FDOT Transportation Innovation Initiative:

UHPC – Design Innovation

Fast Facts:
Ultra-High Performance Concrete

Project Location: FDOT District Four
Palm City
Martin County, Florida

Agency: Florida Department of Transportation

URL: http://www.fdot.gov/structures/innovation/UHPC.shtml

Project Name: SR714/Martin Downs Blvd over Danforth Ck.
Bridge Nos. 890134 & 890135
FPID: 430617-1

Project Description: Sonovoid PSB longitudinal joint repairs with UHPC.

Project Purpose & Need: 2014 Bridge Inspection Report identified numerous reflective cracks in the asphalt overlay, indicating separation of the sonovoid units at the joints between the units. Bridge work activities involved hydro-demolition of longitudinal joints between PSB precast units and filling connections with supplemental tie bars and UHPC.

Overall Budget/ Cost Estimate: $1,176,116 (Construction Contract)
$ 204,880 (522 LF. Joint Repair w/ UHPC)

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What was unique about this project?  

First use of UHPC for existing sonovoid PSB joint repairs in Florida.

Describe Traditional Approach:

Traditional approach includes using hooked and lacing reinforcing bars within wider concrete closure pours using high early strength concrete.

Describe New Approach:

Exposure of existing reinforcing bars by hydro-demolition, with addition of supplemental tie bars enclosed in a UHPC closure pour.

Top Innovations Employed:

Utilization of UHPC connections for rapid and robust repair of damage longitudinal joint connections.

Primary Benefits Realized/Expected:

More robust and longer service life from UHPC connections. Short closure time for intrastate highway system bridges.

Project Start Date/Substantial Completion Date:

06/16/2016 – 02/21/17

Affiliations:

PE Consultant: Atkins North America, Inc.
Construction Contractor: Morrison – Cobalt JV.
Construction Engineering Inspection: FDOT Treasure Coast Operations

Project Contact:

Engineer of Record: Selcuk Yetimoglu, P.E.
Atkins North America, Inc.

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