

PROJECT NAME: US 52 OVER MUD CREEK



Photo: Mixer Set-Up & hoppers for transporting/placing UHPC (US 52 over Mud Creek)

Location: US 52, East Indianapolis, Indiana
Client: Indiana Dept of Transportation
Product: ceEntek ce200SF-G™

Product Volume: 63 m³ (82 cy)
Panel Dimension: Various
Completion Date: July 2021

PROJECT SITE



Photo: Pier and abutment preparation for UHPC (US 52 over Mud Creek)

The existing bridge is located on US 52 east of Indianapolis, IN. It consists of three-span, two-lane, continuous reinforced concrete slab going over Mud Creek. The bridge is essential for the area, as it is the main line connecting Indianapolis to the neighbouring towns. During construction, the bridge was closed entirely; as such, an accelerated construction was necessary to reduce the traffic interruption. The project consisted of the removal of the existing bridge deck and replacement of the precast piers and deck.

PROJECT PROFILE

PROJECT DESCRIPTION

The US 52 bridge required a complete replacement due to its poor condition. The new bridge was planned to be constructed using an Accelerated Bridge Construction (ABC) method along with Prefabricated Bridge Elements and Systems (PBES) connected with UHPC to result in a smaller impact to traffic by reducing overall construction time (30-day full closure).

The construction of the bridge consisted of two phases. The first phase was to install new piers on top of steel H-Piles. The piers consisted of vertical panel sections connected with UHPC. The second phase was the installation of the precast deck panels with UHPC longitudinal closure pours using ceEntek's ce200SF-G™.



Photo: Preparation of deck longitudinal closures & live-load continuity for UHPC (US 52 over Mud Creek).

PROJECT EXECUTION

The ce200SF-G™ was batched on site with four of ceEntek's variable speed specially designed Model 30 Mixers (0.65 cy [0.5 m³] capacity) and supplied in bulk-bags of 1,075 kg (2,370 lb), with 0.008" x 0.5" (0.2 mm x 13 mm) steel fibers and ceEntek's proprietary CNF enhanced paste and accelerator. The project required and achieved a high early strength of 10,000 psi (65 MPa) to accommodate the accelerated bridge rehabilitation schedule.



Photo: Completed pier with UHPC connections (US 52 over Mud Creek).