



I-74 Mississippi River Bridge Temporary Stays

MOLINE, IL

SDI Scope

*Temporary Stay
Fabrication, Material,
and Equipment Supply
(Including designing
and testing custom
fabricated job-specific
hardware), Technical
Support*

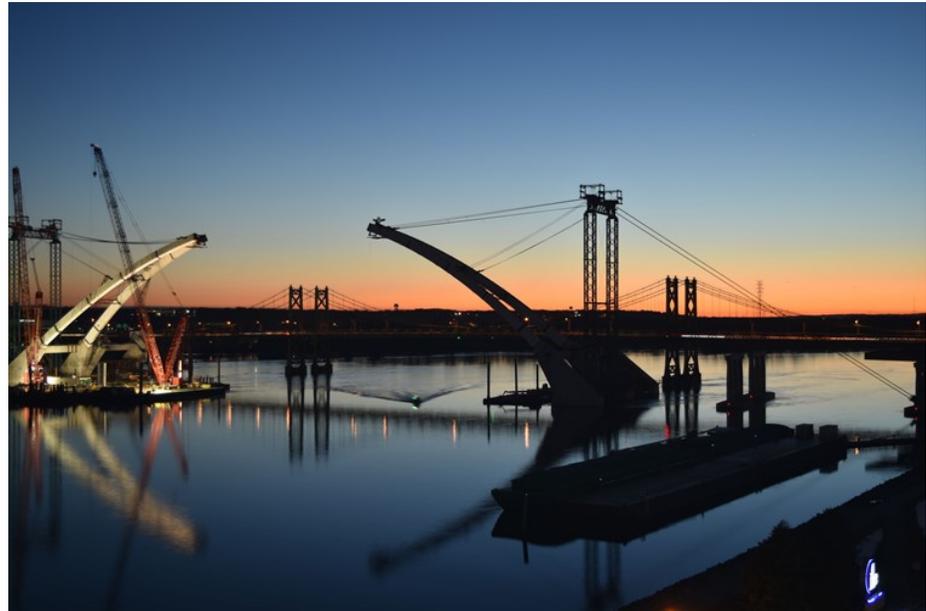
Contractor

Lunda Construction Co.

Owners

Iowa DOT

Illinois DOT



I-74 Mississippi River Bridge Temporary Stays

I-74 provides an essential transportation link over the Mississippi River connecting Moline, Illinois and Bettendorf, Iowa. The westbound bridge opened in 1935, and a separate eastbound “twin” bridge opened in 1960. Since then, traffic has steadily increased, prompting interest in the construction of replacement bridges, interchange reconfigurations, and other roadwork.

Construction began on the westbound replacement bridge in 2017 and is scheduled to be completed in 2021. Construction of the replacement eastbound bridge is underway.

The massive weight bearing bridge arches are constructed in segments requiring temporary stay cables to hold the partial arches in place until the top key stone arch segment is placed. Then the temporary stay cables are removed. Schwager Davis, Inc. is supplying stay cable materials, equipment, and technical support for the arch erection.

The new bridge is much larger than the original and includes many features to make travel smoother, safer, and more efficient for motor, bicycle, and pedestrian traffic.

PHOTO CREDIT: LUNDA CONSTRUCTION

*Schwager Davis, Inc.
198 Hillsdale Avenue – San Jose, CA 95136
Tel: (408) 281-9300 Fax: (408) 281-9301
www.schwagerdavis.com*

Bridge Construction Process In Brief

- First, three steel arch segment pairs are connected.
- Then the backstays and first forestays are attached. The backstays consist of (4) 37 strand tendons connected to anchor pier and temporary tower head. The first forestays consist of (4) 19 strand tendons connected to temporary tower head and top of third steel arch segments.
- Temporary stays are tensioned.
- Two more steel arch segment pairs are connected.
- The second forestays are attached and tensioned, and the first forestays are removed. The second forestays consist of (4) 27 strand tendons.
- Two more steel arch segment pairs are connected.
- This same sequence occurs from the other end of the arch and ends with a “key stone” steel arch segment that connects the arch midspan.
- The arch is self-supporting in compression once the midspan piece is fastened.
- Finally, all the temporary stays are removed.



SDI's Scope of Work

Initially, Lunda Construction Co. hired SDI for material supply, equipment leasing, and technical support; however, SDI's scope soon grew to include tendon fabrication (temporary stays) for the westbound arch span erection.



To facilitate temporary stay installation, SDI engineers specially designed threaded anchor ring nuts, post blocking devices, cable clamps, and performed proof load testing. The SDI shop then made necessary adjustments to the installation equipment (modifications, calibrations, setup) to suit the specially designed hardware.

SDI's team worked effectively, efficiently, and creatively to deliver excellent materials, equipment, and technical support to Lunda Construction, Iowa and Illinois DOTs, and the public we all serve.

PHOTO CREDIT: LUNDA CONSTRUCTION