Wrought Iron Bridge Works

67 deLeon Circle
Franklin Park, NJ 08823
Tel. 609.636.3822
Fax. 877.882.9749

January 25th, 2025
NPS & NY SHPO
Alternative solution to addressing emergency and subsequent restoration
C/O Lauren Williams and Barbara Arrindell

RE: Minimum impact bridge stabilization and subsequent restoration techniques

Dear Ms. Williams and Ms. Arrindell,

Non-destructive solution to the emergency:

Wrought Iron Bridge Works, LLC. (WIBW) has been made aware of the impending demolition of the bridge over the Delaware River at Skinner's Falls. WIBW is specialized in the preservation/restoration of historic truss bridges and has previously used derivatives of historic techniques to quickly, cost effectively and safely addressed a similar situation, where a compromised truss bridge was resting of a failed abutment (included are the approved engineering plan and the concluding report).

The approach was to use an upgraded and slightly modernized/improved version of the methods used to originally erect/assemble the bridge. A modern variation of falsework.(temporary supports of the bridge's floor beams from the ground directly below each beam [the floor beams cross under the roadway of the bridge and hold the roadway up. The trusses normally support the floor beams from above, transferring the load to the abutments and piers]

Although considered and dismissed in the alternatives analysis, this was considered by those who had not used the technique nor are aware of methods to address the concerns with the technique. Considering the immediate emergency is the abutment on the NY abutment and 1/3 of the span resting on it is over dry ground during low water. Supporting the floor beams over land is sufficient to stabilize the truss and lift it a few inches, allowing the abutment to be safely rebuilt and the truss's end bearings to be replaced.

The falsework technique provides four key benefits:

- The falsework removes the load from the abutment and spreads it across a greater area, being much less stressful on the truss than picking up the truss with cranes – reducing risk.
- Being on-shore, the river is not impinged nor disturbed (with causeways, crane pads, etc.). The feet of the falsework are designed to rest on the surface, spreading the load sufficiently to not harm the sub-soil environment/archeology. These traits will minimize permitting time as well as project cost.
- The falsework provides sufficient support to make it safe for workers to apply safety netting beneath the roadway of the entire bridge, addressing another safety concern.
- Because the faslsework is low impact and localized, the approach will have minimal impact to the recreational/tourist activities.

A specialized jacking system is used with the falsework, allowing both lifting of the truss off the abutment (by a few inches) and correcting flaws within the end of the truss. The other part of the system for this site is placing a gabion (wire cages filled with stones) based system to provide a load to tie in to and a diversion structure for flood mitigation.

By using this simpler method and simpler equipment, not only can the work be performed with much lower site impact, the work can be performed more slowly, to a higher standard, with a smaller crew. This allows each crew member to be well paid while keeping the overall labor cost down.

Restoration:

This basic approach can be used to restore the remainder of the bridge (the remaining stonework and both trusses) to a much higher standard than was achieved in 1986-1987. It can also be done in discrete segments, spreading the project budget out over several years and reducing the local impact as compared to one giant project.

Recommended Team:

This is merely a list of those who are expert in aspects of this approach for the purpose of considering it as a solution should not

- Art Suckewer: Partner in Wrought Iron Bridge Works with Ross Brown. Aerospace Engineer (ME) for 30 years, bridge restoration for 13 years. Specializing in unique engineering solutions and working with complex governmental organizations.
- Ross Brown: Partner in Wrought Iron Bridge Works. Technical blacksmith with 36 years of historic bridge restoration experience. Expert in all aspects. Lead or specialized sub in over 150 historic bridge projects.
- Alfred Dedam: Old Goat Masonry. A historic masonry restoration expert and part of the WIBW team. Has the ability to restore the stonework, meeting both Secretary of Interior preservation standards as well as AASHTO requirements.
- Aaron Craig PE (PA): Engineer of record on prior WIBW falsework project in PA.
- Daniel Kurdzeil PE (PA): Partner with Jim Barker in Kurdzeil – Barker Specializing in historic bridge restoration.
- Jim Barker PE: Partner with Kurdzeil – Barker. Jim is the nation's preeminent historic bridge preservation engineer and the technical editor of the National Park Service's Historic Bridge Restoration Manual.

Wrought Iron Bridge Works looks forward to working with you in considering an alternate, viable solution to preserve your historic bridge. Please review this material and feel free to call (609.636.3822) or email me (asuckewer@knite.com) with any questions you may have.

Sincerely,

Art Suckewer 20 Jan. 2025
President / CEO Wrought Iron Bridge Works, LLC