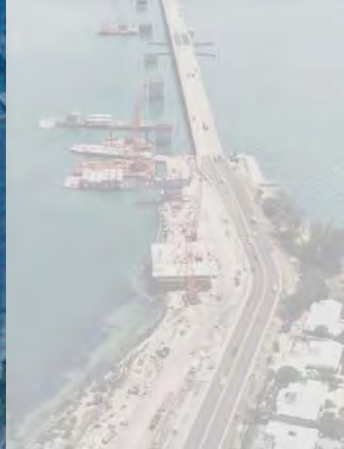
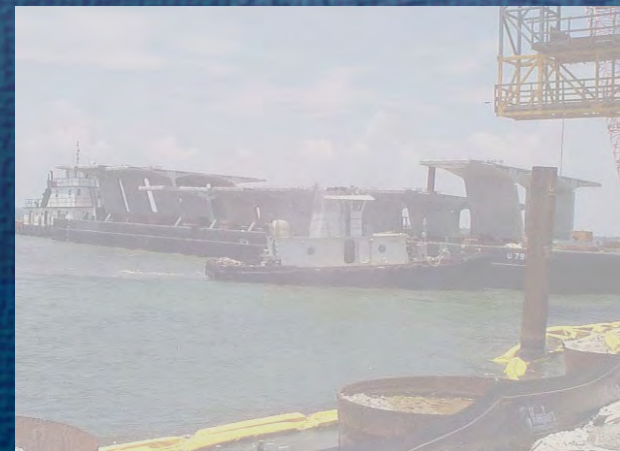
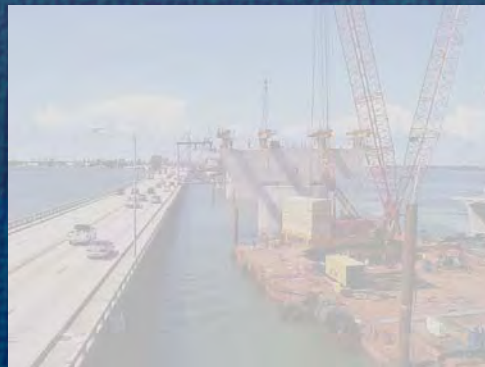
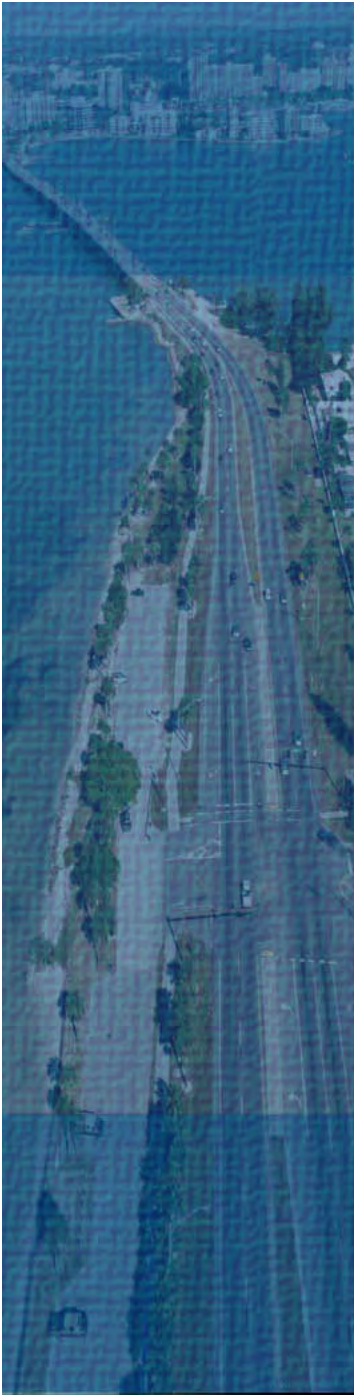




SR 789 Ringling Bridge Replacement



November 29, 2004



SR 789 Ringling Bridge Replacement Contract

- Design Criteria
- Project Schedule
- Traffic Control
- Substructure Construction
- Casting Yard Operations
- Superstructure Construction
- Landscaping
- Tour of Site

