

Recent Construction Highlights

Flatiron Constructors Intermountain continued segment production at Cantilever 3 EB and completed pedestrian curb construction on the westbound bridge. Barrier construction continued on the westbound bridge with the installation of the south and north barrier reinforcing and the north barrier was cast. The following is a summary of the construction progress for the last month.



Figure 1 –Cantilever 3 EB Segmental Construction – February 19, 2010: Segment E3-6E contains two pair of double anchor blocks in the bottom slab. This photo shows how the typical interior web forms are adjusted by cutting the web channels to avoid the anchor blocks.

Figure 2 – Span 3 WB Interior Maintenance Lighting – February 19, 2010:

The interior maintenance lighting installation is nearly complete in the westbound bridge and the electricians test the lighting with a temporary electrical source. These lights will be used by CDOT for maintenance and inspection of the bridge, required every two years.



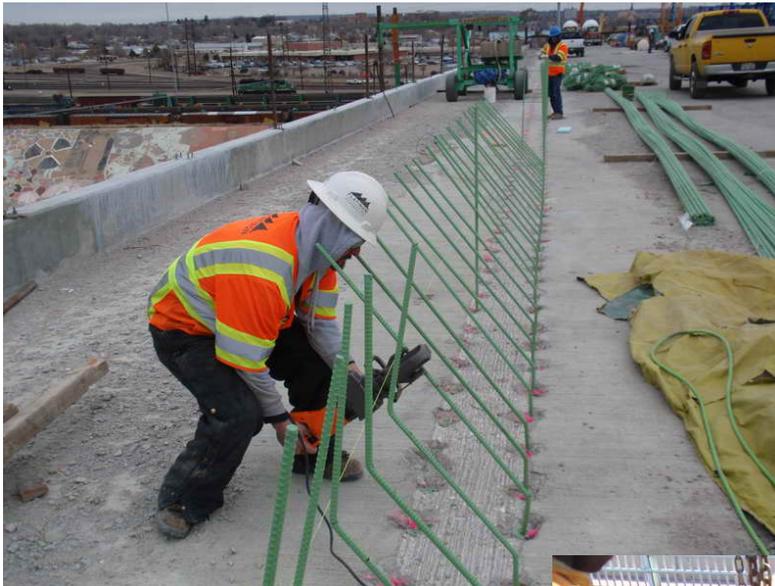


Figure 3 – WB North Barrier Construction – February 19, 2010:

A Flatiron employee uses an electric bar bender to field bend the front face barrier bars after they are threaded into the couplers in the deck. The couplers were required because four lanes of traffic were originally to be placed on the bridge. However, construction of the barrier is occurring immediately due to the phase change, which will accommodate pedestrian use of the westbound bridge during construction of the eastbound bridge.

Figure 4 – Cantilever 3 EB Segmental Construction – March 2, 2010:

A Flatiron field engineer measures the elongation for a cantilever tendon stressing operation. The measuring needle is the primary measurement tool for tendon acceptance and the tendon is painted for a backup measurement, as well.



Figure 5 – WB Grouting Operations – March 3, 2010:

The deck is heated by ground heaters and blanketed, while the interior of the bridge is heated with electric heaters to allow for grouting to resume on the westbound bridge. Warmer weather, coupled with heating, allowed for grouting to occur much earlier than anticipated.

Figure 6 – Span 3 WB Grouting Operations – March 4, 2010:
A Flatiron employee monitors the pressure of the grout as it is pumped into one of the draped tendons in Span 3 WB. The bottom slab tendons behind him were grouted after the draped tendons.



Figure 7 – Cantilever 3 EB Segmental Construction – March 5, 2010:
Cantilever 3 EB construction continues over the UPRR tracks and the Arkansas River. These tracks are active during all operations, including concrete placement for the segments, maintaining no impact to the Railroad operations during construction.



Figure 8 – Cantilever 3 EB Segmental Construction – March 9, 2010: Segment E3-8E deviator diaphragm forming, reinforcing, and post-tensioning installation is complete. The draped tendon rigid pipes in the deviator are rotated to a specific angle to maintain the tendon geometry upon installation and stressing after closure of the main-span. The core form support rail just clears the deviator.

