James Bridge Replacement over the North Fork of the White River

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TEAM Conference
Branson, MO
March 8, 2018
Introduction

- Project Background
- Historic Flood of April 29-30, 2017
- Design Phase
- Construction Phase
- Questions
Project Background

- Ozark County Route PP over North Fork of the White River
  - Existing 5-span bridge, Total Length = 405’
  - Two large truss spans, 120’ long each
  - Built in 1958
  - Scheduled for replacement in 2019
Existing James Bridge
April 29-30, 2017 Flood

- Rainfall and flood stage records set all across Southern MO
- Over 8 inches of rain in a 24-hr period; up to 12” in some areas
- MoDOT lost 3 bridges during flooding event, 2 over North Fork
- Took days in some cases to determine which bridges they lost
April 2017 Flood
Flood Aftermath

N0670 Ozark Rte. PP
Bridge Out
View from South

05/02/2017
Flood Aftermath

N0670 Ozark Rte. PP
North Truss Span
Laying Upside down

05/02/2017
Flood Aftermath

N0670 Ozark Rte. PP
South Truss Span
Upside down on bank
Flood Aftermath

N0670 Ozark Rte. PP
View from downstream
Flood Aftermath
Design Phase

- Consultants notified May 2, 2017 for “urgent” bridge replacements.
- Final design plans were due by May 24, 2017.
- Preliminary bridge & roadway nearly complete, but not approved.
- Weekly conference calls with MoDOT C.O. and SE District.
- Met directly and frequently with MoDOT Environmental staff.
Design Phase - Bridge

- Conventional Bridge Design
- 4 spans: 102’-110’-110’-102’;
- Prestressed NU-43 Girders
- Drilled Shafts in Rock and ‘H’ Piling end bents
- CIP Deck and Safety Barrier Curb
- Bridge Plans completed in 17 days
Design Challenges

- Raised profile grade 4-foot
- R/W takings on 3 parcels
- 3 submittals within six days
- Condemnation on north half of project
- Redesign of plans 3 days before bid opening
Design Challenges

- Environmental Restrictions
  - Removal of Existing Truss Sections.
  - Clearing & Grubbing
  - Sensitive Cultural Resource Area:
    Minimal excavation due to burials and artifacts
  - Special Water Quality Control Measures:
    Stream restrictions
Construction Phase
Pre-Construction Timeline

- Contract awarded to Clarkson Construction of Kansas City, MO
- Notice of Award and Notice to Proceed: July 3, 2017
- Preconstruction Conference: June 29, 2017
- Land Disturbance Pre-activity meeting July 5, 2017
- Open to Traffic Milestone of September 15, 2017
Construction Challenges

- **Accelerated Timeline**
  - **Contract Documentation**
  - **Continuous communication, both internally and with outside agencies.**
  - **Materials suppliers**

- **Environmental**

- **Right of Way constraints**
Construction Progress – 8/29/17
Nearly Complete!
10/1/17
Successful Project!

- Bridge completed and traffic restored.
- Opened to traffic less than 6 months after flood.
- Public very pleased with speed and end result of project.
- Environmental commitments met.
Project Timeline

- Flood – 4/29/17
- Consultant notified – 5/2/17
- Sealed Plans – 5/24/17
- Project Advertised – 6/1/17
- Bids Opened – 6/23/17
- Contract Award & NTP – 7/3/17
- Construction begins – 7/6/17
- Poured first Drilled Shaft – 7/24/17
- Completed Substructure - 8/17/17
- Poured Deck - 9/12/17
- Finished Bridge Removal - 10/10/17
- Open to traffic - 10/11/17
Project Construction (Time Lapse)
Questions?

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