1955 Ringling Bridge



REYNOLDS, SMITH AND HILLS CS

CONSTRUCTION ENGINEERING INSPECTION SERVICES

Project Objective:
Replace existing
SR 789 Bridge
from Golden Gate
Point to Bird Key
Drive



REYNOLDS, SMITH AND HILLS CS

CONSTRUCTION ENGINEERING INSPECTION SERVICES

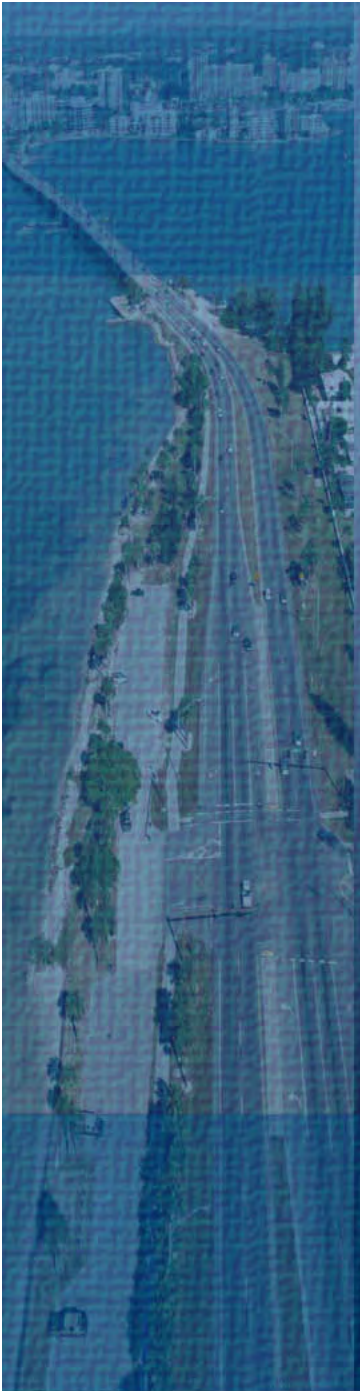
City of Sarasota Vision



REYNOLDS, SMITH AND HILLS CS

View of Completed Structure

CONSTRUCTION ENGINEERING INSPECTION SERVICES



SR 789 Ringling Bridge Replacement Contract

- Design-Build Contract
 - Joint Project Agreements
- A + B Bid
 - Awarded at \$56.3M
 - Proposed Contract Time – 873 days
- Incentive/Disincentive - \$10,000/day,
or maximum of \$2.0M
- Incorporates QC 2000 (Contractor
Quality Control)

PCL/JMI Vision

- Bridge Length – 3,097 ft.
- Bridge Width – 106 ft.
- Traffic - Four 12 ft. Lanes
- Emergency Shoulders:
 - Inside- 6 ft.
 - Outside – 10 ft., with 5 ft. Bicycle Path
- Pedestrians – 10 ft. Sidewalks