Figure 9 – Cantilever 3 EB Segmental Construction – March 12, 2010: Concrete is placed in the webs and deviator diaphragm and vibrated approximately two feet beyond the limits of the formwork. Once the diaphragm and web are completely filled, carpenters install plywood on the top of the deviators to help hold the hydrostatic pressure of the concrete. The remaining portion of the bottom slab is filled next.

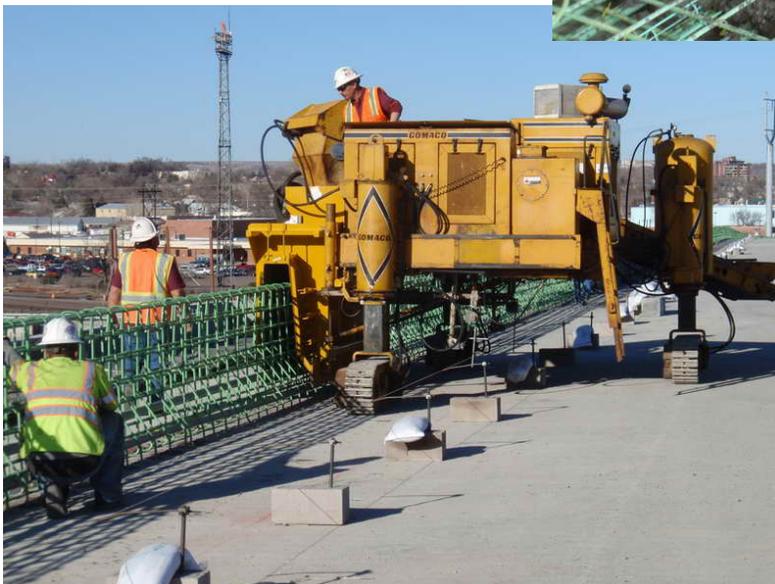


Figure 10 –WB North Barrier Construction – March 16, 2010: The slip form machine completes a dry run check on the cover of the reinforcing. Sensors on the machine follow the stringline, which maintains the vertical and horizontal profile, as it travels across the bridge.



Figure 11 – WB North Barrier Construction – March 17, 2010:
Workers finish and broom the surface of the 3'-10" tall north barrier behind the slip form machine.

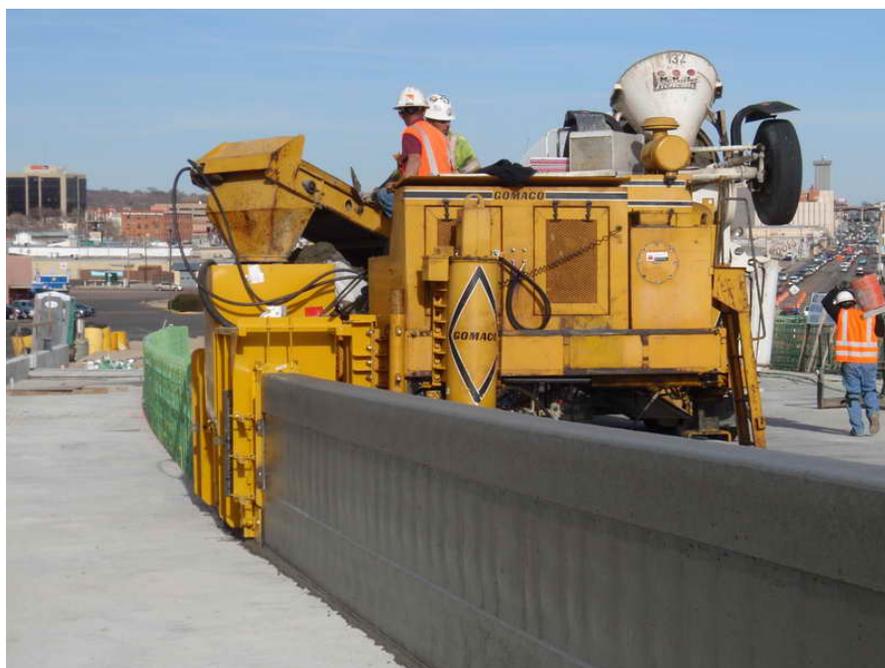


Figure 12 – WB North Barrier Construction – March 17, 2010:
The slip form machine approaches Abutment 6 WB in the curved portion of the bridge. The Contractor was able to place barrier from expansion joint to expansion joint, totaling 1137 linear feet of barrier placed in a single day.



