



Montour Run



Wampum

# Accelerated Bridge Construction

FHWA/DeIDOT Workshop | September 17, 2015

Creators of Safe and Innovative Infrastructure Solutions



# i+iconUSA Family of Companies



## Core Values

**Work Safely:**

Safety is our culture

**Value People:**

Take care of employees  
and they will take care of  
clients and stakeholders

**Act with Integrity:**

Honesty builds trust

**Provide Solutions:**

Better solutions yield  
greater satisfaction

# ABC Preparation



- ✓ Suppliers
- ✓ Subcontractors
- ✓ Contractor Crew Coordination
- ✓ Shop Drawing Coordination
- ✓ Superstructure Erection
- ✓ Construction Staging Area
- ✓ Utilities
- ✓ Site Access
- ✓ Equipment
- ✓ Materials
- ✓ Weather

# Montour Run Bridge No. 6 Accelerated Bridge Replacement



Allegheny Co. Dept. of Public Works  
October 2012 – May 2013  
ABC – November 21-25, 2012  
Coraopolis, PA | \$827,000

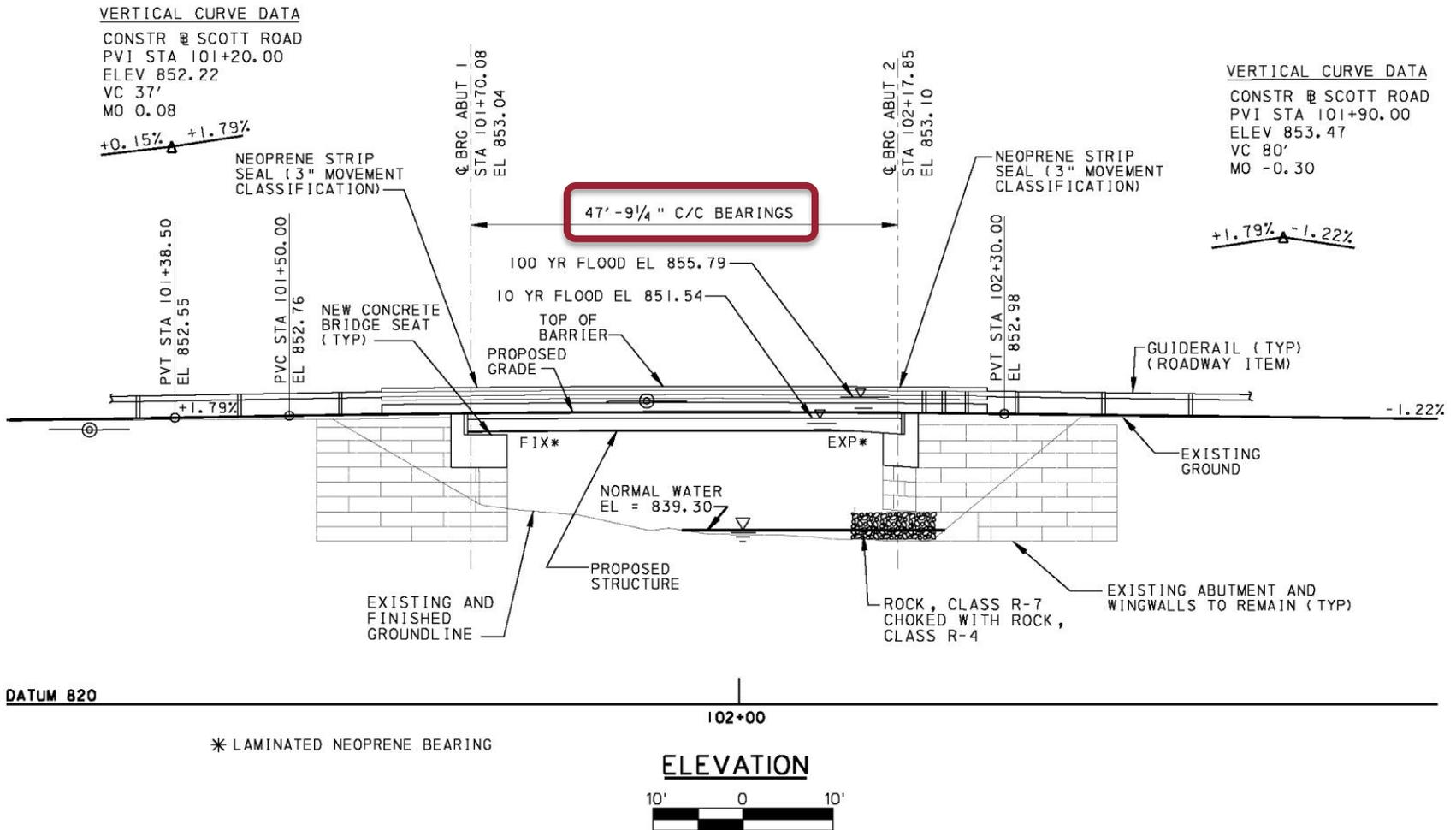


- Road closure allowance: 5 days due to sole access to five local businesses
- Demolition and rebuild completed over a Thanksgiving holiday weekend
- ABC construction was the only means to meet these requirements
- Won 2013 Outstanding Highway Engineering Award from the American Society of Highway Engineers' Pittsburgh Section

