

U.S. Grant Bridge Replacement Project over the Ohio River @ Portsmouth, Ohio



HNTB Engineer of Record
Dr. Sena Kumarasena, Ph.D., P.E.

ODOT Engineer in Charge
Daniel E. Beasley, P.E.

Existing U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

- Type: Steel Suspension Cables Supporting Steel Framing and Reinforced Concrete Deck on Reinforced Concrete Substructure
- Spans: 350' – 700' – 350'
- Roadway: 22' Toe-to-Toe of Curb
- Wearing Surface: Asphalt
- Year Built: 1927







Proposed U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

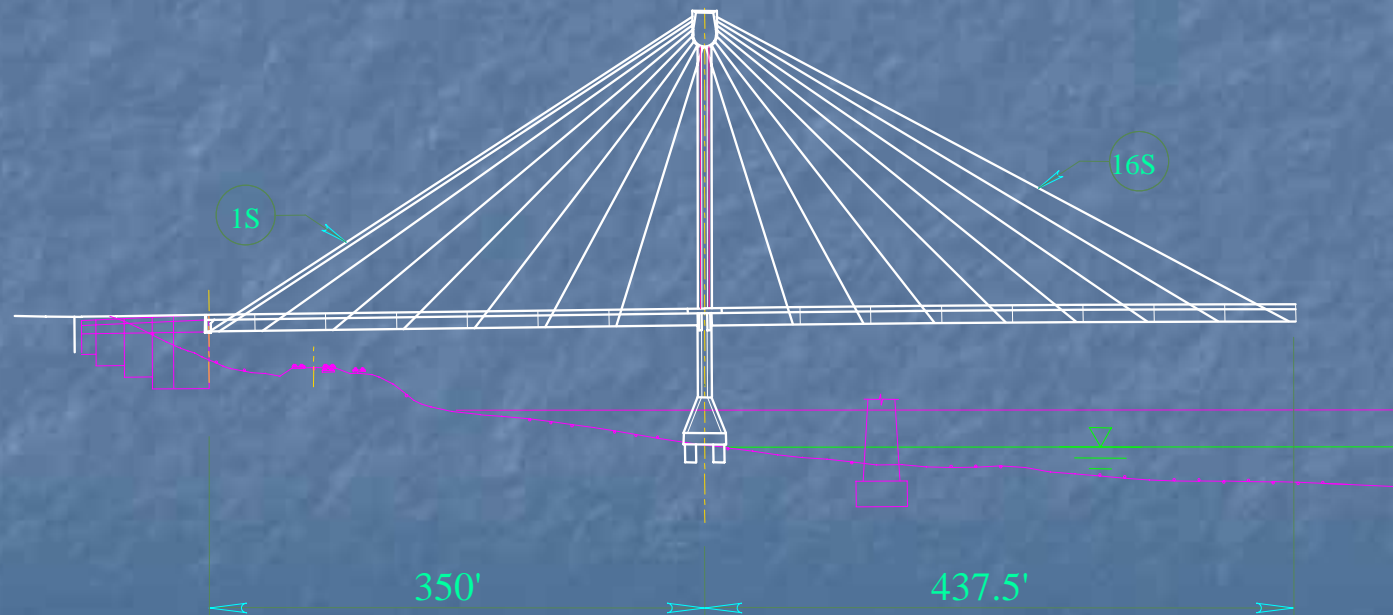
- Type: Steel Cable Stays Supporting Steel Girders and Floorbeams and (Post Tensioned) Concrete Deck
- Spans: 350' – 875' – 460'
- Roadway: 61' Toe-to-Toe of Parapet; 70' Overall
- Wearing Surface: 1 1/4" High Performance Concrete

Proposed U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

- Two (2) Single Shaft Towers
- Asymmetrical Span Configuration
- Superstructure fixed at the towers
- Two (2) planes of stays anchored to each single tower head

