



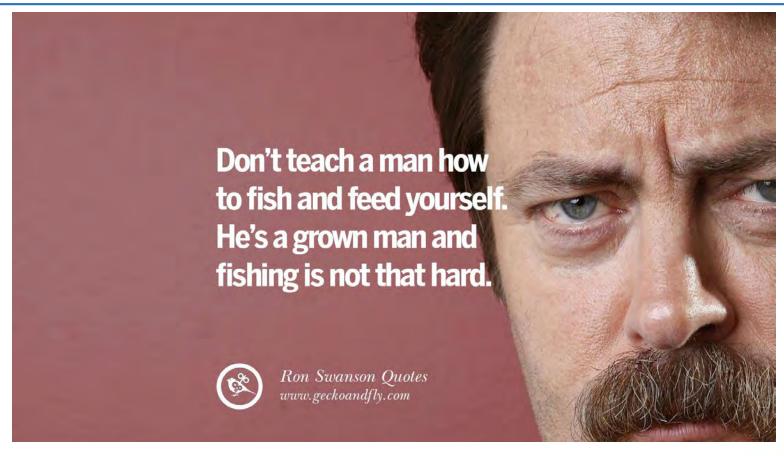
Learning by Example

Case Study of the Meacham Creek UPRR Access Bridges August 15, 2023

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Learning Objectives

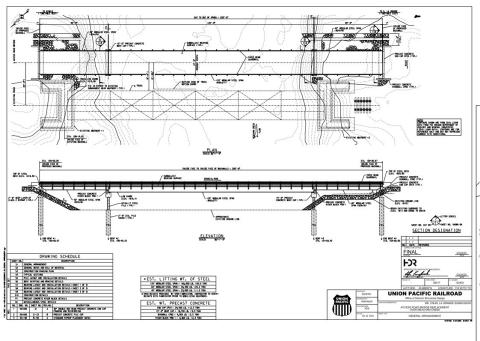


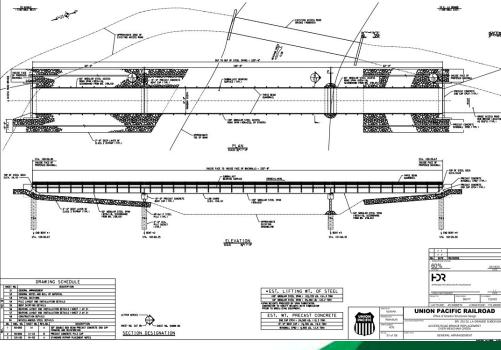
Project Background

• 2020 Flooding event in Eastern Oregon

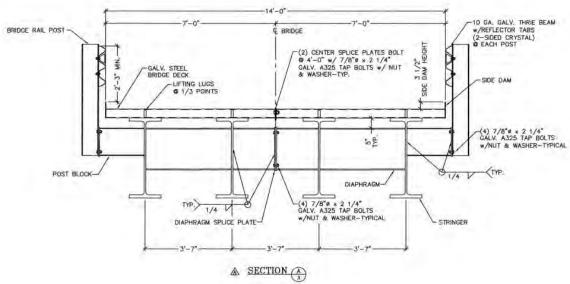








Big R Bridge Rolled Girder bridges were determined to be the most cost-effective solution that could meet the accelerated timeframe.



The bridges were ordered on March 9, 2020

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The bridges were ordered on March 9, 2020

Plans were submitted April 4, 2020

FLOOD BRIDGE REPLACEMENT

120'-0' X 14'-0'

HAMILTON CONHAMILTON CONSTRUCTION

FLOOD BRIDGE REPLA

100'-0' X 14'-0'

HAMILTON CONSTRUCTION

FLOOD BRIDGE REPLACEMENT

40'-0' X 14'-0'

HAMILTON CONSTRUCTION

FLOOD BRIDGE REPLACE

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

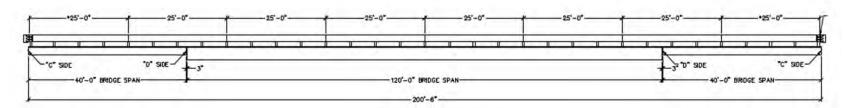
- The bridges were ordered on March 9, 2020
- Plans were submitted April 4, 2020
- The bridges were shipped mid May, 2020



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

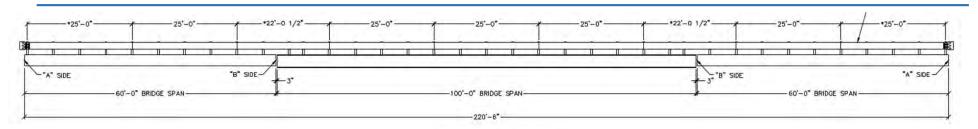
- The bridges were ordered on March 9, 2020
- Plans were submitted April 4, 2020
- The bridges were shipped Mid May, 2020
- The installation was complete on July 2, 2020





