



Learning by Example

Case Study of the Meacham Creek UPRR Access Bridges

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Learning Objectives

**Don't teach a man how
to fish and feed yourself.
He's a grown man and
fishing is not that hard.**



Ron Swanson Quotes
www.geckoandfly.com

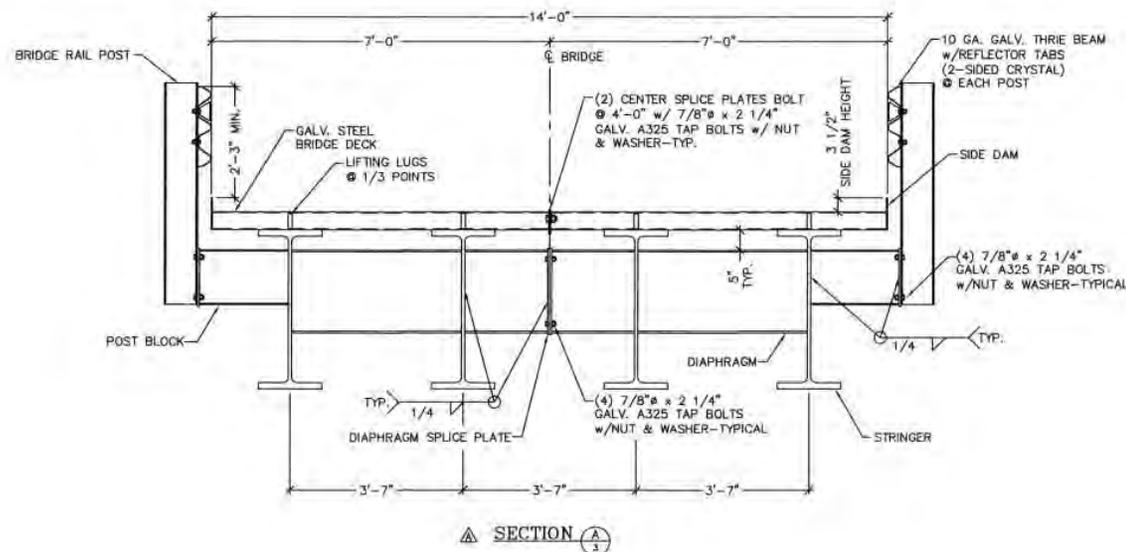
Project Background

- 2020 Flooding event in Eastern Oregon



Cost-effective ABC Solution

Big R Bridge Rolled Girder bridges were determined to be the most cost-effective solution that could meet the accelerated timeframe.

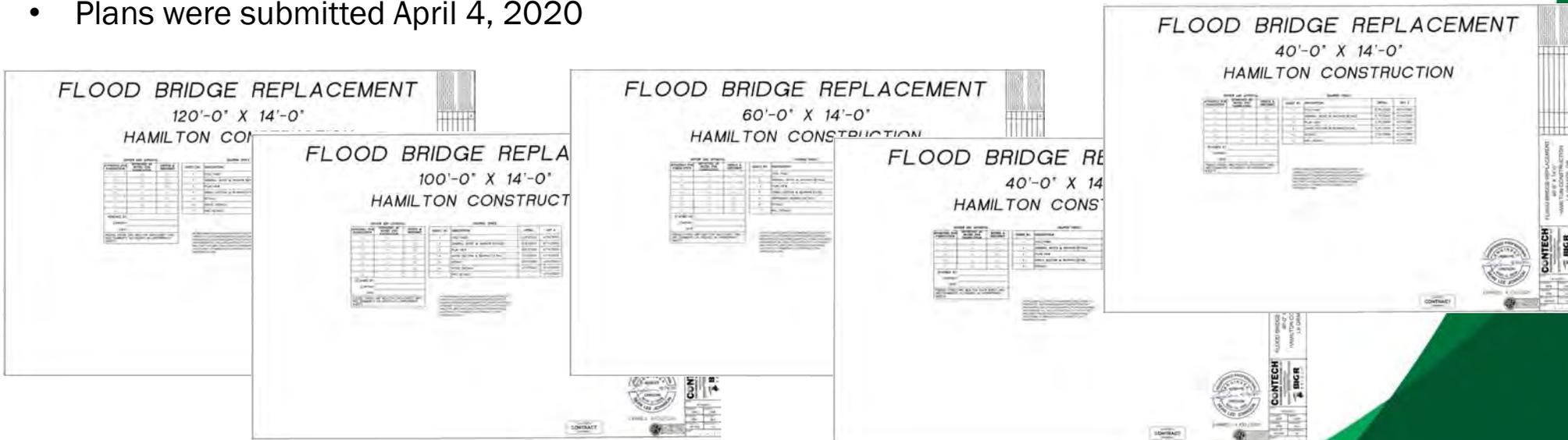


- The bridges were ordered on March 9, 2020

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- Plans were submitted April 4, 2020
- The bridges were shipped mid May, 2020



