



Georgia Department of Transportation

# EXPERIENCE WITH NEXT F-BEAMS

Steven K. Gaston, PE

Assistant State Bridge Engineer

PCEF Meeting, Columbia SC, August 16, 2018



# Why Developed?

- Speed up construction
- Alternative to Box beams / Cored Slabs bridges
- Use on State Route System (with full deck)
- No traffic or truck limitations

**Table 3.8.1-1 Guidance For Use of New Precast Beam Types**

Criteria	Bridge Type		
	Cored Slab	Box Beam	Next Beam
Span Lengths	25 ft. to 50 ft.	30 ft. to 70 ft.	40 ft. to 70 ft.
ADT	$\leq 3000$ vpd	$\leq 3000$ vpd	Not limited
Truck Volume	$\leq 100$ vpd	$\leq 100$ vpd	Not limited
Minimum Width	26' gutter to gutter	26' gutter to gutter	30' gutter to gutter
Asphalt/Concrete Overlay	Use concrete for NHS	Use concrete for NHS	N/A



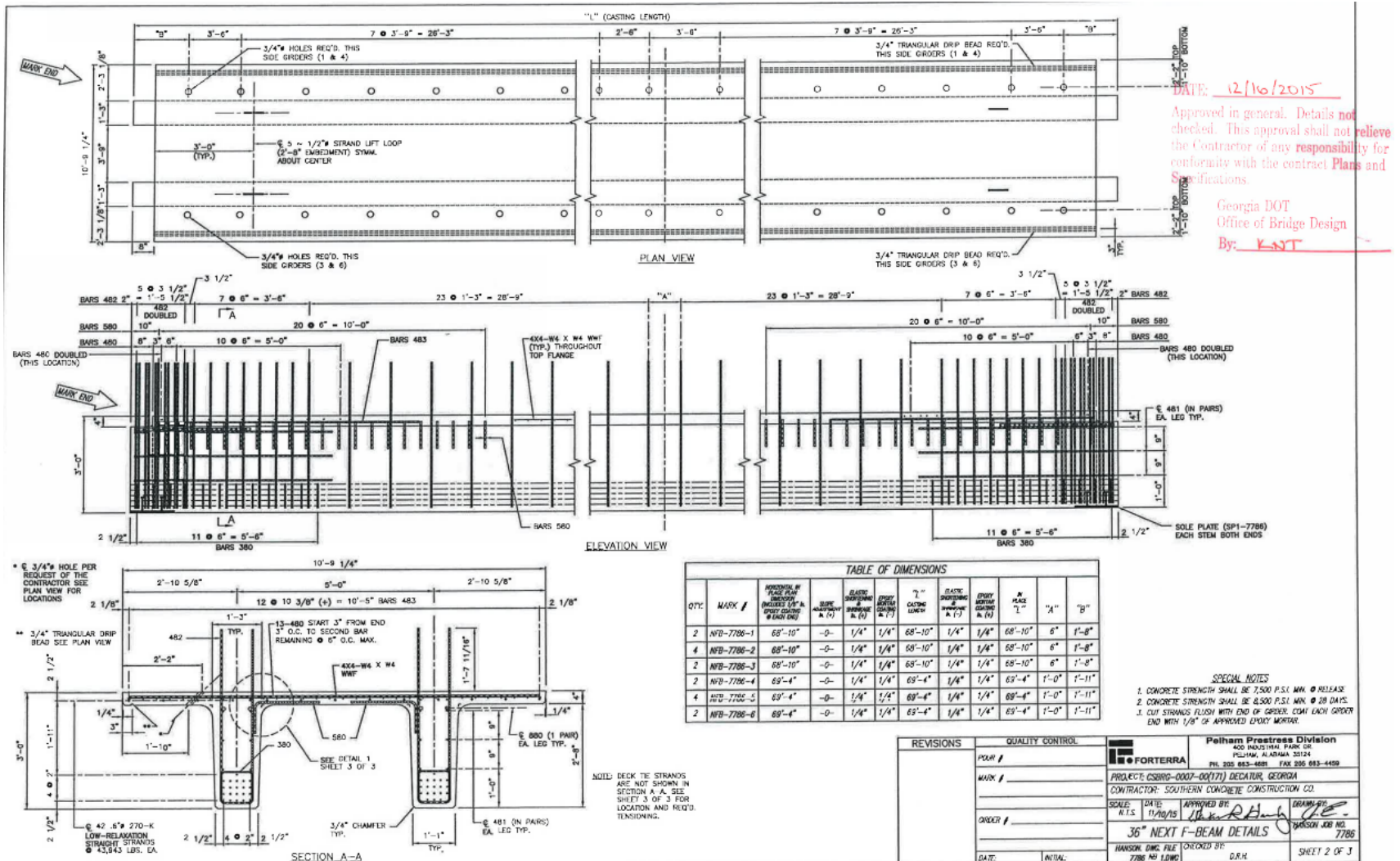
## **4 Projects that Utilized Next Beams**

- PI 0007171, Decatur County, SR 97 over Big Slough
- PI 0007181, Johnson County, SR 64 over Ten Mile Creek
- PI 0007180, Johnson County, SR 171 over Little Ohoopsee River
- PI 0007161, Brantley County, SR 32 over Little Satilla River O/F

All let between August 2015 and May 2016. All are open to traffic.