Proposed U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

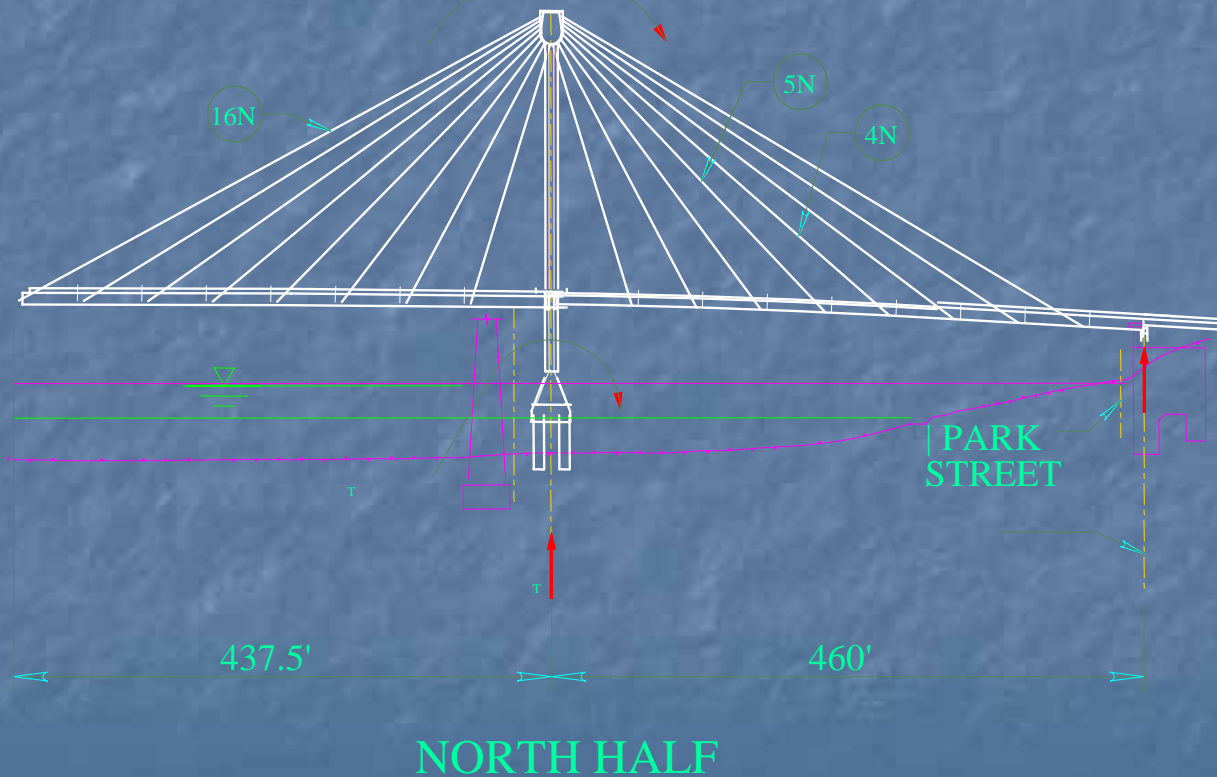
KY Abutment to Midspan



SOUTH HALF

Proposed U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

Midspan to OH Abutment



Proposed U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

- Four (4) each 10 ' diameter drilled shafts below each tower
- Height (river to bridge deck) ~ 95 feet
- Height (bridge deck to top of tower) ~ 195 feet (equivalent to a 19 story tall building)
- Bridge Deck Area ~ 133,610 SF (equivalent to 32 basketball courts or 4 football fields)

Proposed U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

- ODOT Project 178-01
- Letting Date: April 18, 2001
- Engineers Estimate: \$27,235,000.00
- Number of Bidders: 5 each

Proposed U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

- Awarded Contractor: CJ Mahan Construction
- Awarded Amount: \$28,434,495.93
- First Day of Work: June 25, 2001
- Opened to Traffic: October 16, 2006

Major Construction Changes

- Pre-fabricated Structural Steel Tower Head Unit in lieu of formwork and cast-in-place concrete
- 9 foot Median Curb with Impact Attenuators in lieu of Type 5 guardrail
- Stainless Steel Tower Head Shell Wall in lieu of cast-in-place concrete

