



Historic Bridge Foundation Facebook Archives

Focus Bridge: Larimer Avenue Bridge

January 2016

Many people are familiar with Pittsburgh's beautiful historic bridges over the three big rivers in the city. But many other historically significant can be found elsewhere in the city, sometimes in unexpected places.

Crossing Washington Boulevard and the valley which the road follows, the clear span of the Larimer Avenue Bridge is shown as anywhere from 300 to 312 feet depending on what source you look at. In any case, the span was reported by multiple engineering periodicals of the period as the longest concrete arch span in the United States when it was completed in 1912. Two other concrete spans were noted as being larger at the time the Larimer Avenue Bridge was completed. One was the Grafton Bridge in Auckland, New Zealand, which had been completed only a couple years earlier in 1910. The Grafton Bridge, which remains standing today (and appears to be in good condition) features a main span of 320 feet: only a bit longer than the Larimer Avenue Bridge. The other bridge noted as longer was Ponte del Risorgimento whose 328 foot span was completed only one year earlier in 1911, crossing the River Tiber in Rome, Italy. This bridge which also remains standing today (and appears to be in good condition) has an arch with a very shallow rise, and is therefore quite different in appearance from both the Grafton and Larimer Avenue Bridges.

The Larimer Avenue Bridge features a height of 113 feet, with the arch itself featuring a 67 foot rise. It was estimated by period articles that the bridge took 8,500 cubic yards of concrete and 436 tons of steel. The timber falsework (centering) used to support the bridge during construction totaled over 400,000 linear feet. Also, during construction, a temporary cableway spanned over the valley which was used to move equipment and materials around the job site.

The arch rib that produces the main span of the bridge is composed of reinforced concrete. However, the type of steel reinforcing is unusual and worth noting. Instead of the traditional reinforcing rods (rebar) commonly found in reinforced concrete construction, this bridge was reinforced with riveted

steel angles and bars. The angles were positioned around the perimeter of the arch rib, with repeating rows of steel bars spanning between these angles. The bars were riveted to the angles, and when the concrete was poured, all this steel was encased inside the concrete, forming the reinforced concrete arch rib. Sadly, this bridge has not been maintained and in some areas of the arch rib, the concrete has fallen away revealing this steel reinforcing. This is of course undesirable, but does offer a rare view of this unusual construction that should otherwise be hidden from view.

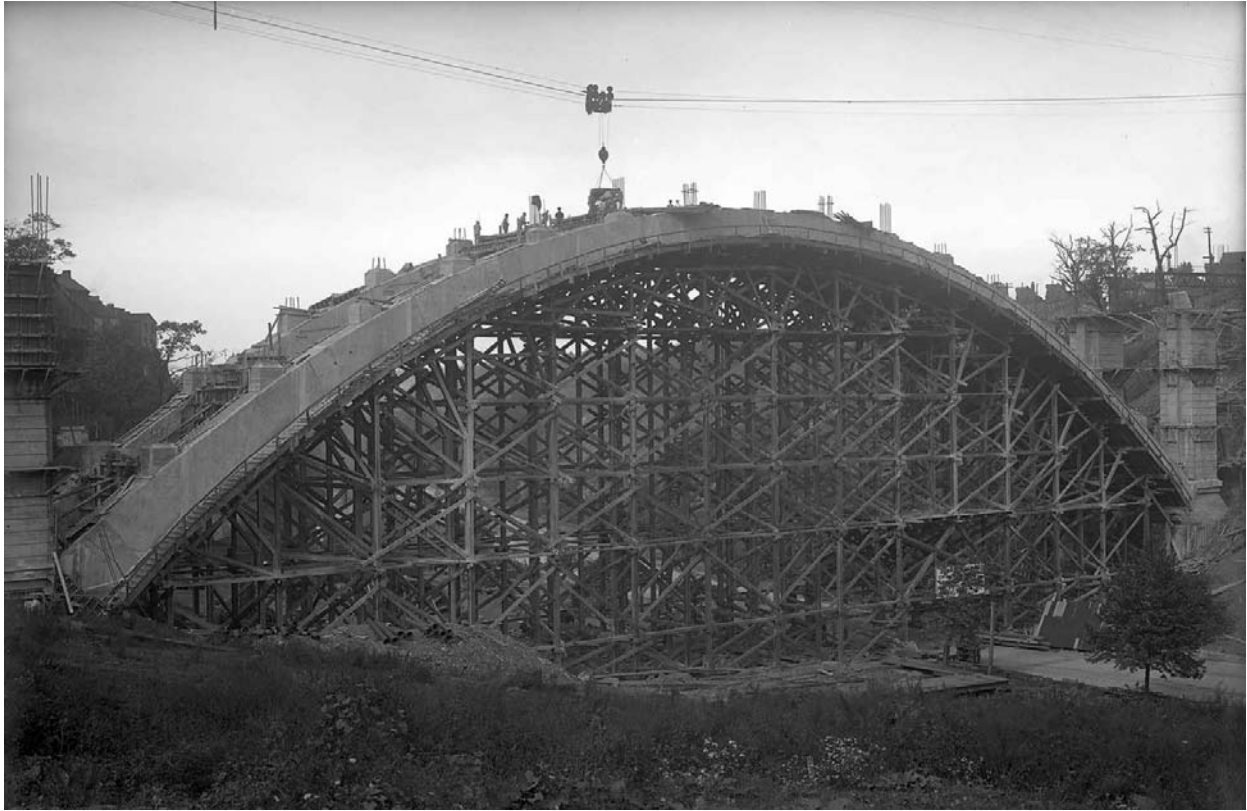
The Larimer Avenue Bridge was clearly a major engineering achievement in concrete bridge construction in the United States when it was completed. Covered by a number of engineering periodicals of the period, this bridge was a record-breaking structure in the country; a noteworthy engineering achievement. However, the future of this bridge is uncertain. Although the bridge has been formally found eligible for listing in the National Register of Historic Places, it has not been maintained in recent years, and extensive concrete spalling has taken place. Unlike its siblings in Italy and New Zealand which appear to be preserved historic landmarks, the City of Pittsburgh has been seeking funds to demolish the bridge.



