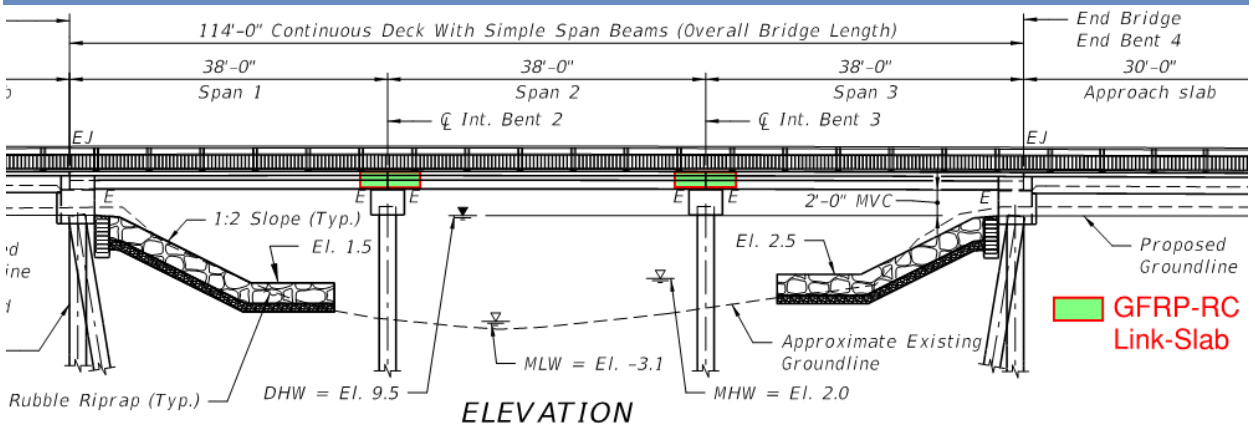
FDOT Transportation Innovation Initiative:

FRP – Design Innovation



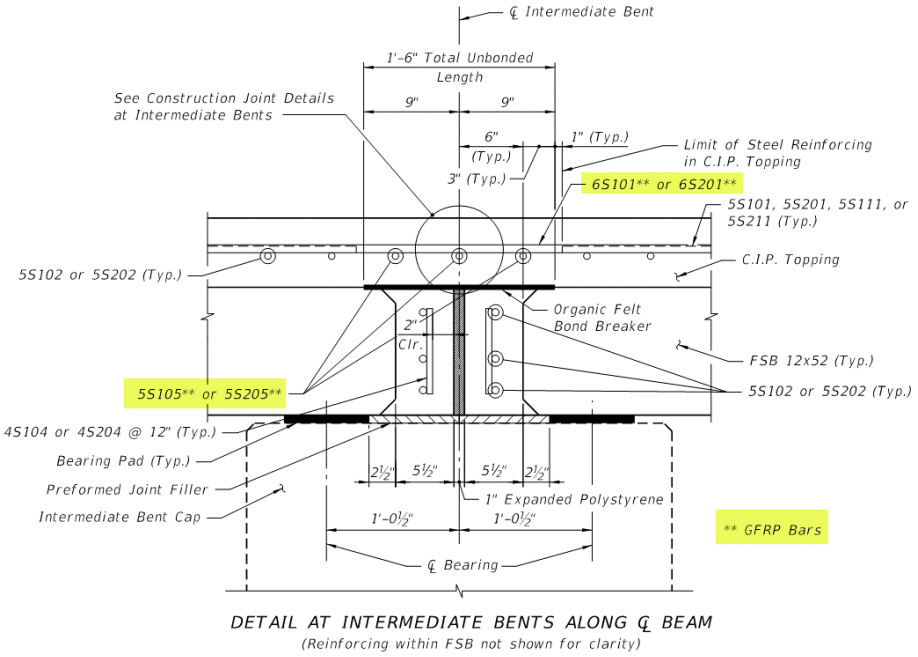
Fast Facts:

Glass Fiber-Reinforced Polymer

Project Location:	FDOT District Two Duval County, FL
Agency:	Florida Department of Transportation
URL:	http://www.fdot.gov/structures/innovation/FRP.shtm
Project Name:	SR105 (A1A) over Myrtle Creek Bridge No. 720857 FPID: 434042-1-52-01
Project Description:	Bridge replacement with 3-span prestressed slab-beam bridge.
Project Purpose & Need:	Bridge replacement and widening in estuary using GFRP-RC link-slab on Florida Slab-Beams (FSB)
Overall Budget/Cost Estimate:	$3,500,000
What was unique about this project?	First GFRP-RC link-slab for FDOT vehicular bridge, along with adjacent bridge SR 105 (A1A) over Simpson Creek

Describe Traditional Approach: Traditional approach includes an open joint at the end of each FSB span. For slab-on-girder bridges nominal reinforcing using #5's at 6-inch spacing and a transverse tooled or early age saw cut joint used to control crack propagation above the intermediate piers. This was found not to be effective with previous prestressed slab-beam units (PSU), presumably due to the high degree of shrinkage restraint.

Describe New Approach: Utilization of lower modulus GFRP bars, with appropriate debonding limits above the prestressed slab interface to improve performance. If cracks do develop, the concern for corrosion is eliminated by the use of non-corrodible FRP reinforcing.



Top Innovations Employed: Utilization of GFRP bars and adoption of link-slabs to provide lateral load distribution and eliminate intermediate support expansion joints, without significantly restricting superstructure rotation at the support that could otherwise create secondary forces and cracking stresses.

Primary Benefits Realized/Expected: Longer service life of the bridge deck, elimination of expansion joint maintenance, and better transfer of lateral loads due to deck continuity.

Project Start Date/Substantial Completion Date: Spring 2021 – TBA

Affiliations:	PE Consultant:	STV Inc.
	Construction Contractor:	TBA.
	Construction Engineering Inspection:	TBA
Project Contact:	Engineer of Record:	Terry Hall, P.E. STV Inc.
	FDOT Project Manager:	Craig Teal, P.E. FDOT District Two Craig.Teal@dot.state.fl.us