Structural Steel Tower Head Unit



Structural Steel Tower Head Unit



Structural Steel Tower Head Unit



Median Curb



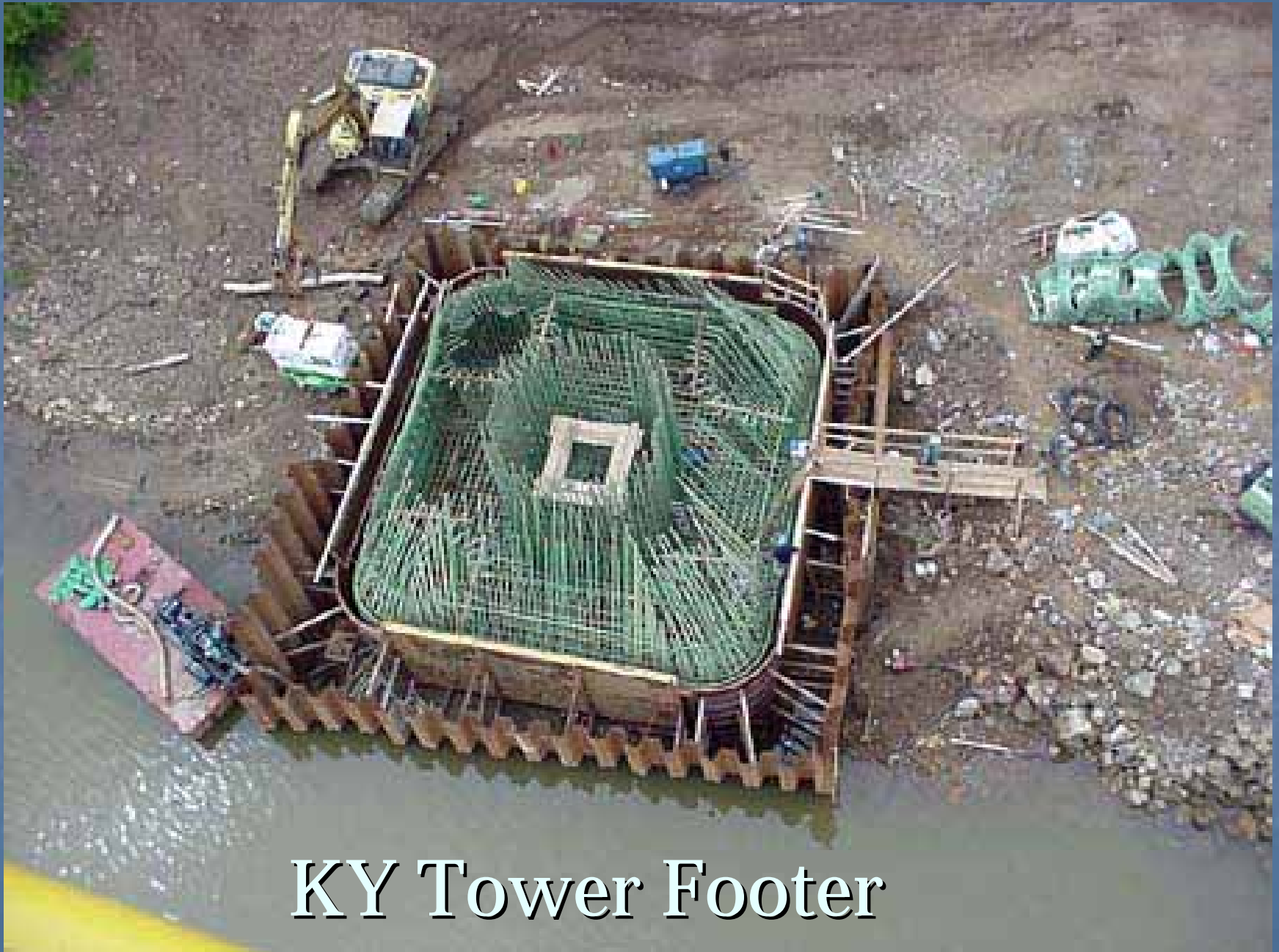