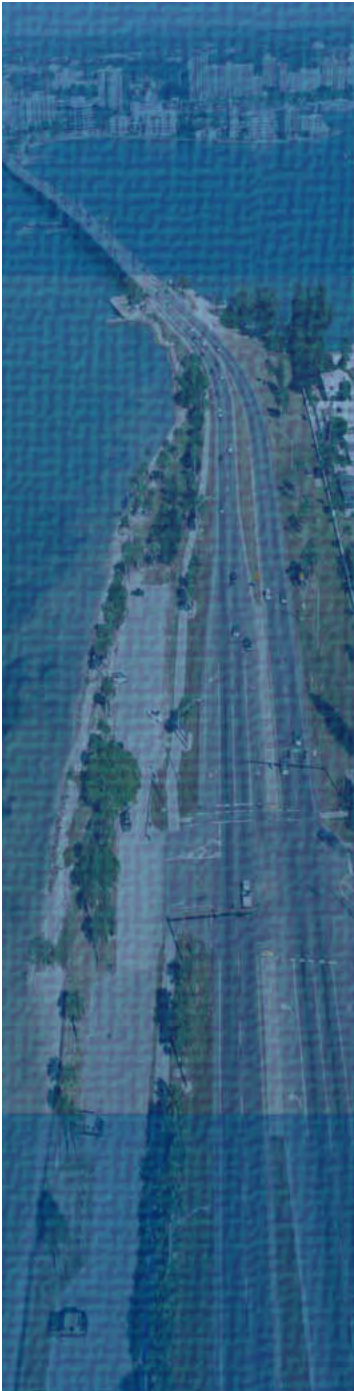


Graphics Shown to City of Sarasota 2001

REYNOLDS, SMITH AND HILLS CS

Project Schedule

<u>Activity</u>	<u>Completion</u>
■ Test Drilled Shaft	August 2001
■ Production Drilled Shafts	March 2002
■ Pier Construction	October 2002
■ Superstructure Segment Casting	February 2003
■ Superstructure Erection	June 2003
■ Switch Traffic to New Bridge	August 2003
■ Demolish Existing Bridge	December 2003
■ Project Complete	December 2003



Traffic Control. . .

- Conform to FDOT Standards
- Integrate Public Concerns
- Maintain Regularly
- Review for Improvement
- Include Temporary Business Signage

Traffic Control. . .