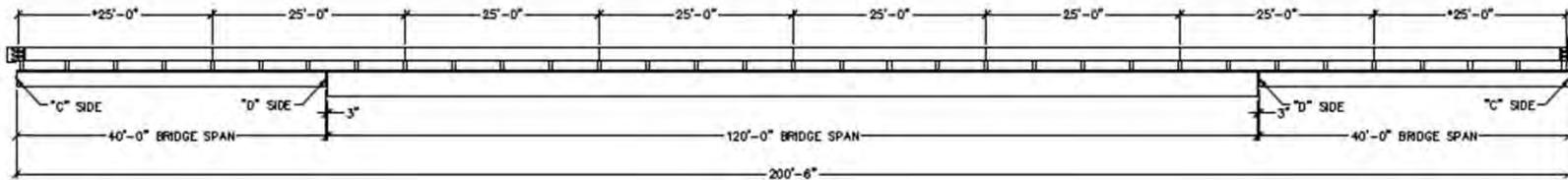
Cost-effective ABC Solution

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- The bridges were ordered on March 9, 2020
- Plans were submitted April 4, 2020
- The bridges were shipped Mid May, 2020
- The installation was complete on July 2, 2020



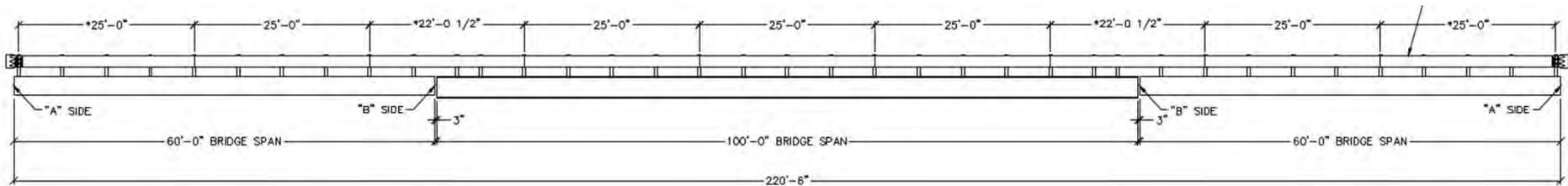
Cost-effective ABC Solution



200'-6\" FINAL LAYOUT



Cost-effective ABC Solution



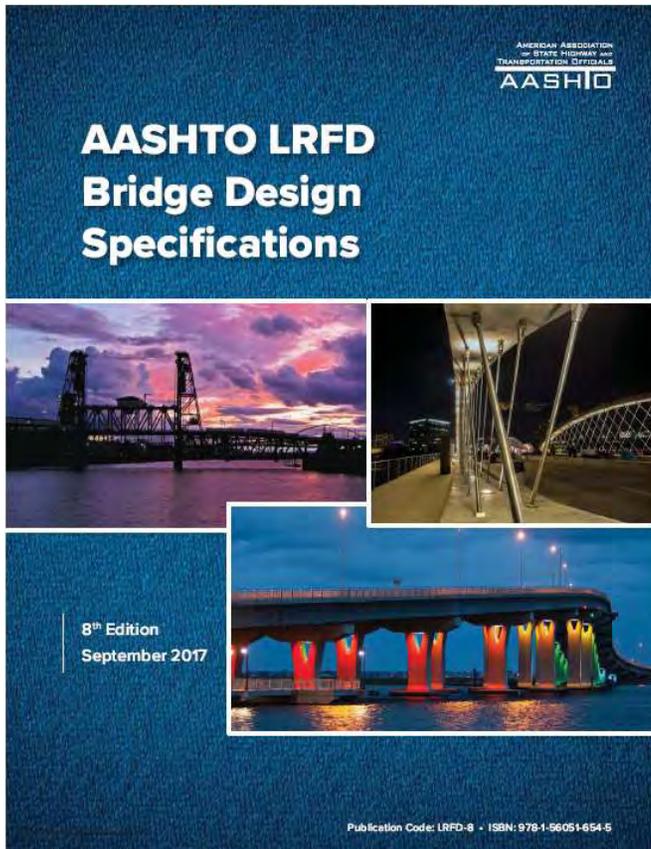
220'-6" FINAL LAYOUT



Cost-effective ABC Solution



Design Considerations



GENERAL NOTES:

