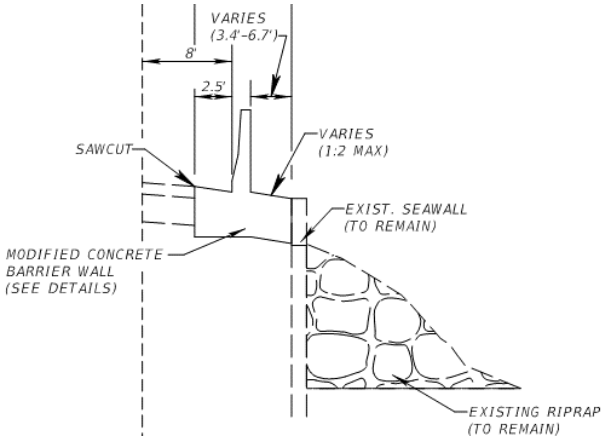
FDOT Transportation Innovation Initiative:

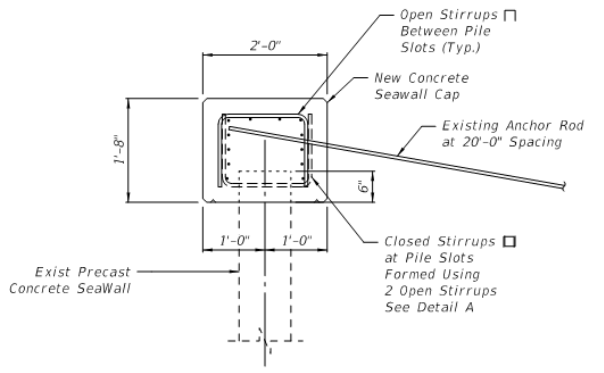
FRP – Design Innovation

Fast Facts:

Glass Fiber Reinforced Polymer

Project Location:	FDOT District One & Seven Manatee & Pinellas County, Florida
Agency:	Florida Department of Transportation
URL:	http://www.fdot.gov/structures/innovation/FRP.shtm
Project Name:	I-275 Skyway Rest Area & Seawall Rehabilitation FPID: 437973-1-52-01
Project Description:	Design-Build for rehabilitation of south end bulkhead-seawall, access roads and parking lot. Replacement of Rest Area buildings and vehicle barriers.
Project Purpose & Need:	Severe corrosion damage of existing concrete bulkhead caps and guardrail sections requiring replacement with GFRP-RC solutions. 180 feet of new CFRP/GFRP concrete sheet pile wall. Replacement and updating of adjacent Rest Area buildings does not involved GFRP reinforcing.
Overall Budget/Cost Estimate:	$18,221,515
Project Start Date:	March 2017
Substantial Completion Date:	July 2019





SECTION A-A
NEW CONCETE CAP ON EXISTING SEAWALL

What was unique about this project?

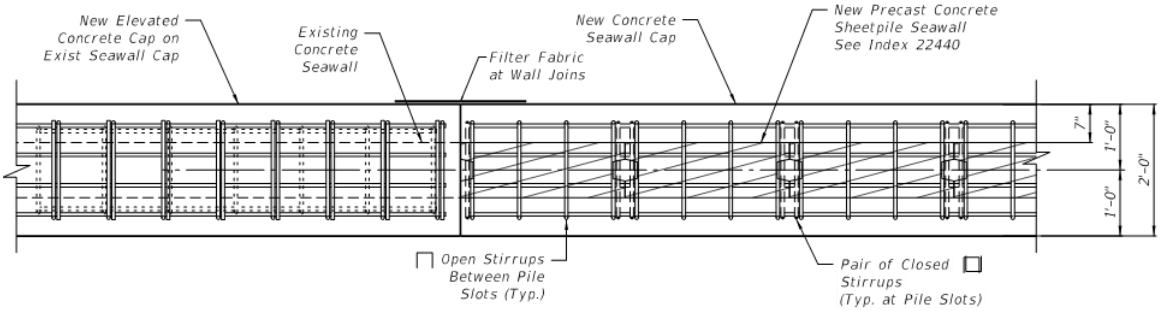
- 5330' length of bulkhead-seawall cap to be replaced and first roadway shoulder barrier wall with GFRP reinforcement for long-term durability and additional corrosion protection in an extremely aggressive environment.
- First FDOT Design-Build project requiring GFRP reinforcing bar in design.
- Coordinate design approvals required from both District 1 & 7.

Describe Traditional Approach: Traditional approach includes installation of Grade 60 steel rebar with supplemental cementitious material or ternary blends and additional concrete cover to ensure concrete durability.

Describe New Approach: Utilization of GFRP bars in lieu of traditional Grade 60 steel rebar in the bulkhead caps and barrier wall which are exposed to salt spray from Tampa Bay.

Innovations Employed: Utilization of GFRP bars within a coastal marine environment.

Primary Benefits Realized/Expected: Longer service life of replaced elements.



WALL CAP TOP PLAN

Affiliations:	PE Consultants:	RS&H, Inc. Mott MacDonald Florida, LLC
	Construction Contractor:	David Nelson Construction Co.
	Construction Engineering Inspection:	Target Engineering Group, LLC
Project Contacts:	Seawall Engineer of Record:	Lowry J. Denty, P.E. (Mott MacDonald Florida, LLC)
	FDOT Project Manager:	Walter Breuggeman FDOT District One Walter.Breuggeman@dot.state.fl.us

http://www.fdot.gov/structures/innovation/FRP.shtm