Bird Key (West) Traffic Shift

Sarasota (East) Traffic Shift

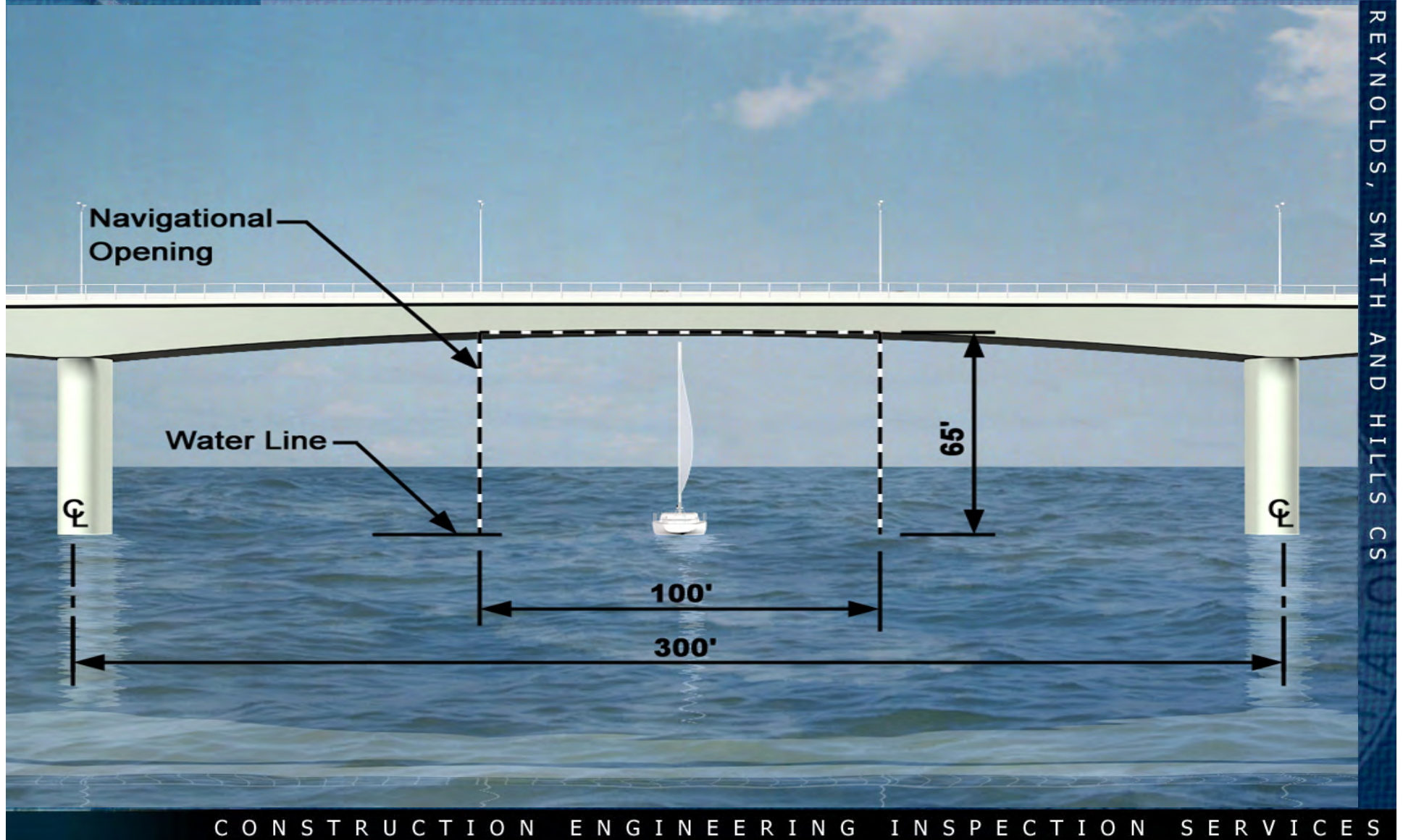


Marine Traffic. . .

- Mark hazards
- Advertise Channel Closings
- Deploy and Maintain Silt Control
- Manatee and Protected Species



Marine Traffic. . .



Foundation Construction

**Bridge Piers:
Supported by
two 9 Foot
Diameter
Drilled
Shafts.**



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Foundation Construction

Completed
Drilled Shafts



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Foundation Construction

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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Substructure - Bridge Pier Footing



Pier 11

REYNOLDS, SMITH AND HILLS CS

Substructure – Pier Column

Pier 10



REYNOLDS, SMITH AND HILLS CS

Substructure – Pier Column



Pier 2

Substructure – Pier Cap



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Superstructure – Pier Segment

Form
Removal

Pier 2
Erection



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Superstructure Erection

Pier Segment: Cast-In-Place

- 600 Tons
- Transverse
Post-Tensioned
- Anchored to
Foundation

Pier 3 Erection



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Casting Yard Operations

Casting Yard:
10 Acres on
US 41 in
Manatee
County
adjacent to
Port of
Manatee



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Casting Yard Operations

- Engineered Casting Beds
- Project Specific
- \$1.4M Cost

Full Segment
Width – 106 ft.



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Casting Yard Operations

Match Casting
of Superstructure
Segments



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Casting Yard Operations

Match Casting
of Superstructure
Segments



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Casting Yard Operations

Bridge Segment
Casting Forms



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Casting Yard Operations

Segment
Transport
110 Ton
Shuttle
Crane



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Segment Transport / Offload



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Segment Ground Transport



REYNOLDS, SMITH AND HILLS CS

CONSTRUCTION ENGINEERING INSPECTION SERVICES

Segment Transport / Offload



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Superstructure Erection

**Pier Segment:
Strongback
Beams used
To hang
Cantilever
Starter
Segments**



**Pier 3
Erection**

REYNOLDS, SMITH AND HILLS CS

Superstructure Erection

Starter Segment
Erection with
Articulating
Lifting Beam



Pier 2
Erection

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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Superstructure Erection