Project Summary:

March 19, 2010
 Day 824 of 1278

Substructure Construction	<u>To</u> <u>Date</u>		<u>Total</u>	<u>Unit</u>	<u>% Complete</u>
48" Diameter Drilled Shafts (Monuments)	3	of	4	Each	75%
48" Diameter Drilled Shafts (Abutments)	11	of	14	Each	79%
60" Diameter Drilled Shafts (Pier 2 & 5)	6	of	8	Each	75%
96" Diameter Drilled Shafts (Pier 3 & 4)	8	of	8	Each	100%
Type I Footings (Pier 2 & 5)	3	of	4	Each	75%
Type II Footings (Pier 3 & 4)	4	of	4	Each	100%
3'-6" Piers (Pier 2 & 5)	3	of	4	Each	75%
7'-1" Piers (Pier 3 & 4)	4	of	4	Each	100%
Abutments	1 1/2	of	2	Each	75%

Superstructure Construction	<u>To</u> <u>Date</u>		<u>Total</u>	<u>Unit</u>	<u>% Complete</u>
Westbound					
End Span CIP Westbound	2	of	2	Each	100%
Abutment Diaphragm Westbound	2	of	2	Each	100%
Pier Diaphragm Westbound	2	of	2	Each	100%
Pier Table Westbound	2	of	2	Each	100%
Cantilever 3 Segments Westbound	22	of	22	Each	100%
Cantilever 4 Segments Westbound	20	of	20	Each	100%
Closure Segments Westbound	3	of	3	Each	100%
Eastbound					
End Span CIP Eastbound	1	of	2	Each	50%
Abutment Diaphragm Eastbound	1	of	2	Each	50%
Pier Diaphragm Eastbound	1	of	2	Each	50%
Pier Table Eastbound	2	of	2	Each	100%
Cantilever 3 Segments Eastbound	18	of	22	Each	82%
Cantilever 4 Segments Eastbound	0	of	20	Each	0%
Closure Segments Eastbound	0	of	3	Each	0%



