismantling the truss and replacing truss members would require a temporary support system supported on deep foundations and necessitate the installation of causeways within the Delaware River. The causeways are necessary because of the span length to perform the installation of the temporary supports and facilitate in place truss rehabilitation. As determined throughout the course of the in-depth inspection, several pins on the bridge have defects including broken pin sleeves and section loss to the pins themselves. The presence of extensive pack rust and corrosion at connections throughout the structure has deteriorated the pins creating a danger of members being “pushed off” the pins which could result in bridge collapse.

As previously mentioned, the work to address the safety concerns need to be completed before the start of the recreational boating season. A multiple-year in-place restoration would cause several problems. Having the falsework under the entire bridge for multiple years would close the river to all recreational use. Ice flows could cause damage to the falsework. The necessary permits are based on timeframes that allow the river to be used for recreation.

Thank you again for sharing your thoughts regarding Skinners Falls Bridge. Should you require any additional information, please contact me at 570.963.3015 or at [shazelton@pa.gov](mailto:shazelton@pa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Susan E. Hazelton". The signature is written in a cursive style with a large initial "S".

Susan E Hazelton, P.E.  
Assistant District Executive - Design