Articulating
Lifting Beam
and Epoxy
Preparation

Pier 2
Erection



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CONSTRUCTION ENGINEERING INSPECTION SERVICES



**Progress:
August 15, 2002**

Pier 3

Pier 2

Pier 11

Pier 10

Pier 9

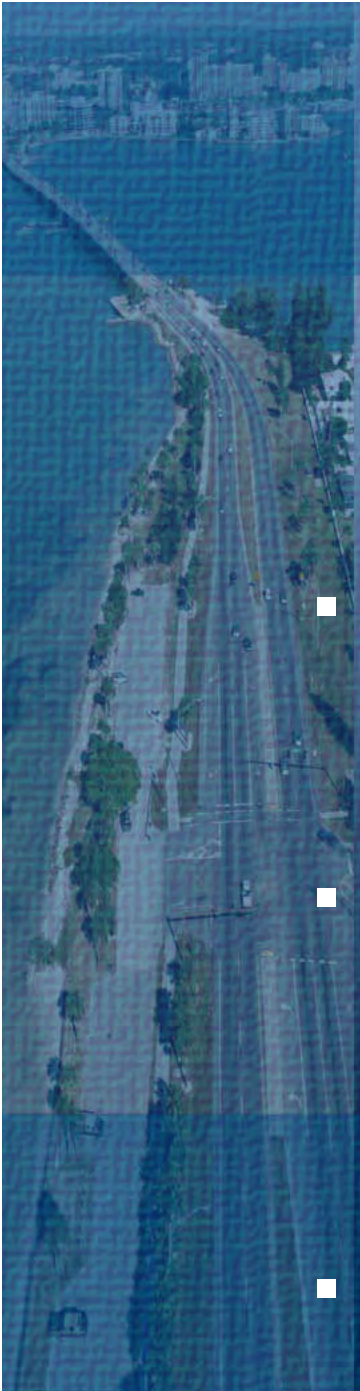
Pier 8

Pier 7

Pier 6

Pier 5

Pier 4



FDOT Directed Changes Segmental Construction

New FDOT Specifications

- Double-Faced Epoxy – applied to both segment halves to create a “watertight” structure
- Post Tensioning – post-tensioning duct connectors (Liaseal – First use) grouting each segment after erection by detailed method
- Grout – Specific Material Properties