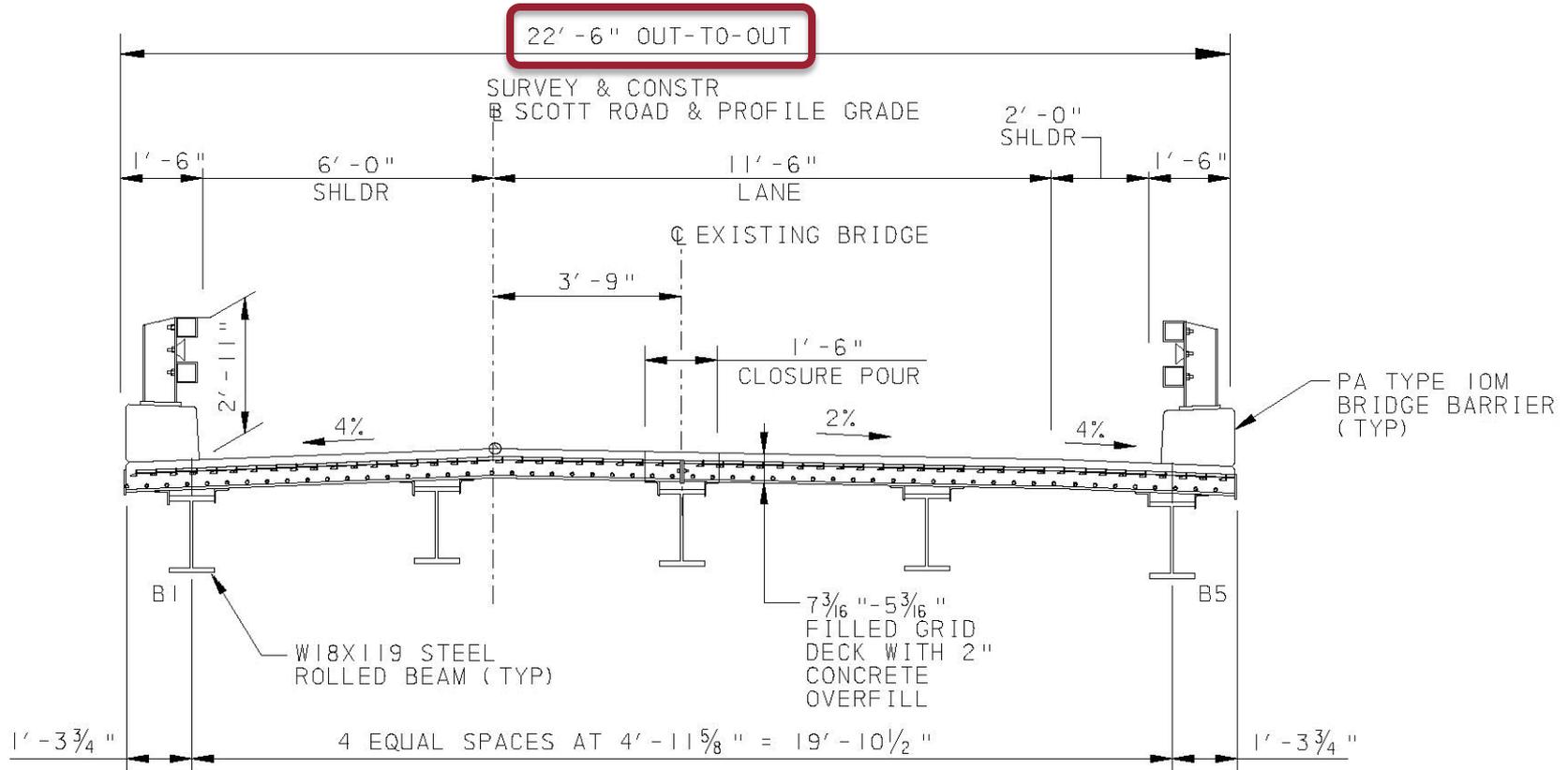


- No real feasible alternate location for the bridge – extensive property takes and costly approach work