200'-6" FINAL LAYOUT

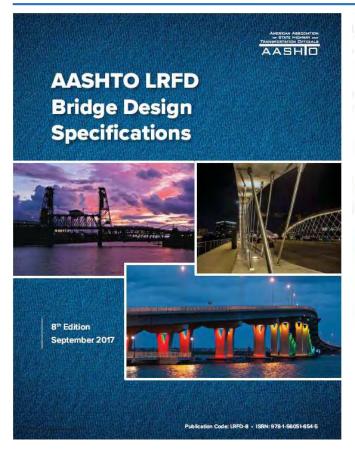




220'-6" FINAL LAYOUT







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, 8TH 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)

- DESIGN LOADINGS:
 - BRIDGE DEAD LOAD PLUS 80 PSF TOTAL WEARING SURFACE
 - 6. FUTURE RAILING (BY OTHERS), MAX 45 PLF.
 - HL-93, MAX ADTT = 1000
 - # WIND LOADING PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 3.6:

WIND SPEED = 110 MPH

WIND EXPOSURE CATEGORY = C

- at. BRIDGE RAIL DESIGNED FOR TL-1 LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS APPENDIX A13.2 (RAIL HAS NOT BEEN CRASH TESTED).
- SEISMIC LOADING PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 3.

SITE CLASS: D

PGA = 0.100

 $S_8 = 0.250$

 $S_{n} = 0.080$

PERIOD OF BRIDGE = To = 0.221 SEC

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 2 DESIGN IS IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION 2017 3. MATERIALS (UNLESS NOTED OTHERWISE): a. STRUCTURAL STEEL SHAPES: ASTM A588 WEATHERING STEEL ASTM A588 WEATHERING STEEL PLATES: b. STEEL BRIDGE DECK: ASTM A653 GRADE 50 CLASS I (GALV) 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 4 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)

1. SEISMIC LOADING PER AASHTO LIFTO BRIDGE DESIGN SPECIFICATIONS SECTION 3:10.

PERIOD OF BRIDGE = TH = 0.221 SEC



10 GA. GALV. THRIE BEAM w/REFLECTOR TABS

-(4) 7/8"ø x 2 1/4"

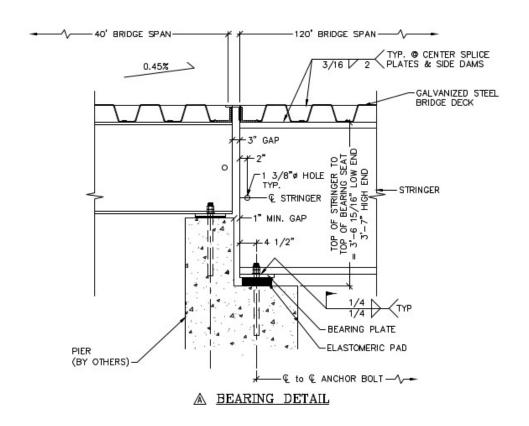
A325 TAP BOLTS

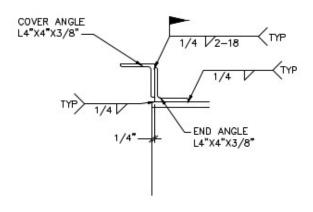
w/NUT & WASHER-TYPICAL

(2-SIDED CRYSTAL) EACH POST

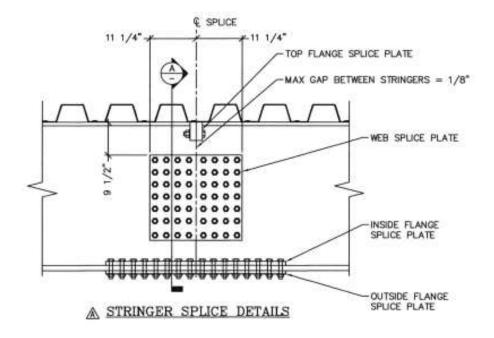
—SIDE DAM

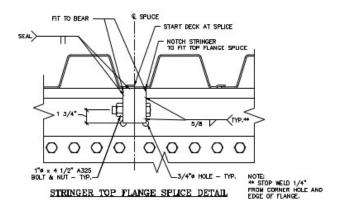






A COVER ANGLE DETAIL





Fabrication



Job No.: 641428-10 Name: FLOOD BRIDGE REPLACEMENT Structure Type: MODULAR Material Grade: A588 Inspection Stage: IN-PROCESS Surface Condition: MILL MT Mfg.: Parker Research Model: DA-400 20942 Calibration: Current: Particles: C.S.I. 20634 Color: Yellow Yoke **Examination Results** Accept Reject Cause for Rejection Post Blocks Post Block Faceplates Diaphragms Splice Dia. Plates x 5 None Top Flange Splice Plate 5/13/2020 There is inherent risk that materials tested are not representative of materials not tested. We follow industry standards but do not represent, warrant, or guarantee that materials not tested are the same as those tested. R9.12 -Rev. 3 A.K. 12/13/2016