Median Curb



Stainless Steel Shell Wall



Construction

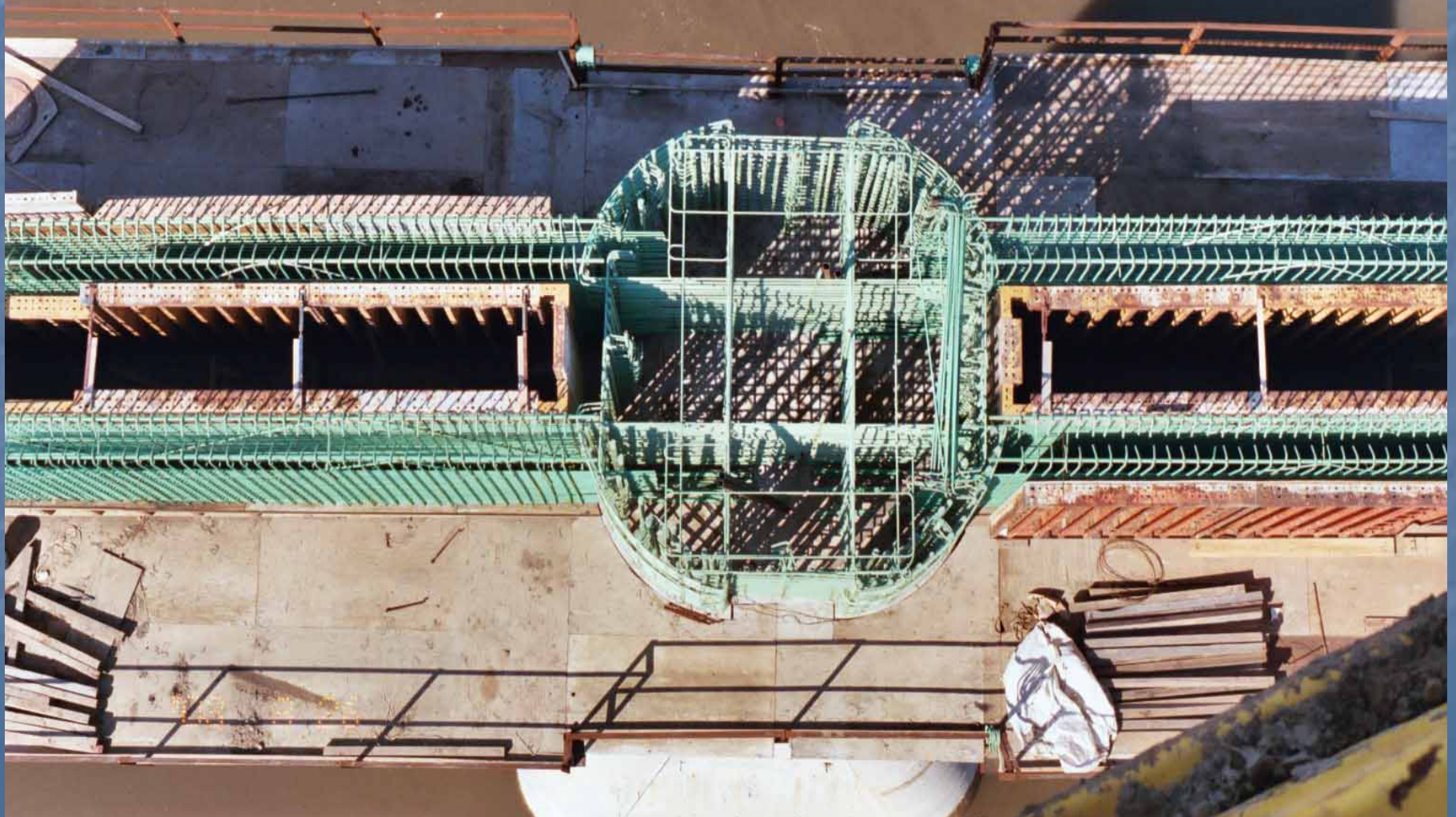


KY Tower Footer

KY Tower Lower & Upper Segments