# Bridge Design: Elevation



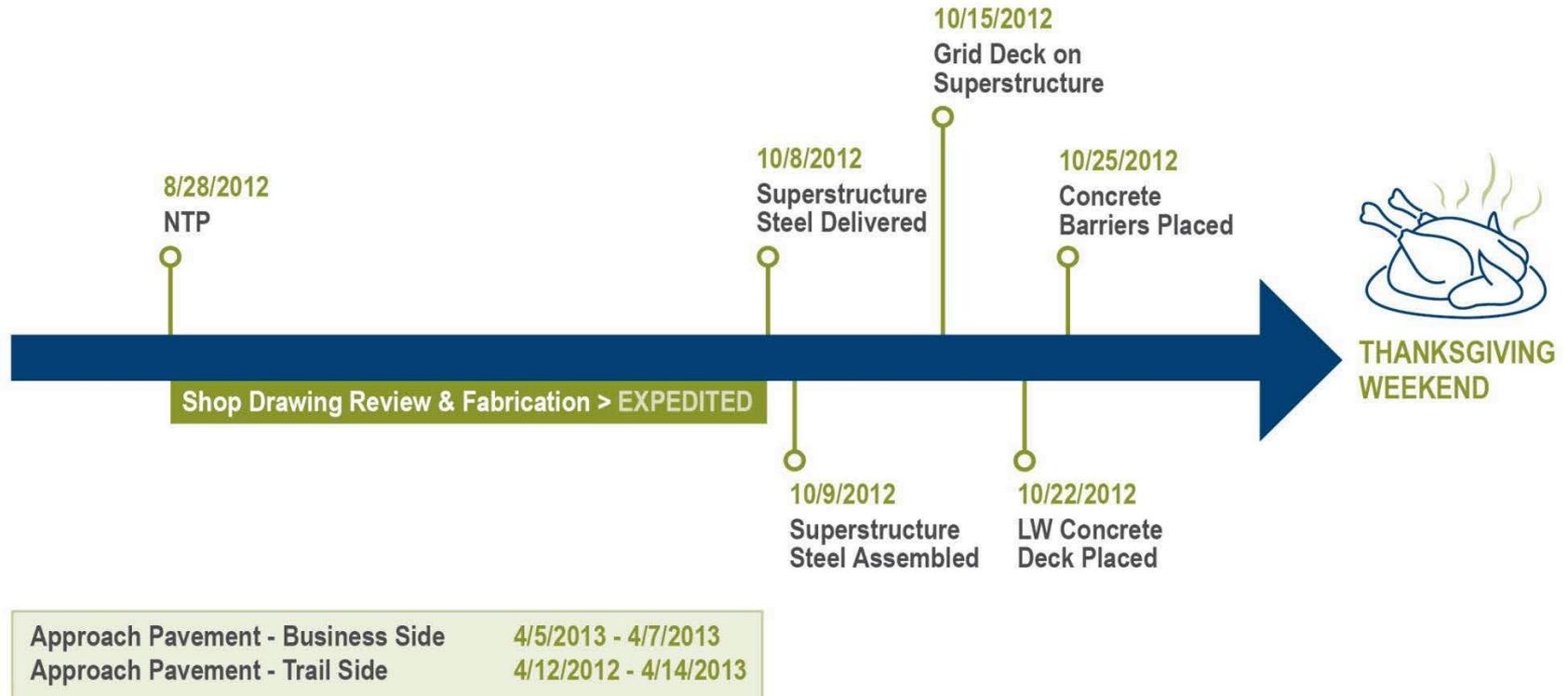
# Bridge Design: Cross Section



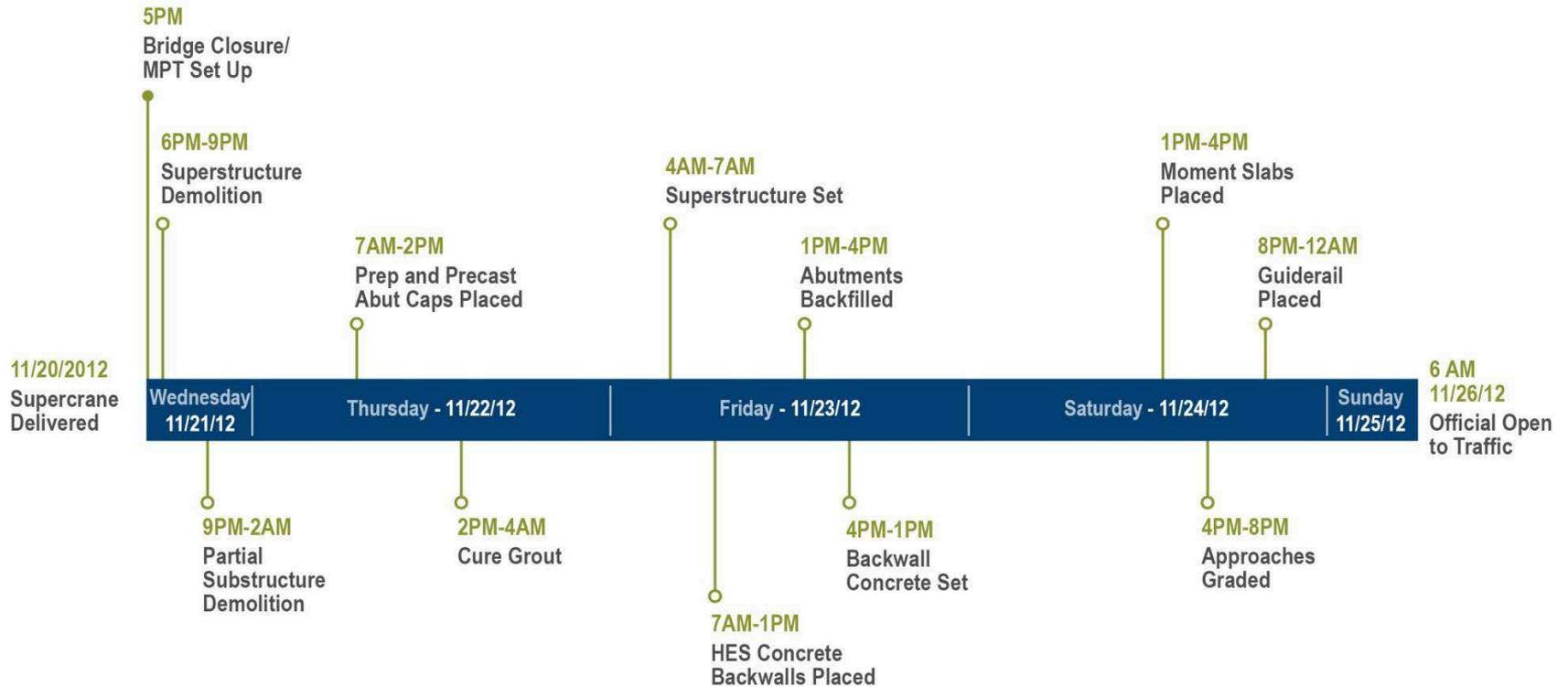
TYPICAL CROSS SECTION

NO SCALE

# Preparation for Closure Schedule



# Road Closure and ABC Schedule



# Preparation Prior to Closure



**Superstructure Framing**



**Superstructure Grid Deck**



**Superstructure Concrete Deck and Barriers**

# Day 1: Demo



58° | 31°



# Day 2: Abutment Placement



60° | 29°



# Day 3: Superstructure Placement



53° | 30°



**Heated Curing of HES Backwall**

# Day 4: Moment Slab Placement



32° | 30°



# Day 5: Open to Traffic



39° | 28°