1. CONTECH ENGINEERED SOLUTIONS HAS AISC QUALITY CERTIFIED BRIDGE FABRICATION - ADVANCED (MAJOR) WITH A FRACTURE CRITICAL AND SOPHISTICATED PAINT ENDORSEMENT AND CWB CERTIFIED TO CSA STANDARD W47.1 DIVISION 2.
2. DESIGN IS IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION 2017.
3. MATERIALS (UNLESS NOTED OTHERWISE):
 - a. STRUCTURAL STEEL:

SHAPES:	ASTM A588 WEATHERING STEEL
PLATES:	ASTM A588 WEATHERING STEEL
 - b. STEEL BRIDGE DECK: ASTM A653 GRADE 50 CLASS 1 (GALV)
 - c. ELASTOMERIC PADS: GRADE 4, 60 DUROMETER
 - d. STRUCTURAL BOLTS: ASTM F3125 GRADE A325 (TYPE 3)
 - e. GUARDRAIL BOLTS: ASTM A307 (GALV)
4. DESIGN LOADINGS:
 - a. BRIDGE DEAD LOAD PLUS 80 PSF TOTAL WEARING SURFACE
 - b. FUTURE RAILING (BY OTHERS), MAX 45 PLF
 - c. VEHICLE LIVE LOAD: HL-93, MAX ADTT = 1000
 - d. WIND LOADING PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 3.8:
 WIND SPEED = 110 MPH
 WIND EXPOSURE CATEGORY = C
 MAX HEIGHT OF STRUCTURE = 33 FT.
 - e. BRIDGE RAIL DESIGNED FOR TL-1 LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS APPENDIX A13.2 (RAIL HAS NOT BEEN CRASH TESTED)
 - f. SEISMIC LOADING PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 3.10:
 SITE CLASS: D
 PGA = 0.100
 S_g = 0.250
 S_w = 0.080
 PERIOD OF BRIDGE = T_m = 0.221 SEC