KY Tower Table Top



OH & KY Towers



1ST Cable Stay: 8N



MAR 26 2005

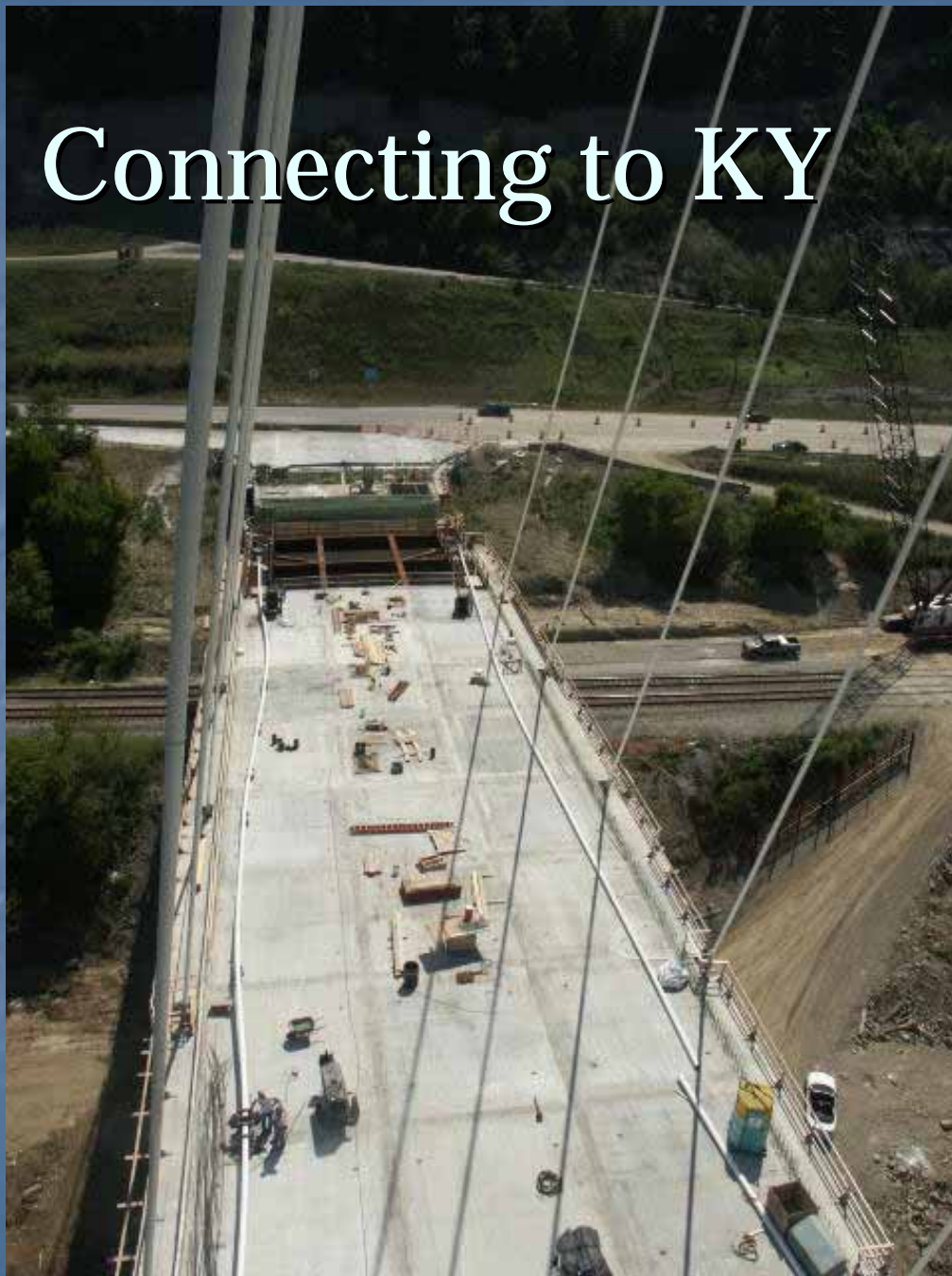
First Superstructure Erection Segment