**Completed Structure**



**After the winter the approach was paved**

# Main Street over Wampum Creek Accelerated Bridge Replacement



PennDOT, District 11

July 2014 – September 2014

ABC : August 18 – 24, 2014

Wampum, PA | \$1,686,000

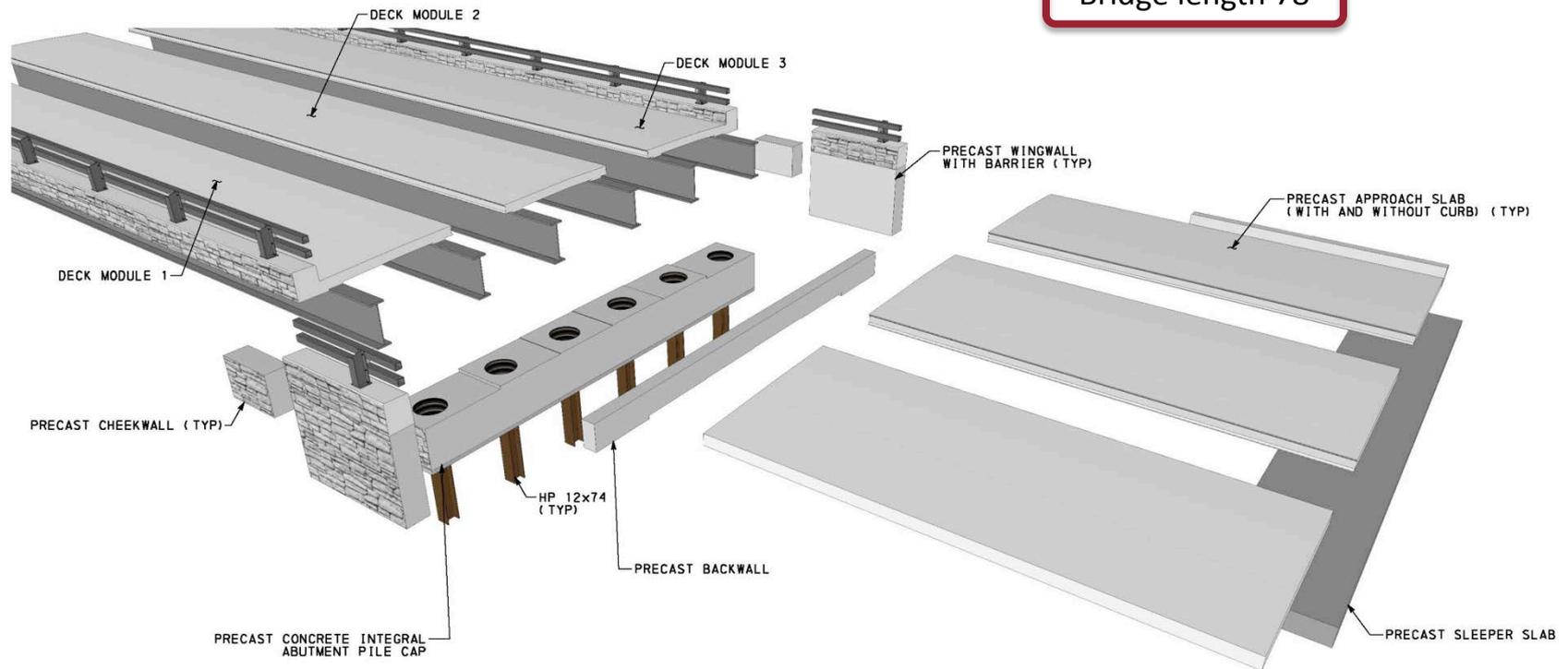


- Bridge closure meant a 21-mile detour for truck traffic
- Project deadline was only 9 days; completed in 7
- ABC Bridge Construction was the only means to meet these requirements
- Won Best Project in the Prefabricated Bridge Elements and Systems category at the 2014 National Accelerated Bridge Construction Conference