Design Considerations

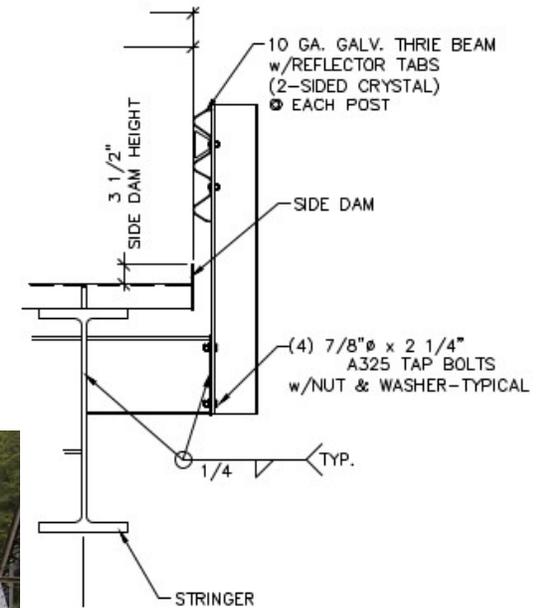
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2. DESIGN IS IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION 2017.
3. MATERIALS (UNLESS NOTED OTHERWISE):
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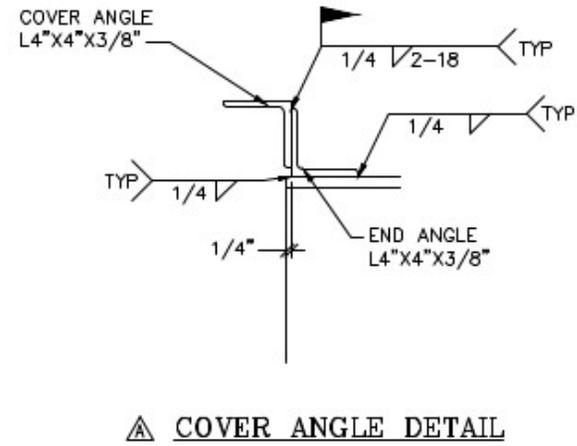
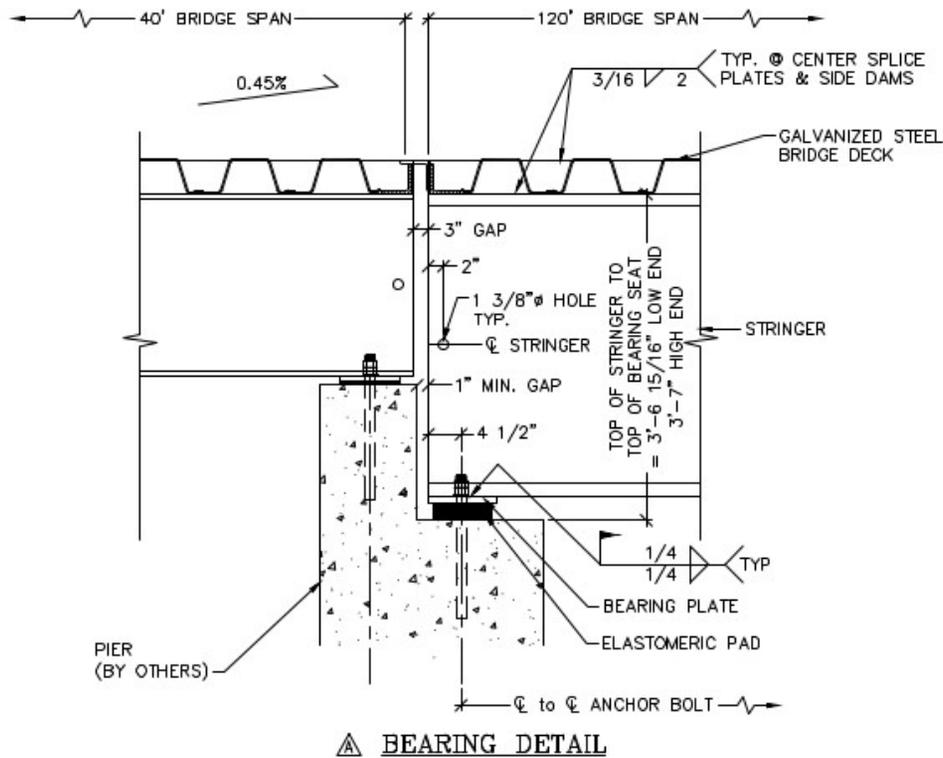
SHAPES:	ASTM A588 WEATHERING STEEL
PLATES:	ASTM A588 WEATHERING STEEL
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 - c. ELASTOMERIC PADS: GRADE 4, 60 DUROMETER
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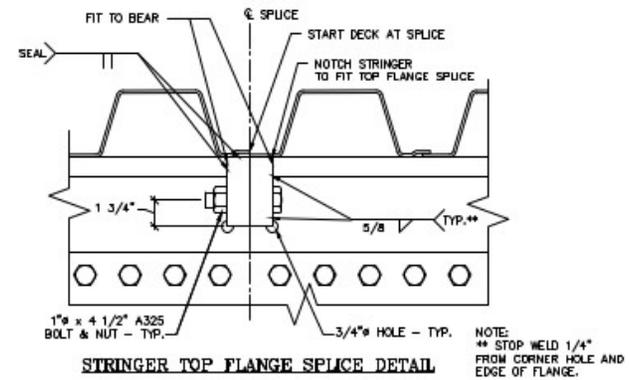
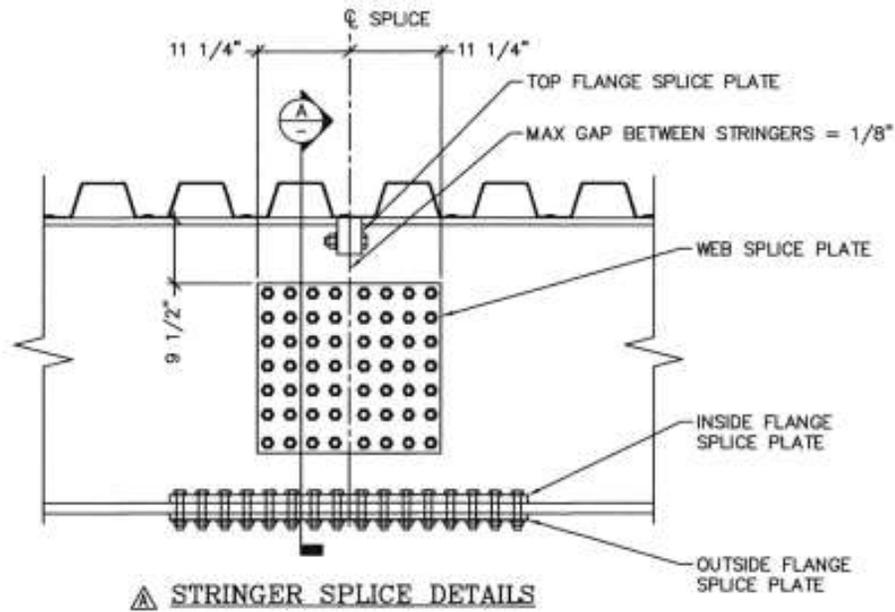
SITE CLASS: D
PGA = 0.100
S ₁ = 0.250
S ₂ = 0.080
PERIOD OF BRIDGE = T ₀ = 0.221 SEC