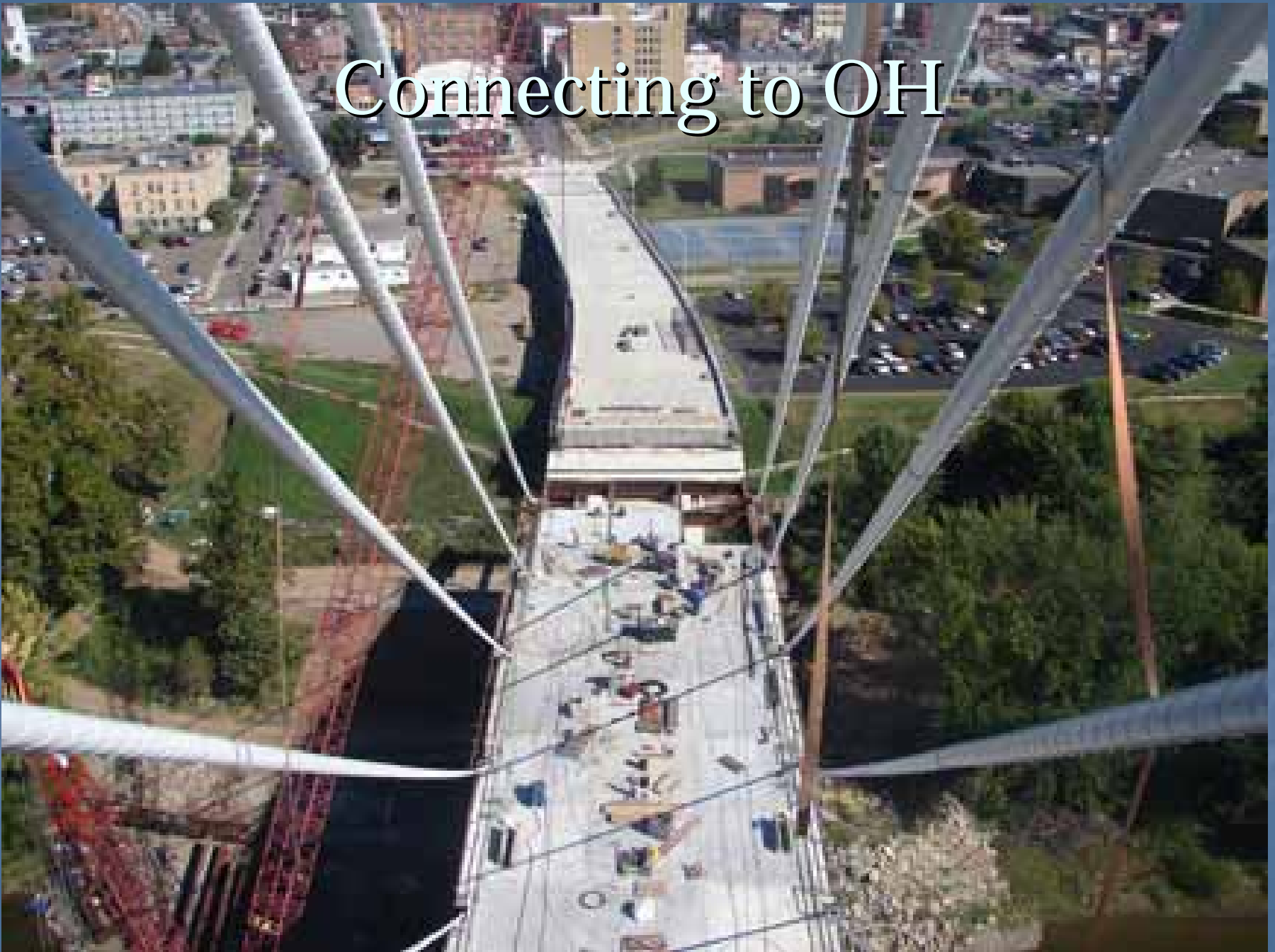
Typical Closure Joint



Connecting to KY



Connecting to OH



Remaining Superstructure Segments



Last Superstructure Erection Segment