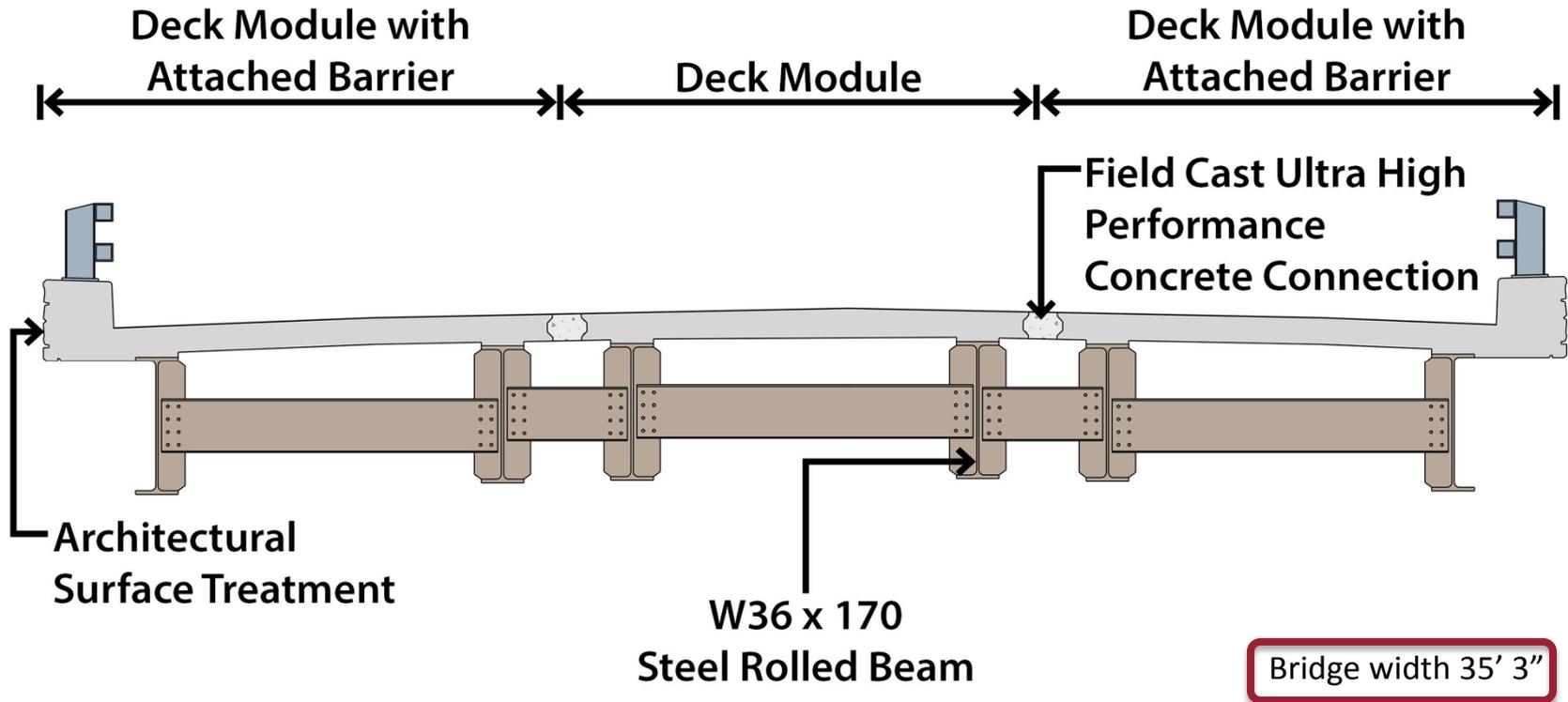


# Prefabricated/ Precast