Erection - Changes

Typical
Segment
Joint
Connections

Liaseal Duct Connectors

**Permanent Post Tensioned
DywiDag Bar/Coupler**

REYNOLDS, SMITH AND HILLS CS

Liaseal Couplers



REYNOLDS, SMITH AND HILLS CS

CONSTRUCTION ENGINEERING INSPECTION SERVICES

Superstructure Erection

Longitudinal
Tendon
Stressing Jack
Weight:
1200 Pounds



REYNOLDS, SMITH AND HILLS CS

CONSTRUCTION ENGINEERING INSPECTION SERVICES

Superstructure Erection

Transverse
Tendon
Stressing Jack
Weight:
1200 Pounds



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Erection - Changes

Completed
Epoxy
Joint



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Superstructure Erection

- Cantilever Construction
- Stressing Platforms
- Temporary Pipe Pile Supports

Pier 2
Erection



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Superstructure Erection

Pier 2
Erection



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Final Segment Erection

Final Segment
Erected 6/27/03



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Dedication Ceremony

August 30, 2003



REYNOLDS, SMITH AND HILLS CS

CONSTRUCTION ENGINEERING INSPECTION SERVICES

Dedication Ceremony

August 30, 2003



REYNOLDS, SMITH AND HILLS CS

CONSTRUCTION ENGINEERING INSPECTION SERVICES

Dedication Ceremony

August 30, 2003



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Demolition

October 21, 2003
and
November 17, 2003



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Bridge Completion



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CONSTRUCTION ENGINEERING INSPECTION SERVICES

Bridge Completion



REYNOLDS, SMITH AND HILLS CS

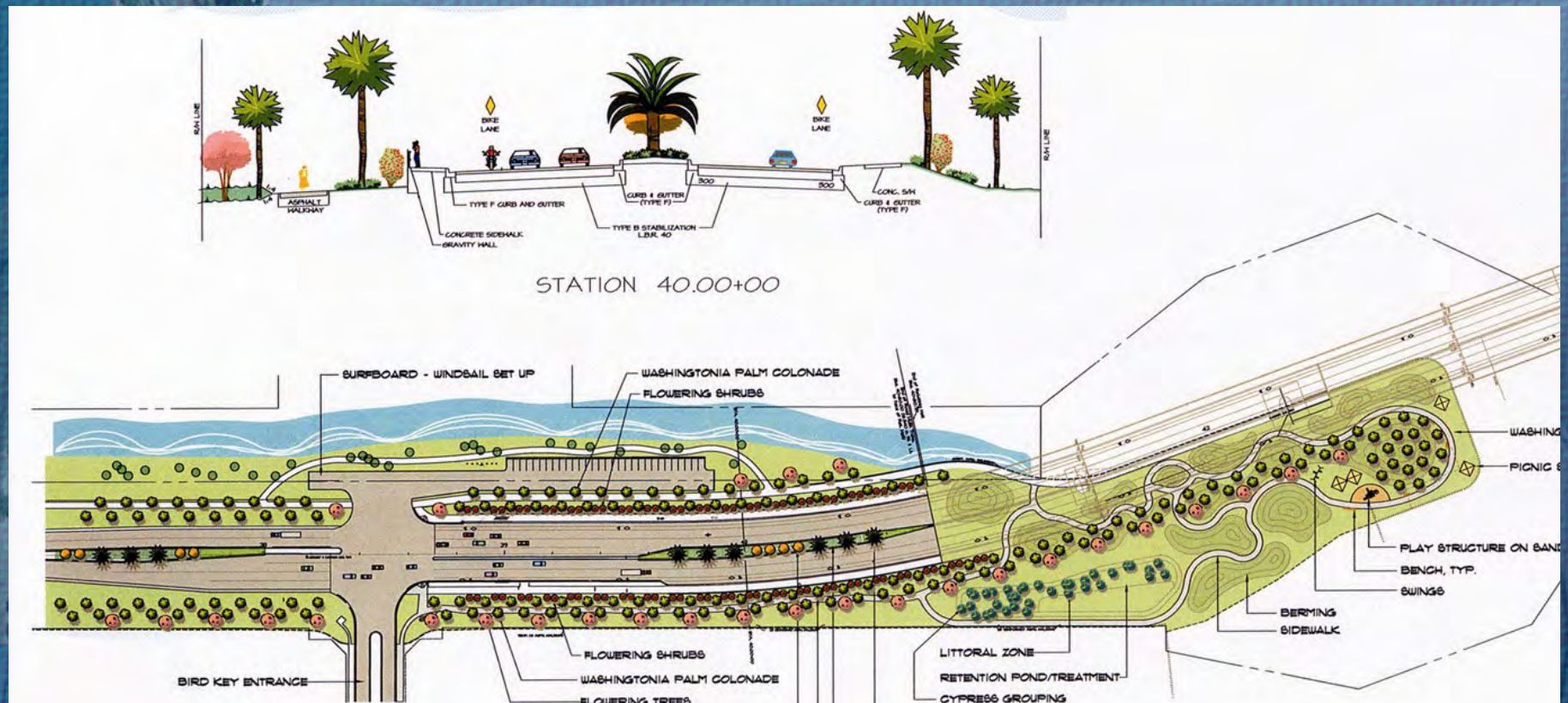
CONSTRUCTION ENGINEERING INSPECTION SERVICES

Landscaping and Design Amenities

- Extensive Landscaping
- Architectural Treatments
- Decorative Lighting
- Pedestrian and Bicycle Facilities



Landscape Architect's Renderings



West Side

Landscape Architect's Renderings



REYNOLDS, SMITH AND HILLS CS

East Side



Questions?

A World Class Bridge

For a World Class Community!

Noise and Dust Control

- Adhere to City Noise Restrictions
- No Impact Pile Driving
- Erosion Control Devices
- Ground Covering Areas

Exposed > 30 Days



Public Information . . .

