

Kitty Henderson  
Executive Director  
Historic Bridge Foundation  
PO Box 66245  
Austin, Texas 78766

February 27, 2018

Dear Ms. Henderson,

After carefully reviewing your September 7, 2017 memo to Monica Harrower, regarding the Headquarters Road Bridge in Tinicum Township, Bucks County, I wanted to respond to your comments regarding the bridge's type and significance. You offered that "The current bridge should also be correctly identified—a steel stringer bridge with the stringers encased in concrete. There is no such thing as a stone pillar bridge. The bridge is a steel stringer bridge that sits on stone piers..."

This bridge consists of a substructure dating to 1812 and a failing deck, or superstructure, dating to 1919. Characterizing the bridge type solely by the deck style in this case misses the actual character defining element of the bridge we have here on Headquarters Road—the earlier and more significant substructure of close-spaced piers from 1812, which can and should be preserved. I believe the correct terminology for this bridge type is not "stone pillar bridge" but wooden beam bridge; the piers were designed to be spanned by easily replaceable wooden beams with a wooden plank deck. This bridge retained its wooden beams and deck until the latest replacement, in 1919, when a more durable deck material was introduced—steel and concrete. But that new material did not alter the underlying substructure or the essential character of the bridge any more than the essential character of a covered bridge changes when steel stringers are introduced to support the roadway. It does not then become a steel stringer bridge. Placing a reinforced concrete deck on a stone arch bridge does not lead to renaming it a reinforced concrete bridge.

The practice of identifying bridges solely by type of deck is particularly problematic with the Headquarters Road Bridge. For wooden beam bridges, the main support for traffic loads is not the deck itself, nor is it structures or trusses above or built into the deck - it comes from the close spaced piers below the deck. In this respect, this bridge type is similar to its relative the stone arch bridge. Simple wooden beams supporting a wooden plank deck are all that are required to create a traffic-bearing roadway between the piers. While more durable steel and concrete were substituted in 1919 for the wooden beams and plank deck, redefining this bridge as a steel stringer bridge misses the point of its engineering significance.

In affirming its position on the National Register, Patrick Andrus, Historian of the National Register of Historic Places wrote a summary of this bridge's significance that read, "The bridge is historically significant in the context of the development of the township, regional transportation, and the operation of local mills, and is of engineering significance both for its early 19<sup>th</sup> century construction and its sensitive modernization in 1919."

In the twenty-nine years I have worked to preserve this bridge, people in the community have considered this span a pier-to-pier or a pillar bridge, seeing the masonry substructure of the

bridge as the character defining feature by which classification occurred. If such terminology is not correct, perhaps that's because in this case the masonry portions are visibly the most important element of the span. In referring to the classification of the Headquarters Road Bridge, both the substructure and the superstructure need to be identified, or the true nature of the span is not fully indicated.

While wood beam bridges were replacing stream fords in the early nineteenth century, Delaware River ferries were being replaced by covered bridges as trusses were developed to support traffic between widely separated stone piers and abutments. By midcentury, the use of covered bridges had spread to streams too, spelling the end of the era of multi-span stone arch bridges and multi-span wooden beam bridges like the Headquarters Road Bridge.

Thank you for acknowledging that the proposed mitigation for the Headquarters Road Bridge is insufficient, and for suggesting ways to improve on the current proposal. An interpretive panel, and other potential means to disseminate an explanation of how this creek crossing evolved, could preserve some record of a significant historic bridge in a historic district currently targeted for demolition. However, such an approach accommodates the continuing wholesale destruction of practically all historic bridges in all historic districts in the Commonwealth of Pennsylvania. The current plan to demolish and replace the Headquarters Road Bridge reveals a much greater crisis in which historic bridges, in Pennsylvania Historic Districts, are not being preserved as public policy.

Based on an examination of PennDOT's statewide bridge survey in 2003, there were only eight working bridges identified in Pennsylvania built before 1812. All were of the more common stone arch design. If the survey is accurate, the Headquarters Road Bridge is the oldest surviving multispan wooden beam bridge substructure left in Pennsylvania, possibly the entire country.