Design Considerations



Design Considerations



Delivery



Site Considerations



Site Considerations



Site Considerations



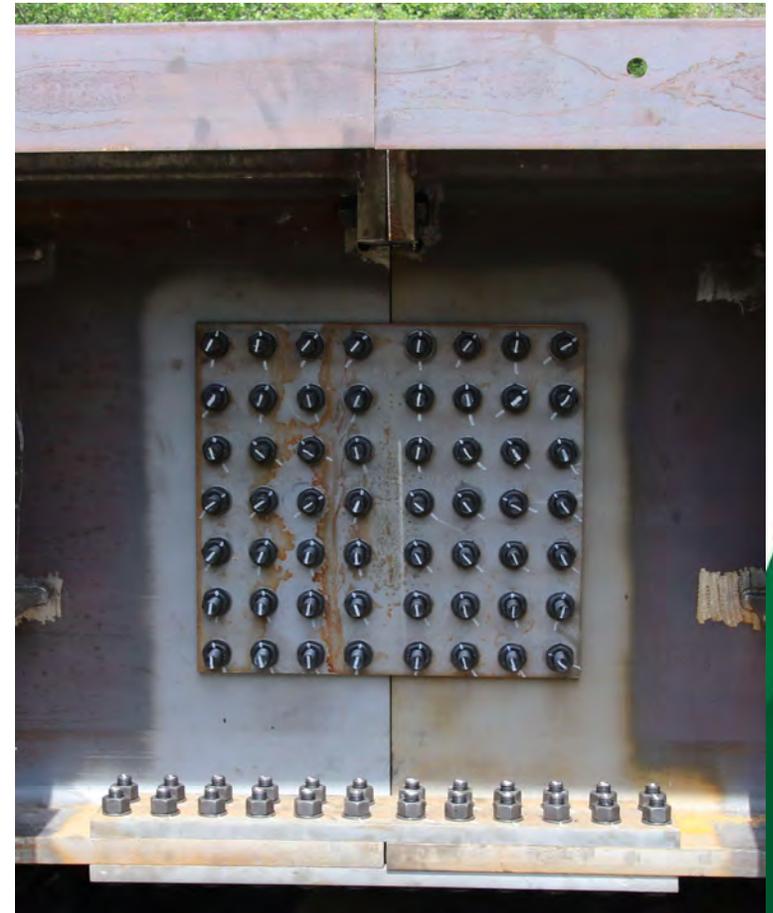
Construction



Construction



Construction



Construction



Construction



Construction



Construction



Construction



Construction



Finished Bridges



Finished Bridges



Finished Bridges



Finished Bridges



Finished Bridges



Finished Bridges



Finished Bridges



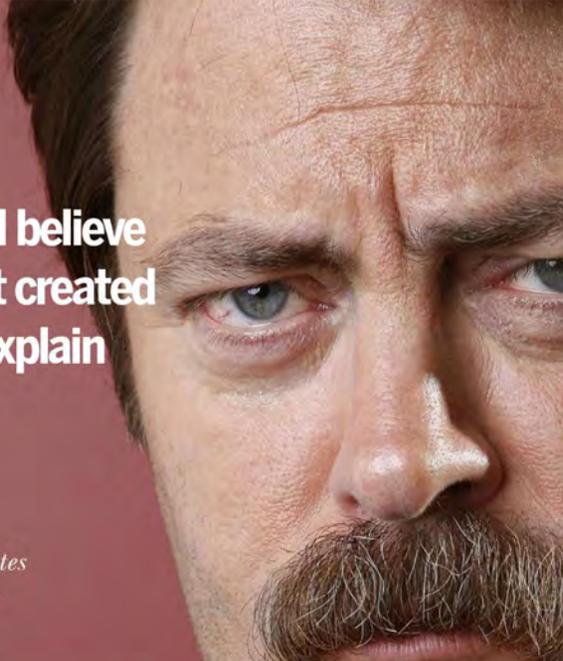
Final Comments

Project Highlights:

- Collaboration between the Owner, Engineer, Contractor & Bridge Supplier led to coming up with the best solution for the site.
- The use of Modular Bridge Construction and Precast foundation elements accelerated construction in the field.
- The supplied bridge system meets AASHTO loading.
- And we have an end product that satisfied all parties and will provide a long-lasting solution for the crossings.

Thank You

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Best of luck but I believe
luck is a concept created
by the weak to explain
their failures.



Ron Swanson Quotes
www.geckoandfly.com