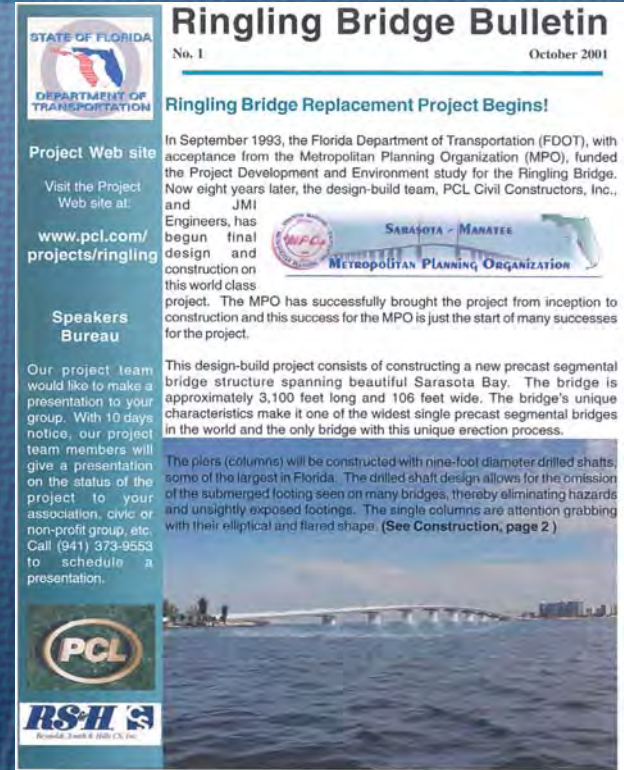
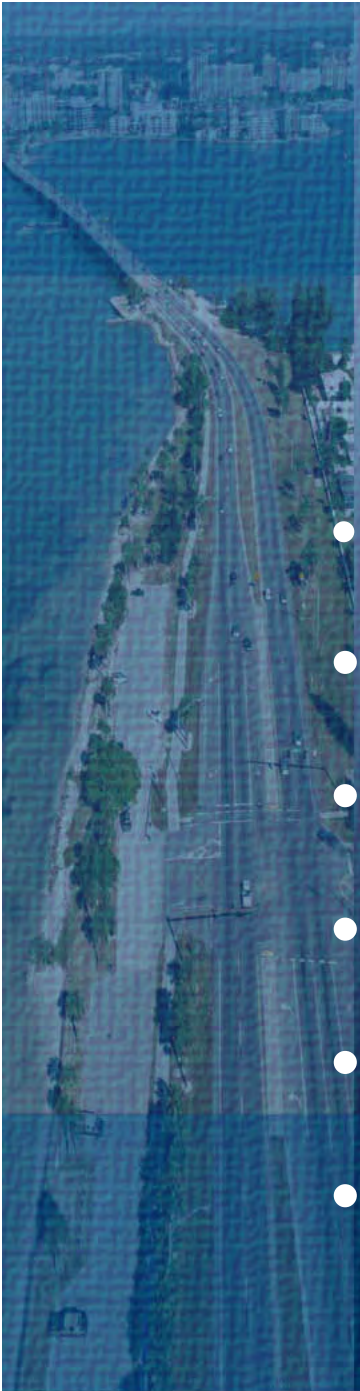
- Web site
 - www.pcl-ringling.com
- Variable message signs
- Newsletters
- Press Releases
- Speakers Bureau



On the Web site . . .

www.pcl-ringling.com

- Project Schedule
- Project Updates
- Image Gallery
- Schematics & Plans
- Printable Newsletter
- Email Project Web site



STATE OF FLORIDA
DEPARTMENT OF
TRANSPORTATION

Project Web site
Visit the Project
Web site at:
[www.pcl.com/
projects/ringling](http://www.pcl.com/projects/ringling)

**Speakers
Bureau**
Our project team
would like to make a
presentation to your
group. With 10 days
notice, our project
team members will
give a presentation
on the status of the
project to your
association, civic or
non-profit group, etc.
Call (841) 373-9553
to schedule a
presentation.

Ringling Bridge Bulletin
No. 1
October 2001

Ringling Bridge Replacement Project Begins!
In September 1993, the Florida Department of Transportation (FDOT), with acceptance from the Metropolitan Planning Organization (MPO), funded the Project Development and Environment study for the Ringling Bridge. Now eight years later, the design-build team, PCL Civil Constructors, Inc., and JMI Engineers, has begun final design and construction on this world class project. The MPO has successfully brought the project from inception to construction and this success for the MPO is just the start of many successes for the project.

