

PROJECT PROFILE

ceEntek

PROJECT NAME: I-77 EXIT RAMP



Photo: Four Mixer Set-Up for I-77 Exit Ramp

Location: I-77 Exit Ramp, Princeton, West Virginia
Client: West Virginia Parkways Authority
Product: ceEntek ce200SF-G™

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

PROJECT SITE



Photo: Existing precast girders (I-77 Exit Ramp)

The existing bridge is located off southbound I-77 near Princeton, WV. It consists of 2-spans over Bush Creek and has precast girders as opposed to the traditional steel option. The bridge forms part of exit 14 and is essential for the area. During construction, the exit ramp would be closed forcing traffic to deviate a long distance and increase overall traffic delays. As such, a 10-day Accelerated Bridge Construction (ABC) model was necessary to reduce the impact of traffic interruption. The project consisted of the removal of the existing deck and placement of the precast panels and barrier walls.

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PROJECT DESCRIPTION

The exit ramp's rehabilitation was required due to the poor condition of the deck. This new bridge was planned to be constructed using an accelerated replacement method utilizing precast deck panels with UHPC 2.0™ to reduce overall construction time thus minimizing traffic interruption. The replaced bridge deck then received a waterproofing membrane and asphalt riding surface before opening to traffic.

The reconstruction of the bridge deck consisted of the precast deck panels with UHPC connections, haunches, shear pockets, and live-load continuity over the center pier using ceEntek's ce200SF-G™. Integral to the panels, safety barriers were also cast and similarly connected with UHPC 2.0™.

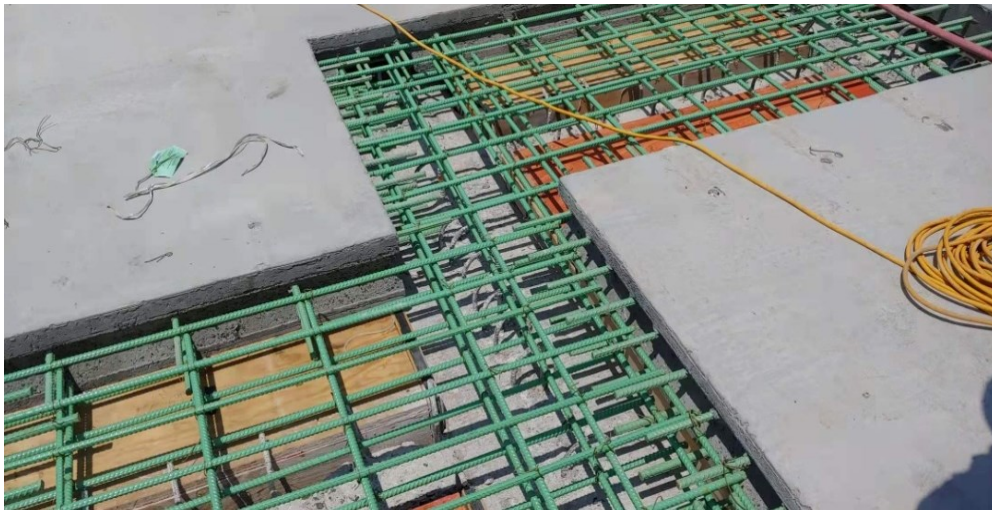


Photo: Close-up of deck panel connection (I-77 exit ramp).

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) at 10 hours in order to accommodate the accelerated schedule and the placement of an overlay membrane.



Photo: Close-up of UHPC connections (I-77 Exit Ramp).