Cost between \$154/sf to \$175/sf

# Shop Drawings





# Beam Fabrication



# Beam Fabrication





# Beam Fabrication - Issues

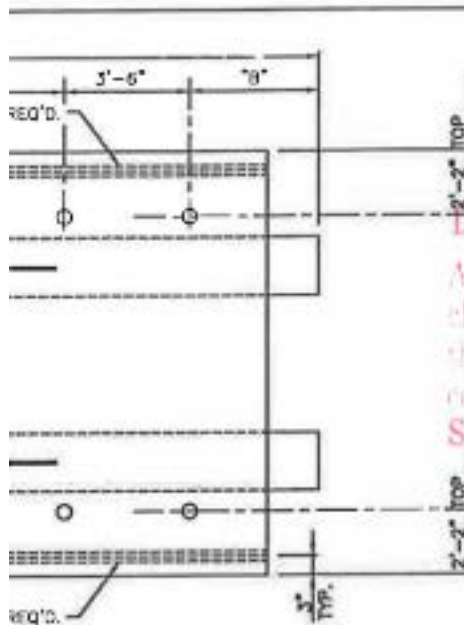
Crack developed in stems at each end where flange became discontinuous



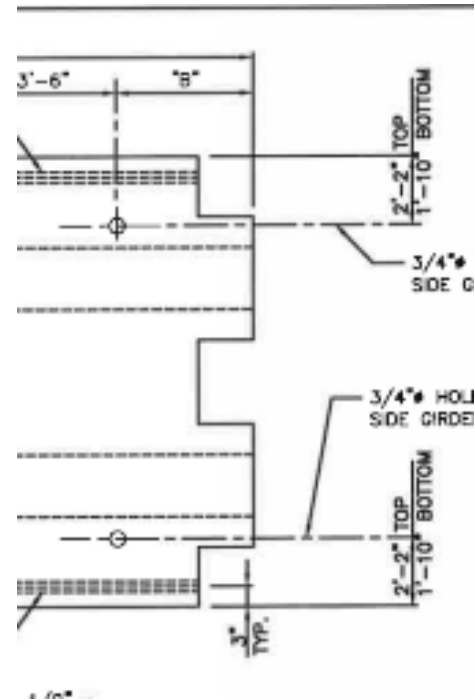


# Beam Fabrication - Solution

Extended 2' wide flange for entire length of stem



Original Detail



Revised Detail

# Erection and Construction





# Erection and Construction





# Construction Issue

## Longitudinal Crack

Developed full length  
of bridge at joint  
between two middle  
beams

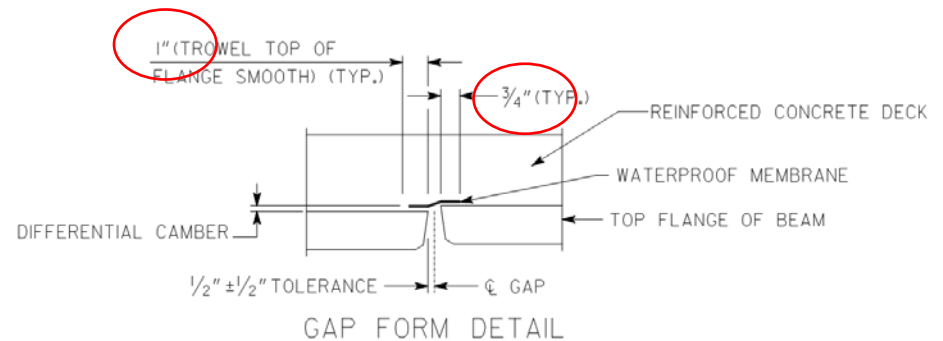
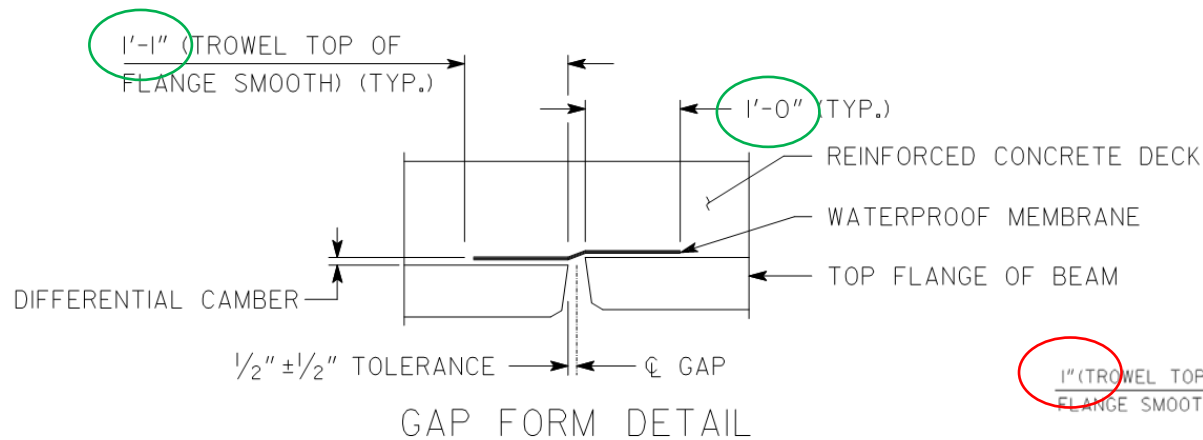


# Erection and Construction

## Solution for Longitudinal Crack

Provide 1' of waterproofing on each side at joint locations instead of 1".

This provides more “free” room for contraction/shrinkage to occur and not be concentrated in 2" space.



# Final Thoughts

- Good tool to have in toolbox for unique situations and option for local governments.
- Able to work with Fabricator (Forterra) and Contractors to make modifications to details based on issues observed in field.





# Final Thoughts

- Not very cost effective for GDOT projects and not much time savings realized.
- Will examine use of Next-E beam to see if greater benefits are available.



**QUESTIONS????**