**SARASOTA - MANATEE
METROPOLITAN PLANNING ORGANIZATION**

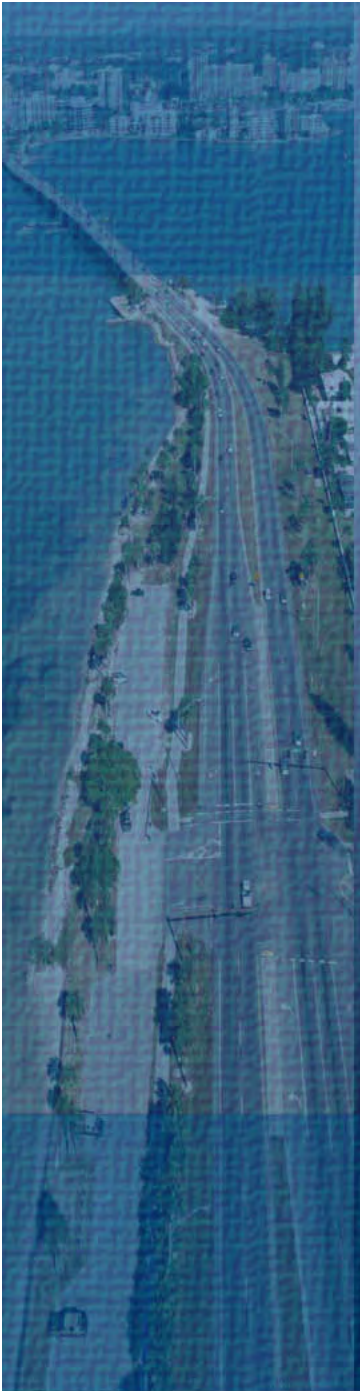
This design-build project consists of constructing a new precast segmental bridge structure spanning beautiful Sarasota Bay. The bridge is approximately 3,100 feet long and 106 feet wide. The bridge's unique characteristics make it one of the widest single precast segmental bridges in the world and the only bridge with this unique erection process.

The piers (columns) will be constructed with nine-foot diameter drilled shafts, some of the largest in Florida. The drilled shaft design allows for the omission of the submerged footing seen on many bridges, thereby eliminating hazards and unsightly exposed footings. The single columns are attention grabbing with their elliptical and flared shape. (See Construction, page 2)

PCL
RSH
Sarasota, FL 34236-1000



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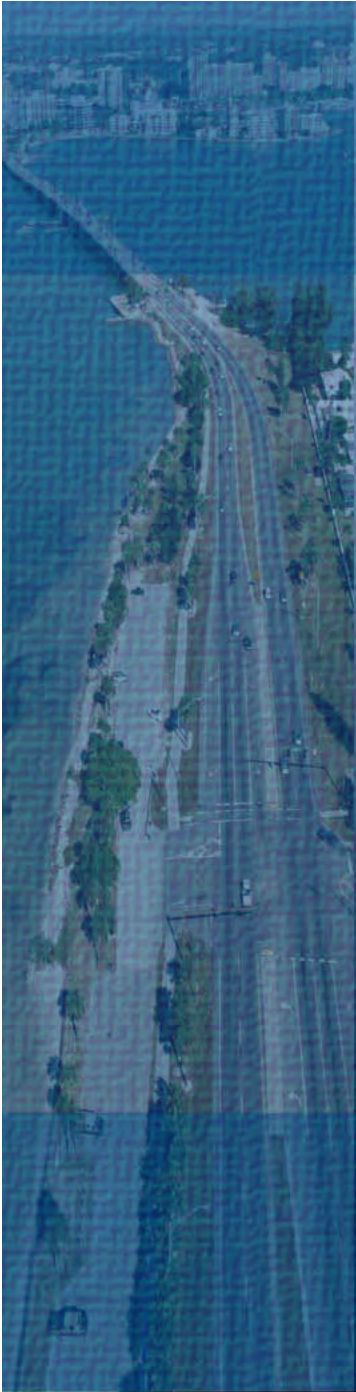
General Information

- **Normal Work Hours:**
Monday-Friday, 7 AM - 5 PM
- **Address: 1000 John Ringling Causeway**
Sarasota, Florida 34236
- **Phone No. (941) 373-9553**
- **Fax No. (941) 373-9554**

Building Sarasota's Future...

...Questions ?





REYNOLDS, SMITH AND HILLS CS



CONSTRUCTION ENGINEERING INSPECTION SERVICES

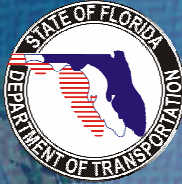
Superstructure Erection

Transverse
Tendon
Stressing Jack
Weight:
1200 Pounds



REYNOLDS, SMITH AND HILLS CS

Project Team



Owner: FDOT District One
Construction PM: Albert Rosenstein, PE



CONSTRUCTION LEADERS

Prime: PCL Civil Constructors, Inc.
PM Pat Malone, PD Dave Whaley



Engineer of Record: Wally Jordan, PE



Geotechnical Subconsultant



Roadway Subconsultant



CEI: Mary Ellen Maurer, PE

REYNOLDS, SMITH AND HILLS CS