



Transforming Infrastructure: Innovative I-94 Second Ave Bridge

Case Study

The Second Avenue bridge is the first network-tied arch bridge in Michigan. DYWIDAG was responsible for the supply, installation, grouting, and stressing of all post-tensioned tendons used in this project, as well as for the Grade 150 epoxy-coated DYWIDAG THREADBARs used to reinforce the knuckles of the structure.

PRODUCTS

Multistrand Bonded Post-Tensioning

LOCATION

Detroit, MI

SCOPE

Supply
Installation
Stressing & Grouting

OWNER

Michigan Department of Transportation, City of Detroit

GENERAL

CONTRACTOR
Z Contractors

Context

The main objective of the project was to replace the Second Avenue overpass above I-94 in Detroit.

The Michigan Department of Transportation (MDOT) received a \$1 million Accelerated Innovation Deployment grant from the United States Department of Transportation for the ongoing replacement of the Second Avenue bridge. The new bridge had to meet the construction goals of employing state-of-the-art technologies, elevated performance standards, and innovative business practices.

The Second Avenue Bridge is unique as it is the first network-tied arch bridge in Michigan. The "network" refers to the numerous cables that are crossed from the top of the arch to the part of the structure supporting traffic. This design was chosen to enhance vertical clearance for freeway traffic and avoid the need for increasing the grade on a residential section of Second Avenue.

The construction process involved assembling the skeleton of the network-tied arch structure off-site in a Wayne State parking lot while simultaneously constructing the bridge foundation and abutment walls along the freeway. This approach saved time and minimized disruptions to I-94 traffic.

Solution

In this remarkable Second Avenue Overpass Replacement, we supplied, installed, grouted, and stressed all post-tensioned tendons.

This groundbreaking bridge was meticulously constructed on a specially designed falsework platform at an off-site parking lot. DYWIDAG installed, stressed, and grouted nearly 50% of the 19-0.6" tendons in the Tie-Girders, ensuring structural integrity. DYWIDAG also executed the installation, stressing, and grouting of 100% of the 19-0.6" tendons at the end diaphragm. To further enhance the bridge's resilience, we utilized 1-3/8" GR150 epoxy-coated DYWIDAG THREADBARS®, reinforcing the critical knuckles of the structure.

The bridge was successfully moved over I-94 to its final position last fall. This project achievement showcased our ability to deliver exceptional results while adhering to strict timelines.

When it comes to complex infrastructure projects, trust DYWIDAG to provide innovative post-tensioning solutions. Our unwavering dedication to quality and innovation sets us apart, ensuring that your bridge project is in capable hands.

Contact us today to explore how our cutting-edge solutions can transform your next project.

