

PROJECT NAME: QUAIL-ROOST DR BRIDGE MIAMI, FL



Photo: Longitudinal Connections for the Quail-Roost Drive Bridge over Canal C, Miami-Dade County, Florida

Location: Quail-Roost Dr Bridge Miami, FL

Client: Florida Dept of Transportation

Product: ceEntek ce200SF-G™ & ce200SF-t™

Product Volume: 2.5 m³ (3.0 cy)

Connection Size: 12.5 cm x 22.5 cm x 1,200 cm

Completion Date: April 2021

PROJECT SITE



Photo: The bridge is located over the Environmentally sensitive South Florida Water Management's Canal C, Miami-Dade County.

The Quail-Roost Drive Bridge over Canal C, Miami-Dade County, Florida is a 1966 side-by-side, laterally post-tensioned box-girder bridge. The bridge is a 45 ft single-span, 2-lane structure servicing the Redland Agricultural District and is a major farm-to-market link carrying a significant amount of truck traffic.

The lateral post-tensioning for the 7 side-by-side precast concrete boxes had deteriorated and a new lateral load-transfer mechanism was required. Reflective cracking in the asphalt indicated differential movement between the box-girders.

PROJECT PROFILE

PROJECT DESCRIPTION

The lateral post-tensioning in this 50+ year old bridge had corroded and deteriorated to a condition where all post-tensioning forces had disappeared and the side-by-side box-girders were no longer performing as an integral unit. There was a significant reduction in the ability for load sharing by adjacent girders.

FDOT decided to use hydro-demolition to remove the old grout between the box-girders, install new dowel bars, and cast UHPC to provide lateral connections between the box-girders and re-establish load-sharing.

During removal of the old asphalt, the sub-contractor removed a portion of the top concrete cover protecting the steel stirrups in the box girders. An emergency repair using ce200SF-t™ overlay was installed.



Photos: ceEntek's UHPC Mixers in pairs (L); Connections between the side-by-side Box-girders (R).

PROJECT EXECUTION

The ce200SF-G™ and ce200SF-t™ were batched on site with ceEntek's Variable speed IMER750 Mixers (0.182 cy [0.14 m³] capacity) and supplied on pallets in 20 kg (44 lb) bags, with 0.008" x 0.5" (0.2 mm x 13 mm) steel fibres and ceEntek's CNF enhanced paste. The ce200SF-G™ was used in the connections and the ce200SF-t™ was used for an overlay to repair the damaged area.



Photos: Spraying White Pigmented curing compound on the ce200SF-t™ overlay repair area (L); Close-up of the damaged area before casting the overlay repair (R).