



DSI References



Reference Details

Owner Illinois State Toll Highway Authority, Chicago, IL, USA +++
General Contractor Walsh Construction Company, Chicago, IL, USA +++
Engineers Janssen & Spaans Engineering, Chicago, IL, USA

DSI Unit DSI USA, BU Post-Tensioning Systems, Bolingbrook, IL, USA

DSI Scope Supply of approximately 900,000m of DYWIDAG Strand Tendons 15x0.60" and 19x0.60", supply of DYWIDAG THREADBAR[®]s Ø 26 mm; rental of equipment



DYWIDAG Strand Systems Stabilize new Highway Bridge near Chicago

Bridge over Des Plaines River Valley, Veterans Memorial Tollway I-355, Bolingbrook, IL, USA

The extension of Interstate 355 is part of a comprehensive congestion relief program in greater Chicago. The new, approximately 20km long highway section is an additional connection from North to South between Interstates 55 and 80. The new connection allows residents in the rapidly growing southern portion of Will County much faster access to the North suburbs of Chicago and O'Hare airport.

The interstate highway crosses the wide and shallow valley of the Des Plaines River, which at one time was the only navigable connection between the Great Lakes and Mississippi River. Today, the river and its immediate surroundings are used as a local recreation area by Chicago residents, who come here for a variety of leisure activities and to visit towns nearby.

The 2,000m long bridge crossing the Des Plaines River consists of a dual carriageway with three lanes in each direction. The bridge crosses the river valley with a total of 35 spans having an average length of 67m each. The bridge superstructure consists of 3.0-3.6m deep post-tensioned spliced segmental bulb tee precast beams. Individual precast beam elements were transported to

the jobsite by heavy duty vehicles and then lifted into position by cranes. The beam elements were then temporarily spliced together with 26 mm diameter DYWIDAG Bars in preparation for the permanent longitudinal post-tensioning. The beams were later post-tensioned with a total of 240 15 strand DYWIDAG tendons that were pre-assembled and pulled into the ducts of the beams. Some of these tendons were up to 410 meters long.

The bridge was erected on a total of 34 pier bents with heights up to 20m. The pier bents form a rigid frame under each carriageway, composed of four circular concrete columns supporting a post-tensioned cap beam that was stressed with 19x0.6" DYWIDAG Strand Tendons.

Due to the limited time frame for construction, it was especially important to supply the posttensioning systems "just in time" for manufacturing the concrete beams at the casting yard. DSI USA was able to effortlessly comply with this condition from their local factory in Bolingbrook, in the immediate vicinity of the bridge. In addition, DSI USA preassembled all of the DYWIDAG Strand tendons for the piers from this location. In total, DSI USA used more than 900,000m of 0.6" diameter strand to posttension the entire bridge.

The new bridge was opened to traffic in November 2007, at the same time as the complete new section of the highway. The bridge is currently one of the longest bridges in the state of Illinois, USA.

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