Structure

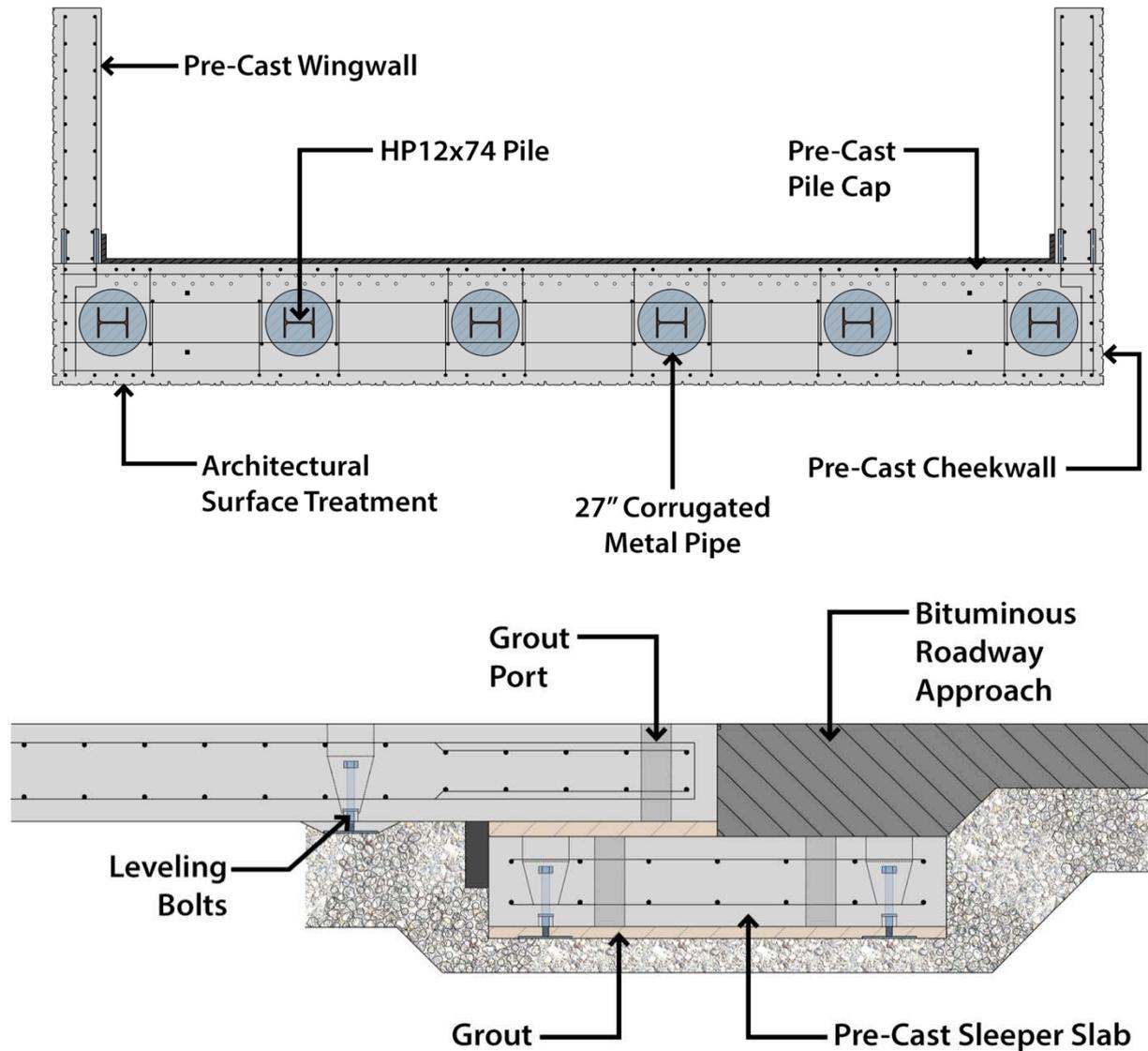
Bridge length 78'