The greatest significance of the Headquarters Road Bridge is in the close-spaced piers, about 25 to 30 feet apart, and in the dimensions and subtleties of their battered stonework that survive to show us how this nearly extinct early bridge type was built. The piers have large squared and fitted base stones in horizontal courses, with smaller rubble stones coursed horizontally in the upper half, fitted squared and dressed stones at water flow impact locations, and the stones lay in horizontal bed lines. The side of the piers facing upstream feature rounded nosings, while the piers and abutments were laid with a batter, or slight taper inward toward the top. The abutments exhibit bridge engineering significance in the masonry workmanship through the slight concave plan to abutment faces against the earthen banks, and the more random coursing of the stone wing walls and guide walls that splay out in width as they diminish back and reduce in height. How can an interpretive panel replace the experience of being able to see, touch, and understand a surviving wood beam bridge substructure firsthand in the Ridge Valley Historic District?

The Headquarters Road Bridge was the first bridge to be constructed in the Ridge Valley historic district; a covered bridge and an iron truss bridge were added upstream later in the 19th century. Three other creek crossings in the district remained as fords until being replaced by bridges in the early twentieth century, two fords still remain. The wooden beams of the first bridge were meant to be replaced as they aged to maintain safety, and although the stringers and deck are no longer wood, the Headquarters Road Bridge remains an otherwise intact example of

the wooden beam bridge type, and it is among the earliest structures surviving from the evolution of this type of creek crossing in the Delaware Valley.

As Executive Director of the Historic Bridge Foundation, you have a unique position from which to advocate for a better outcome than the continued loss of historic bridges suggested in this case. The Headquarters Road Bridge controversy is symptomatic of a broad failure in Pennsylvania by public officials to devise reasonable alternatives to demolishing or adversely affecting historic bridges located in eligible or listed historic districts. Historic designation for bridges in Pennsylvania is failing to result in historic preservation. This broader issue warrants a more far-reaching vision that takes a stand demanding greater efforts to maintain, restore, and adaptively reuse historic bridges included in National Register Historic Districts.

Should the Headquarters Road Bridge mitigation occur as now envisioned, a terrible precedent will be set. No bridge in the district is safe, and others are already threatened. Future residents and visitors experiencing the Ridge Valley Historic District will one day only be able to experience the especially fine collection of creek crossings that we now know as the heart of this district by stopping at each modern replacement span to read the interpretive signage marking the wholesale destruction of the very structures that defined the sense of place and association with transportation, which led to historic designation of this district. Designated or eligible historic districts that rely on historic bridges simply will not survive replacement of those bridges if mitigation fails to actually preserve any of the essential character or historic fabric of those crossings in their original configuration.

Despite a lengthy Section 106 Review process, no progress was made in convincing public officials to modify their planned bridge replacement that will not only eradicate all evidence of the historic span, but shift its location sideways, changing the current course of the stream itself with potentially devastating results downstream on property and historic resources included in the Ridge Valley Historic District.

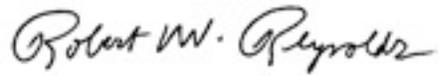
While stone from the historic span has been discussed as a covering for cement on the new span, we don't know of a single instance in the last twenty years where PennDot has re-used any stone in Tinicum, even where the PHMC has required it as a condition of approval. Specifically and most recently, they did not reuse any stone despite specific promises on either the Geigel Hill or the Point Pleasant replacement bridges, both of which stand in Historic Districts. In any case, the reuse of stone in a contemporary fashion will lack all elements of context and meaning if implemented.

The final outcome of the Headquarters Road Bridge serves as a most emblematic moment in the future of bridge preservation in Pennsylvania. Without a broader policy adjustment resulting in the restoration and rehabilitation of historic bridges in historic districts, the Headquarters Road fight will occur over and over and over again, crossing by crossing, historic district to historic district, with one crossing replacement after another. Historic bridges are now endangered in Pennsylvania and many bridges under this form of mediation will become extinct.

I appeal to you to revisit the Headquarters Road Bridge project and offer constructive leadership by recognizing the multispan wooden beam bridge as a type and advocating for its significance and preservation, by commenting on how the Pennsylvania Department of Transportation can vastly improve the preservation of historic bridges in National Historic Districts, and by rejecting the proposed Headquarters Road Bridge mitigation, in favor of the

rehabilitation approach overwhelmingly preferred by the Section 106 consulting parties, which would have no adverse impact upon this National Register listed 1812 wooden beam bridge substructure or the Ridge Valley historic district.

Sincerely,

A handwritten signature in black ink that reads "Robert W. Reynolds". The signature is written in a cursive style with a large, prominent initial 'R'.

Robert W. Reynolds, Ph.D.  
Kutztown University

cc: Maya van Rossum, the Delaware Riverkeeper  
Monica Harrower, PennDOT Project Path