Magnetic Particle Examination Report

CONTECH BRIDGE FINAL INSPECTION REPORT

Project # 641428-010 Fab Location	Greeley, CO	Date	5-26-2020
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Instructions: Complete the following checklist for each bridge. Indicate "N/A" in the initials column for items that do not apply to the project. Bridge sections that do not ship the same day shall have all loose items on the first load unless weight and size limitations prohibit. Document any problems on a Nonconformance Report.

Item Description or Requirement to be verified					Initials	Date
 Check for handling damage. Ensure damage is repaired using approved methods. 					JPC	5-26-2020
Verify paint touch up is completed.			N/A	5-26-202		
 Verify that splice plates are assembled or shipped loose as required by drawing. 			JPC	5-26-202		
 Verify the Dynalon, Teflon, or Setting plates are assembled or shipped loose as required by drawing. 				N/A	5-26-202	
5. Verify the Connection Bolts are in working condition. Certs included.					JPC	5-26-202
 Verify that expansion plates and screws are included if required. 				N/A	5-26-202	
 Verify Fence Panels are assembled or shipped loose including all required hardware. 			N/A	5-26-202		
Verify that metal decking is assembled or shipped loose as required.					JPC	5-26-202
a. Quantit)	b. Size:	N/A		
		assembled	or shipped loose as	required.	N/A	5-26-2020
a. Quantit		N/A	b. Size d. Pan Head	N/A Screws: N/A		
c. Torque Screws: N/A d. Pan Head Screws: N/A 10. Verify Bill of Material.					JPC	5-26-202
11. Verify Packing List:				JPC	5-26-2020	
12. Check MTR's and include if required.					JPC	5-26-2020
13. Verify major dimensional features.			JPC	5-26-2020		
14. Verify alignment and fit-up.			JPC	5-26-2020		
15. Verify sample of welds visually, focus on vertical and overhead structural welds.			JPC	5-26-202		
16. Check NDT reports and include if required.			JPC	5-26-2020		
17. Check clean and paint reports and include if required.			JPC	5-26-2020		
18. Verify that bridge sections are loaded for shipment per any special instructions.			JPC	5-26-2020		

Checklist Completed JPC Date 5-26-2020

OMS Form Final Inspection Report

Delivery



Site Considerations



Site Considerations



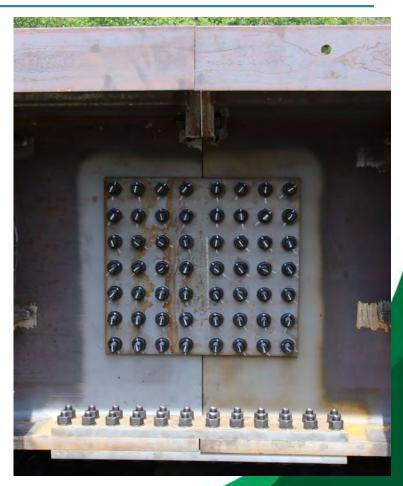
Site Considerations



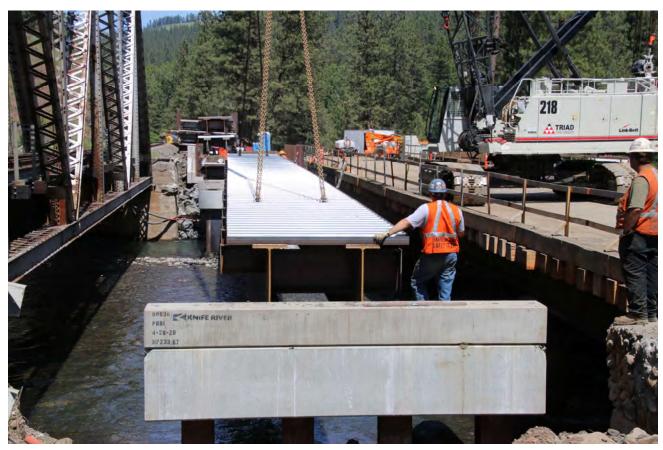


































Final Comments

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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