



2011 UPRR Bridge 126.31

Description

Meta Fields

Project Summary : Fully-precast railroad bridge - precast prestressed concrete adjacent box beam; precast abutments, wingwalls, and pile caps

Project Location : 8 miles west of the city of Manhattan in northeastern Kansas

Mobility Impact Time :

- ABC: 24-hr maximum closure allowed; 18-hr actual closure
- Conventional: ABC is conventional for railroads

Impact Category : Tier 1 (within 1 day)

Dimensions : 150-ft long and 18.5-ft wide five-span precast prestressed concrete adjacent box beam railroad bridge (typical 29.83-ft-long spans)

Traffic Management : railroads require ABC to limit downtime

Existing Bridge Description : In 2011 the Kansas Department of Transportation (KDOT) went to contract to construct a four-lane highway facility to increase user capacity. The project required significant drainage improvements to the Eureka Valley Tributary (EVT). Critical to the hydraulic capacity was the replacement of the downstream Union Pacific Railroad Bridge 126.31. The 28-ft-long two-span timber trestle railroad bridge had to be replaced to increase the conveyance before the EVT could be operational. This was critical to the highway project schedule.

Replacement Or New Bridge : The replacement bridge has one rail track and a maintenance walkway. The cross-section consists of two 7-ft-wide, 30-inch-deep adjacent two-cell precast prestressed box girders, topped with ballast and rails. The outside girder on one side was cast complete with walkway. The precast abutments, wingwalls, and pile caps were founded on braced steel H-piles.

Construction Method : Prior to bridge closure, abutment piles were driven through the existing fill and track ties were removed and replaced as needed to access pile locations. The piles were driven to the required capacity and cut off at ground line or plan cutoff. Pile driving was completed without train delays by coordinating with the UPRR operations center and driving the piles between train runs. The bridge was then closed. The contractor excavated as needed and removed the bridge. Crews cut and ground the piles to the proper cutoff elevation, set the precast abutment and pile caps over the steel piles with a crane, and welded the cap-to-pile connections. Wingwalls were bolted onto the abutments. Sway and sash braces were welded on all bents. Backfill and compact granular fill were placed behind abutments. Rock riprap was placed and graded on slopes. Precast box girders were erected with the crane. Girder stops were welded to anchor the girders, and steel cover plates at girder joints were installed and welded. Track panels and ballast were placed. Precast ties were installed and track was raised. Track was released to run trains.

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Costs : The low bid was \$364,000. There were seven bidders.

Funding Source : Federal and State

Contract Plans : 2

Construction Schedule : 2

Year Abc Built : 2011

State : KS

Owner : Union Pacific Railroad (UPRR)

Location : Rural

Spans : > Three-span

Beam Material : Concrete

Max Span Length Ft : 29.83

Total Bridge Length Ft : 150

Construction Equipment : Other ABC Method

Latitude : 39.2256012

Longitude : -96.7470103

Project Delivery : design-bid-build

