Con-Struct Bridge System installed in Bexar County, TX

Valmont™ Con-Struct® Case Study
San Antonio, Texas

County of Bexar Uses Con-Struct Bridge System for Flood Control Culvert Replacement Project

When the County of Bexar Public Works Department needed to replace the deteriorated Ira Lee Road box culverts over Salado Creek, they also needed to increase the flowable waterway area provided by the five (5) box culverts.

Due to the increased volume observed in recent years, a 150' long, 3-span bridge, utilizing standard AASHTO Type IV prestressed concrete I-beams was specified. The county was approached by the award contractor with an alternative superstructure that would not only increase the necessary waterway area beneath the bridge by 20", but also reduce the construction schedule by up to 45 days.

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Existing bridge on Ira Lee Road

Galvanized steel tub girder with shear studs

MSC4214_0520

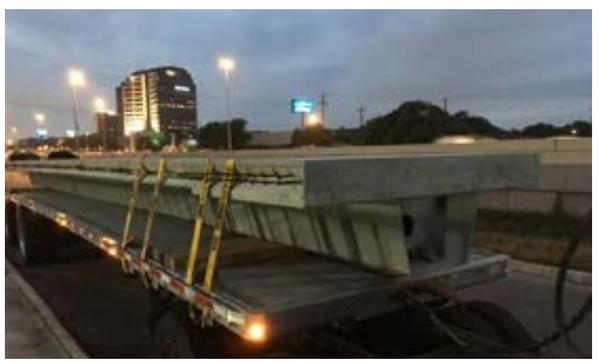
Project Details

For the bridge superstructure, a press-brake-formed steel tub girder superstructure system called Con-Struct Bridge was chosen by the contractor for its ease of construction and short lead time (less than 8 weeks). The Con-Struct Bridge System consists of a precast concrete deck cast compositely on a galvanized press-brake-formed steel tub girder. The press-brake-formed steel tub girders were formed at Willbanks Metals in Tulsa, OK. The entire superstructure was then assembled at Tricon Precast, Ltd. in Houston, TX. Tricon Precast provided a quality, cost-effective final product.

Con-Struct was designed for the required AASHTO LRFD HL-93 live load and to meet all applicable TxDOT and AASHTO design criteria. The 8" thick precast concrete deck was provided with a tined final driving surface. The 52' span galvanized steel tub girders were 18" deep, providing a total superstructure thickness of 28". This shallow superstructure depth allowed for an additional 20" of clearance below the bottom of girder.

Shipping and Installation

The superstructure was transported to the construction site on standard individual truck trailers. Each 52′ long by 7′ wide unit weighed only 21 tons and required only a single 150 ton crane for erection. The (16) Con-Struct bridge units started to arrive at the job site by 7:00 a.m. All units were set in place by 2:00 p.m. the following day. Once set in place, ultra-high performance concrete was placed in the keyways between the bridge units to create one continuous 56′-4″ wide concrete deck.



Shipping of Con-Struct Bridge System

Deck joints with ultra-high performance concrete

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Con-Struct bridge system being installed in Bexar County,

Installed concrete deck bridge

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Final Product

With the sidewalks and barriers formed and cast, over the next few weeks the bituminous approaches will be paved and the final riprap placed in all four quadrants. The County of Bexar Public Works Department was able to successfully replace the existing deteriorated bridge and avoid costly rain delays by using innovative Con-Struct galvanized press-brake-formed steel bridge elements. With the use of the Con-Struct Bridge System, this project provided a new structure that is sustainable, cost effective, aesthetically pleasing and environmentally friendly. Ira Lee Road over Salado Creek Bridge Project Team

Con-Struct bridge system soffit

Completed driving surface

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