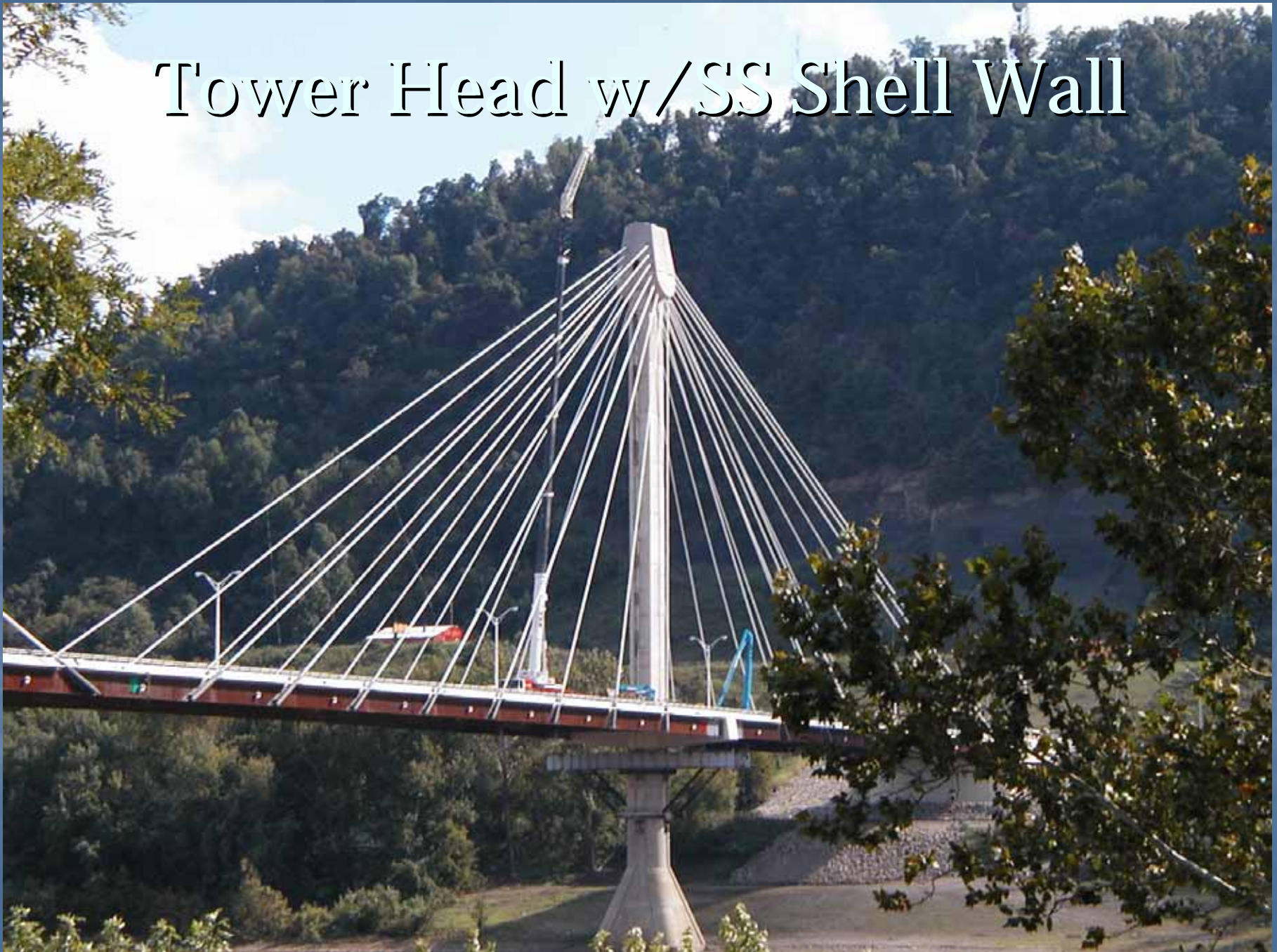
First person to walk across:
John F. Hagen, P.E.
Project Engineer
Area Engineer
District Deputy Director