A view of the bridge today.



A view of the bridge today.



This photo shows the construction of the bridge, with the arch rib being constructed on top of the extensive timber centering. Also visible at the top is the temporary construction cableway.



The original deck of this bridge has been replaced. As originally built, it included these ornamental lighting standards.



This photo shows the demolition of the previous bridge at this location.



This photo shows the Grafton Bridge in New Zealand, one of only two concrete arch bridges in the world noted as being longer than the Larimer Avenue Bridge when it was built.

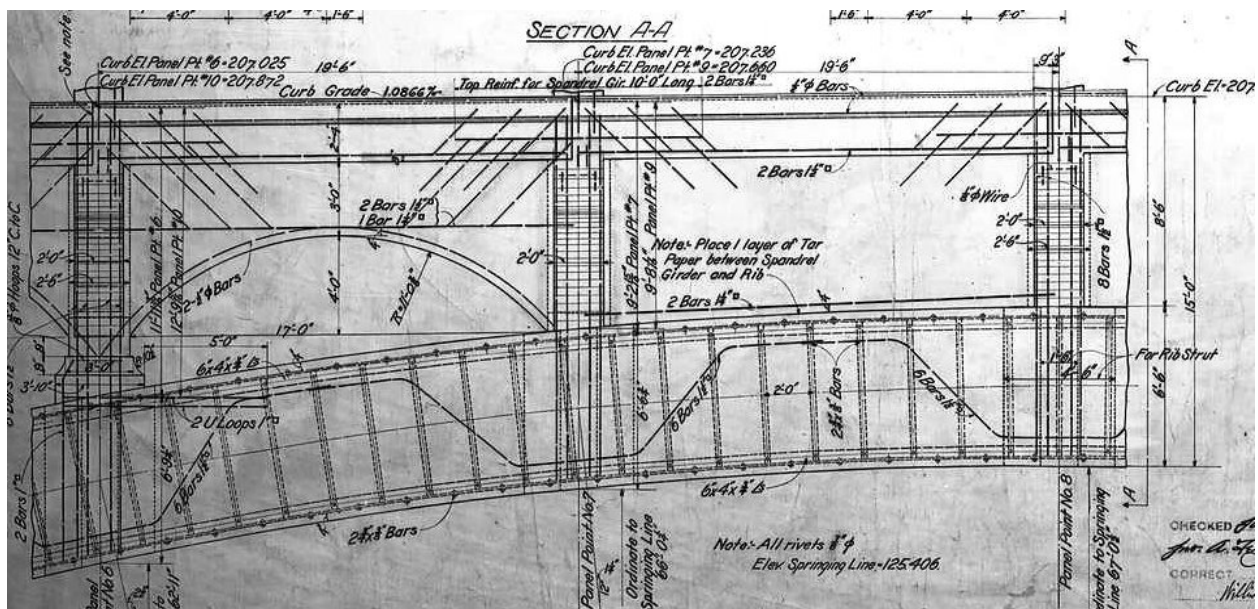
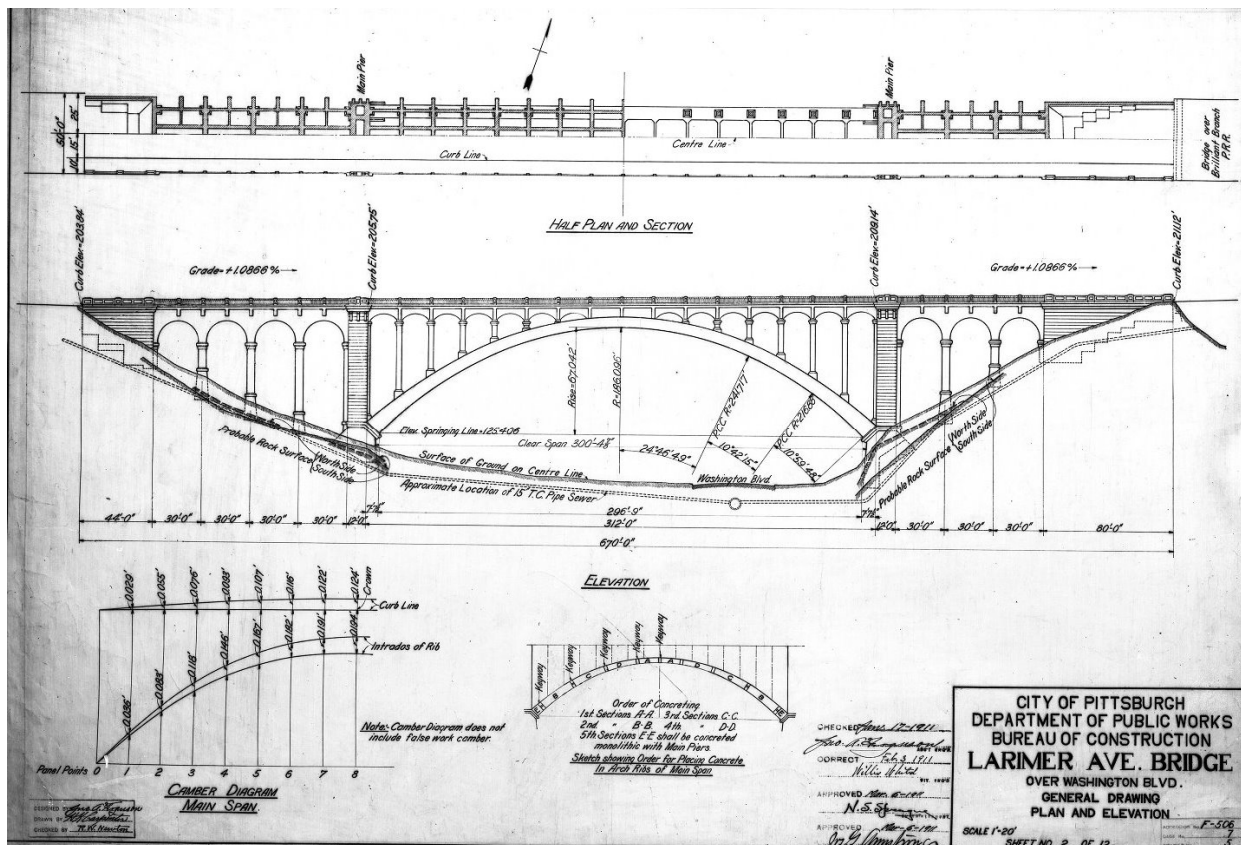


