Kiewit

CASE STUDY

HUEY P. LONG BRIDGE
JEFFERSON, LOUISIANA

Background: In 1935, the Huey P. Long Bridge over the Mississippi River opened to traffic – both rail and automobile – and became indispensable for people and freight traversing the New Orleans area. The bridge was originally conceived as a railroad bridge, however two 9-foot, no-shoulder lanes in each direction were incorporated to accommodate Model A Fords. Presently, the bridge carries in excess of 50,000 cars and trucks daily along with two dozen trains.

Unimproved (left) versus improved/reinforced (right) working surfaces adjacent to the east bank superstructure.

To better handle modern traffic and account for the safety needs of motorists, the bridge is being expanded to three 11-foot lanes in each direction, including a 10-foot shoulder on the outside and a 2-foot shoulder on the inside. In total, the project will add an additional 50-feet of decking, including both travel lanes and shoulders.

The widening of the Huey P. Long Bridge has been long-awaited by the New Orleans-area communities, and its completion was deemed mandatory as part of the Hurricane Katrina recovery process. As such, the originally-estimated $660 million project was awarded in four phases with construction on Phase One having begun in April 2006, and completion of Phase Four scheduled for mid- to late-2013. Via a joint venture with Massman Construction Company and Traylor Brothers, Inc., Kiewit was awarded Phase Four at $16 million under an estimated $450 million construction cost.

The Challenge: The first order of construction business for Phase Four of the project was to physically reach the site. As with much of New Orleans, most of the access areas required to perform the work were close to or at sea-level, and the vast majority had to first be cleared-and-grubbed. While access included staging areas and laydown yards, these areas were primarily adjacent to the edges of the existing bridge. After clearing the areas, the access roads had to be improved, as these temporary roadways

PROJECT HIGHLIGHTS

Project:
Huey P. Long Bridge Widening

Location:
Jefferson, Louisiana

Installation:
June 2008 – April 2009

Quantity:
175,000 sq yds Tensar Geogrid

Owner:
New Orleans Public Belt Railroad

Design Engineer for Working Surfaces:
Jorge Santos, Kiewit Engineering Company

General Contractor:
Kiewit, Massman Construction and Traylor Brothers, Inc.

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would serve as the lifeline for the project. Similar to the bridge being constructed to meet the needs of its motorists, the cleared paths had to meet the needs of its users who would do the actual bridge widening – either directly or indirectly.

The overall objective was to create embankment sections for temporary access haul roads along and adjacent to the bridge on both the east and west banks of the Mississippi River, and create crane pads for the construction of the bridge piers and associated superstructure. To do this, geotechnical information gathered from borings, CPT data, and U.S. Army Corps of Engineers archives were used to estimate in-situ strengths of shallow subsurface soils. With soil strength(s) established, sections were designed using multiple layers of Tensar Biaxial Geogrid placed between 12-inch lifts of cement-treated sand and/or granular fill.

Access Haul Road Solution: The access haul road sections, primarily utilized on the west bank, were designed to provide site access and withstand heavy truck and tractor traffic over a 2-year period in all-weather conditions. They consisted of a minimum of one and up to three layers of Tensar Geogrid with 12-inches of cement-treated sand between. Twelve inches of imported granular fill was placed on top of the uppermost layer of geogrid to serve as a wearing surface for the haul road.

Crane Pad Solution: Two sections combining crane pads and heavy haul roads were designed using layers of Tensar Geogrid and where applicable, the use of mats comprised of 1 ft. square timbers. For single Manitowoc 2250 crane lifts, sections comprised of three layers of Tensar

A Manitowoc 2250 crawler crane manuevers for a pick on the west bank access road/pad.

Geogrid were used; and for double crane lifts, the same section was utilized along with a double-layer timber matting placed atop the geogrid-reinforced section. Twelve inches of cement-treated sand was placed between each layer of Tensar Geogrid with the exception of the uppermost twelve inches, which was a granular base to serve as a wearing surface.

For single crane lifts for the drilled shaft construction, five layers of geogrid were placed between 12-inch lifts of cement-treated sand, with the final lift being 12-inches of imported granular fill. The Manitowoc 2250 was then positioned on top of a double-layer timber matting for its lifts.

Performance and Results: Between periodic inundation from the Mississippi River, Tensar Geogrid-reinforced haul roads and crane pads provided 24-hour, all-weather site access for the project as well as the following benefits:

- Decreased routine maintenance
- Less "washboarding" of the haul roads
- Better road surface drainage of the haul roads
- Strong, stiff crane pads for all lifts with less differential settlement

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