Tower Head w/o SS Shell Wall



Tower Head w/ SS Shell Wall





Welcome to Ohio

10/22/2006

Grand Opening, October 16, 2006



Grand Opening, October 16, 2006



U S GRANT BRIDGE

1927

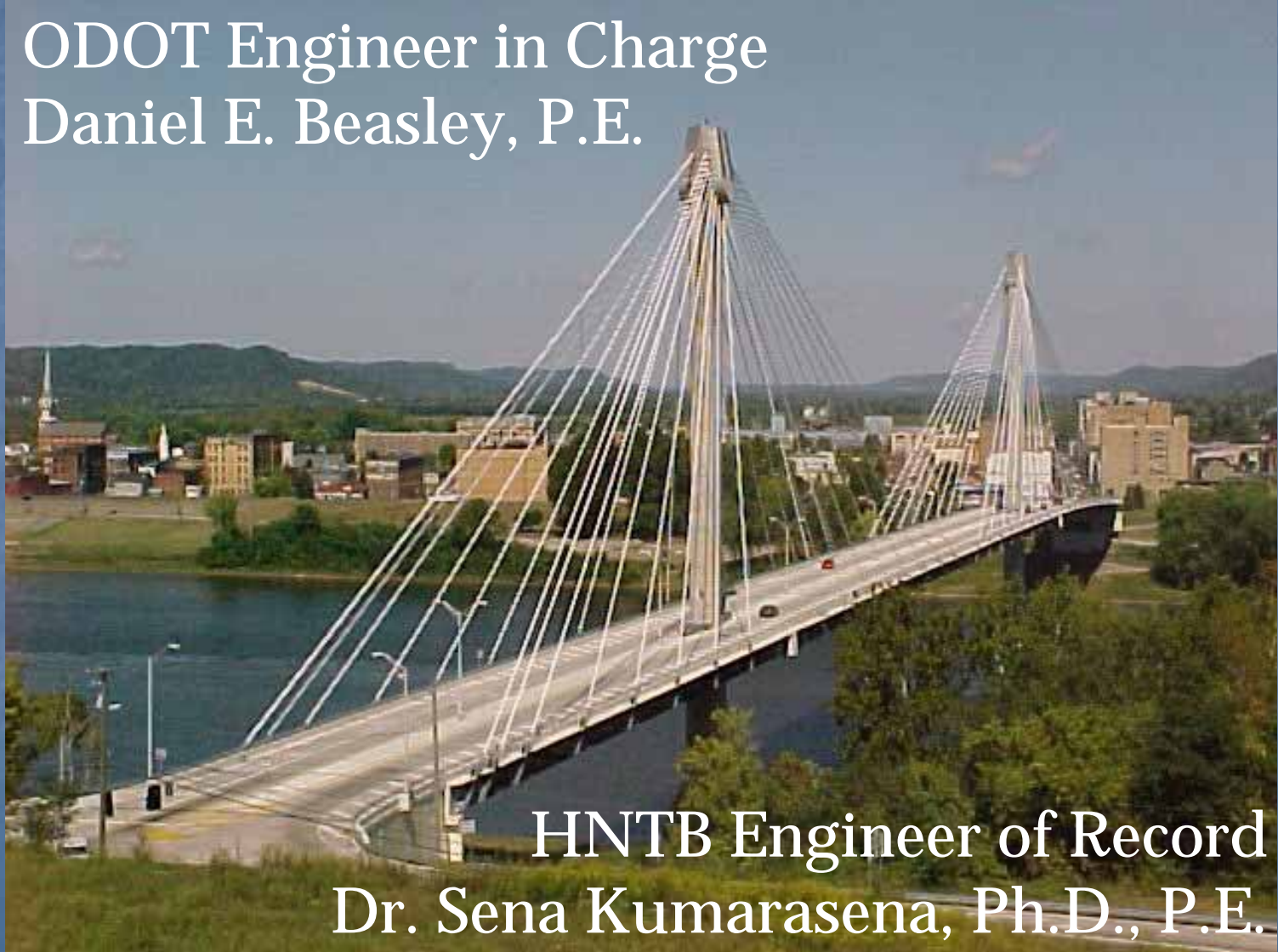


2006



U.S. Grant Bridge over the Ohio River @ Portsmouth, Ohio

ODOT Engineer in Charge
Daniel E. Beasley, P.E.



HNTB Engineer of Record
Dr. Sena Kumarasena, Ph.D., P.E.