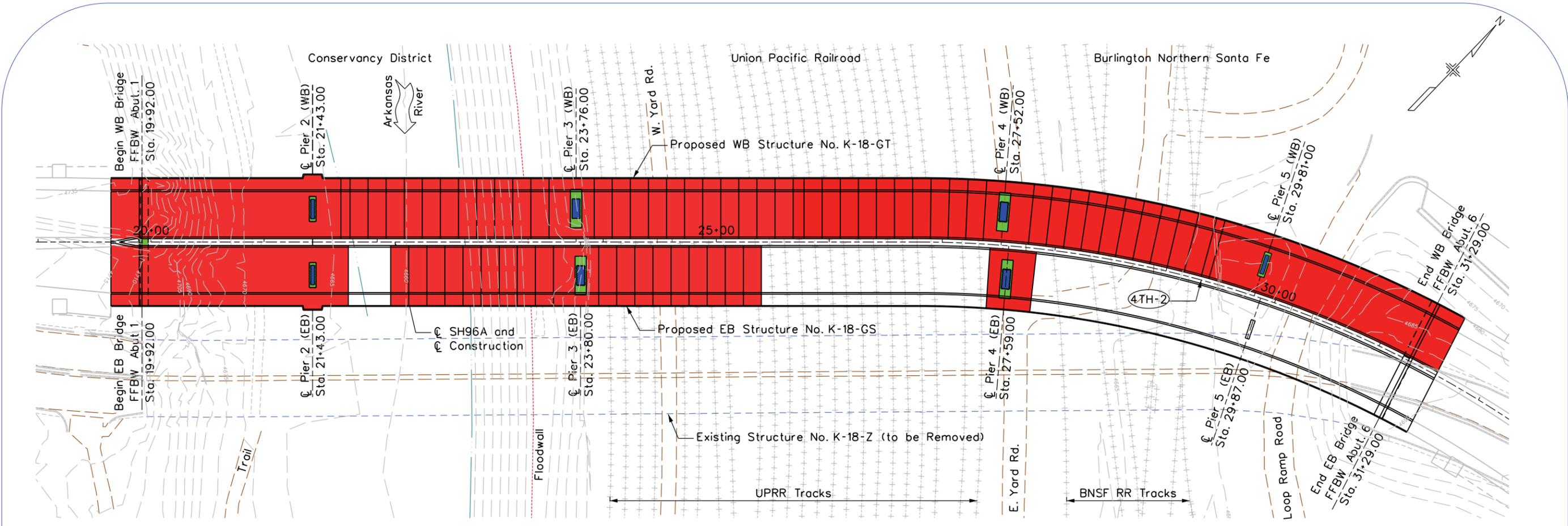
Project Milestone Dates

Milestone Event	April 2008 Baseline Finish Date	Actual
Project Award	October 18, 2007	October 18, 2007
Notice to Proceed	November 8, 2007	November 8, 2007
Form and Pour First Segment – W3-1E	November 19, 2008	February 16, 2009
Form and Pour First Closure – Span 2 WB	May 19, 2009	August 14, 2009
W4-10E Post Tension	October 20, 2009	November 19, 2009
Span 4 WB Closure Form/Rebar/Pour	November 2, 2009	December 16, 2009
Span 3 WB Closure Form/Rebar/Pour	November 13, 2009	January 7, 2010
E3-1E Pour	February 01, 2010	December 29, 2009
Shift Traffic to New WB Structure	February 17, 2010	*
Bridge Demolition - Remove Bridge Deck	April 1, 2010	
Install Last Drilled Caissons – Abutment 6 (EB Only)	April 26, 2010	
Form and Pour Last Segment – E4-10E	October 12, 2010	
Form and Pour Last Closure – Span 3 EB	November 16, 2010	
Complete Structure and Final Traffic Configuration	March 4, 2011	

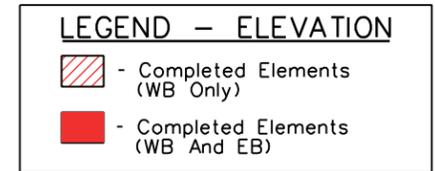
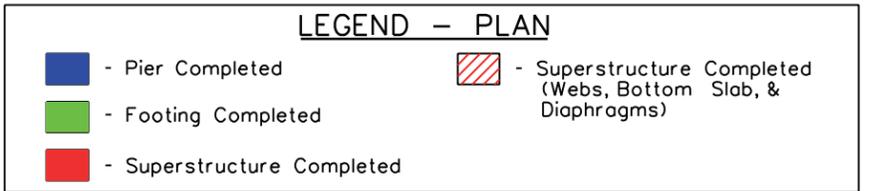
All items are based on the April 2008 Baseline Schedule. All dates represent the “Finish” of the activity, unless otherwise noted. Refer to the October 2009 Project Updates for previous milestone dates.

Cantilever construction continues on the eastbound bridge with both travelers in operation and ahead of schedule.

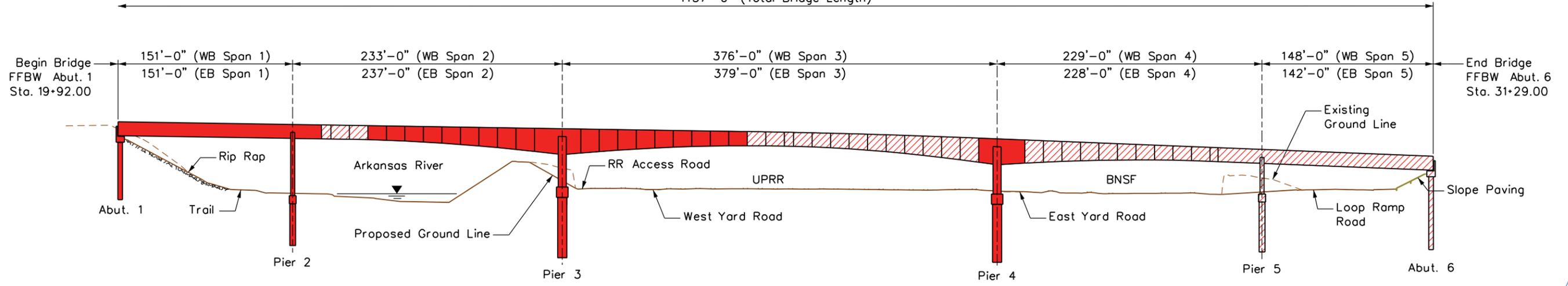
*The westbound bridge opening is currently anticipated for April 9th and demolition will immediately follow.



PLAN



1137'-0" (Total Bridge Length)



ELEVATION

4th Street Bridge Project - Project Completion Status - March 19, 2010