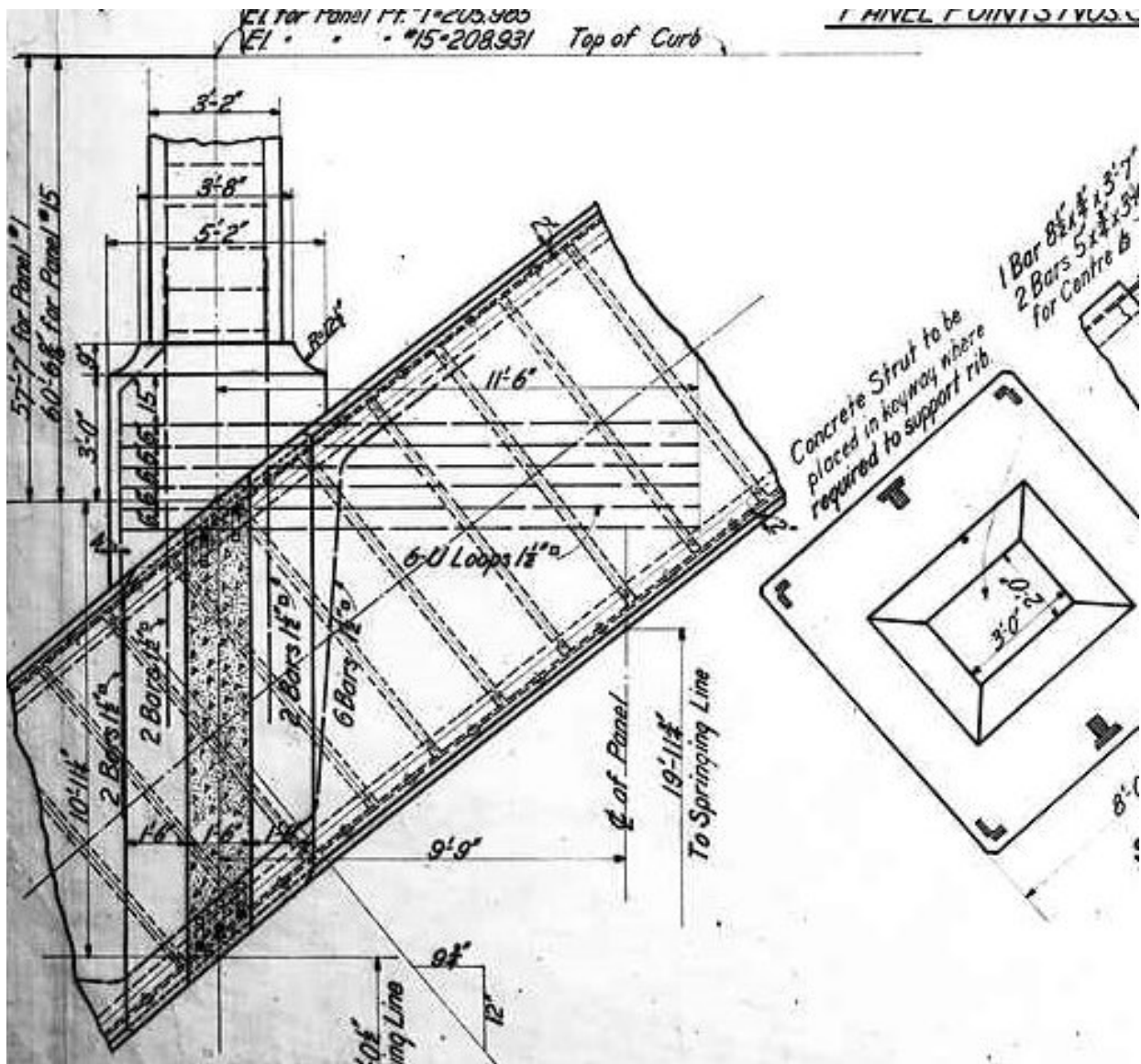
This photo shows Ponte Risorgimento in Italy, one of only two concrete arch bridges in the world noted as being longer than the Larimer Avenue Bridge when it was built. Photo By Lalupa

https://commons.wikimedia.org/wiki/File:Tevere_-_PonteRisorgimento1.JPG



This photo shows the Larimer Avenue Bridge shortly after construction was completed.





Portion of an original Plan sheet showing steel reinforcing for the arch rib.



This photo shows the bridge plaque. It is located underneath the bridge next to Washington Boulevard, which is unusual for a deck arch bridge plaque, since they typically are mounted on bridge railing somewhere.



Rib- Deterioration has exposed the steel reinforcing on this section of concrete arch rib.