

Signature Bridge Crosses Intracoastal Waterway



Royal Park Bridge, Palm Beach, Florida

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Scope of Work:

- Developed new anchorage details for inspectability
- Supply of encapsulated bonded post-tensioning systems and components
- Furnished specialty grout plant for high shear colloidal mixing

Owner:

Florida DOT

Structural Engineer:

E.C. Driver & Associates; Janssen & Spans Engineering

General Contractor:

Ballast Nedam Construction, Inc.

Post-Tensioning Supplier:

VSL

▲ Aerial view of the Royal Park bridge during construction.

A new signature bridge was designed to connect the City of West Palm Beach and the Town of Palm Beach over the Intracoastal Waterway. The four-lane bascule bridge has a total of 9 spans with a maximum span length of 40 m. Ballast Nedam Construction, Inc., the general contractor, was awarded the project in Feb. 2001 based on a precast segmental bridge design.

The bridge was erected using cast-in place balanced cantilever construction in order to reduce erection time and overall construction schedule.

For balanced cantilever construction the cantilever and continuity tendon required 0.6" diameter 7, 12 and 19 strand tendons. The external tendons

used 19 and 22 strand tendons all with 0.6" diameter prestressing steel. VSL recommended the use of solid reusable void forms for the external tendons at the low-point deviators. VSL saved the contractor time and money by recommending reusable deviator voids, "diablos," which eliminated the need for steel pipe and neoprene duct couplers. The external duct was essentially joint free from anchor to anchor improving the grouting process.

The Royal Park Bridge was designed with the latest FDOT recommendations for durable PT bridges. State of the art technology was used to upgrade the PT system for superior corrosion protection using corrugated plastic duct and



▲ Precast segment floated into position on a barge.

encapsulated anchorage hardware. VSL designed new details to allow for inspection of the grout behind the wedge plate. The grouting process was also improved to include VSL high shear mixers, ASBI certified grout personnel and zero bleed grout material.

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