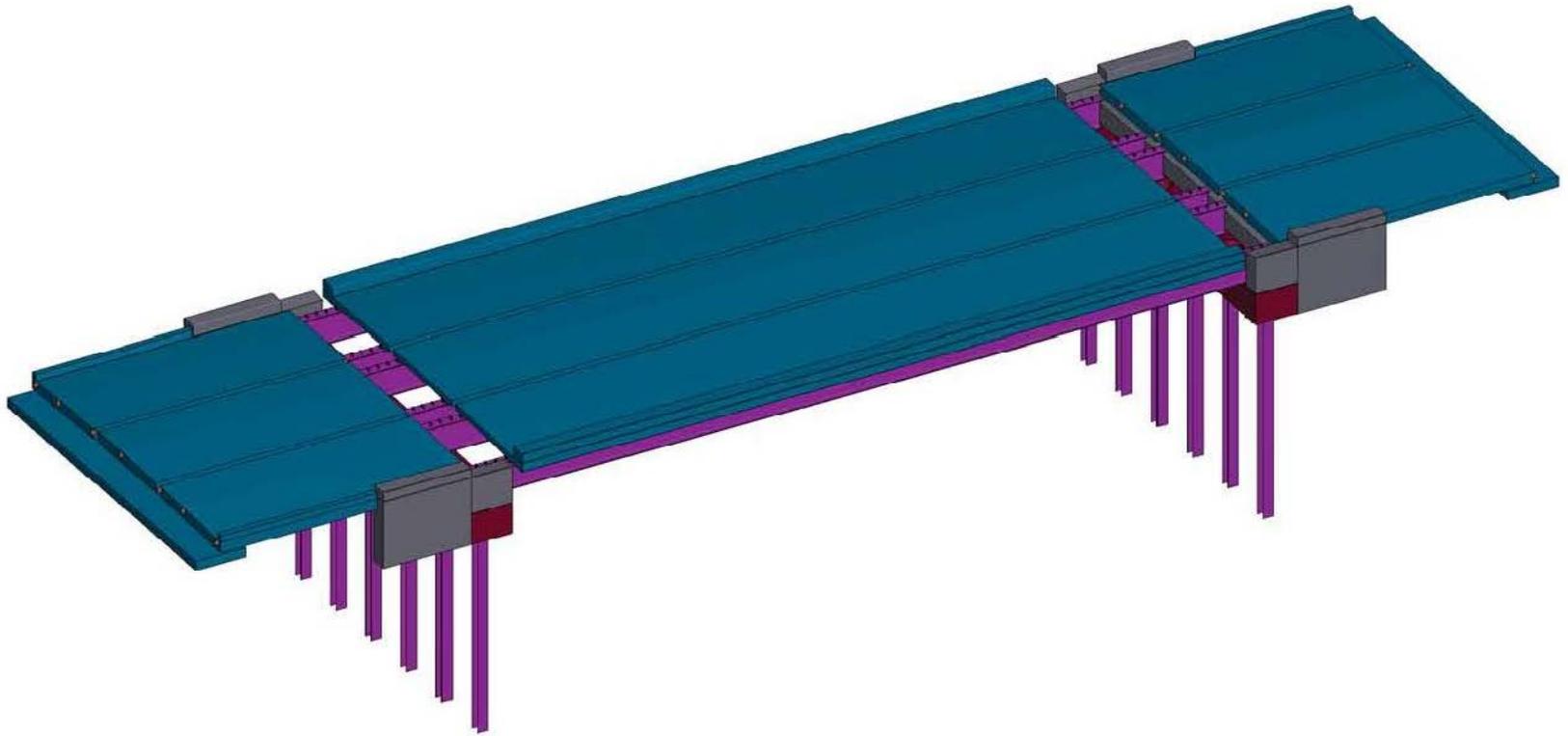
# Typical Section



# Precast Abutment and Approach Slabs

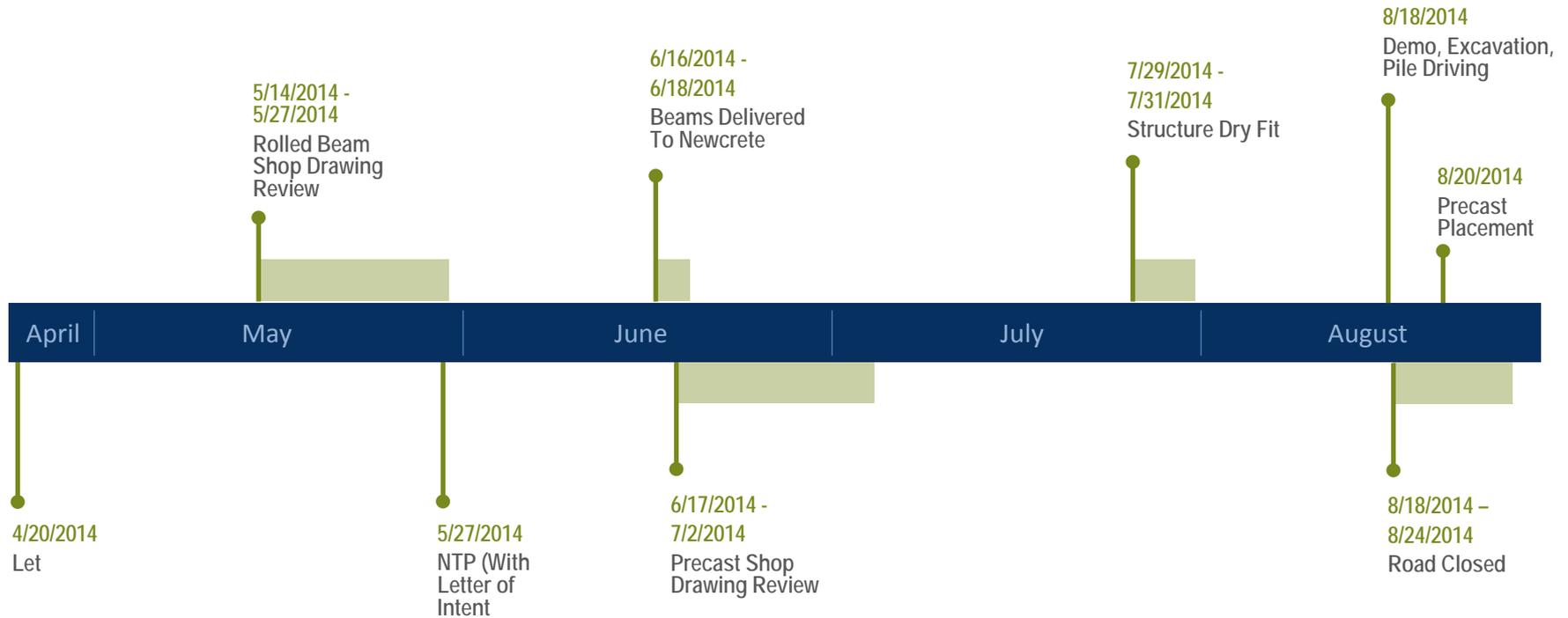


# SR 288-L10 3-D Model



3-D Model prepared by Newcrete

# Schedule



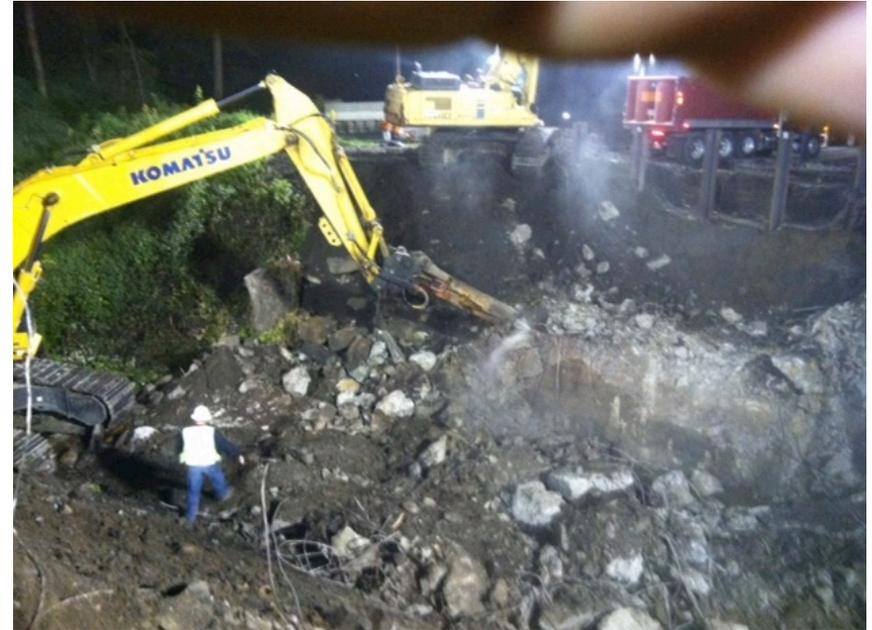
# Preparation Prior to Closure



# Day 1: Demo



80° | 60°



# Day 1: Excavation for Abutment Cap



80° | 60°



# Day 2: Preparation Abutments and Slope Protection

Aug  
19  
Tuesday



84° | 60°



**Slope Protection in Front of Integral Abutments**



**Took 3 Shifts to Set Up Crane  
(Delivered on 9 Trucks)**

# Day 2: Abutment Cap Prep

Aug  
19  
Tuesday



84° | 60°



# Day 3: Place Abutment Cap & Wing Wall

Aug  
20  
Wednesday



78° | 64°



# Day 3: Set Deck Modules

Aug  
20  
Wednesday



78° | 64°



# Day 4: Place Sleeper/Approach Slab



78° | 64°



# Day 5: Closure Placements



78° | 64°



**Closure pour Abutment 1**



**UHPC Joints**

# Day 6: UHPC Joints



80° | 66°



**UHPC Concrete**



**Add Mixtures and Ice**

# Day 6: UHPC Joints



**Steel Fibers**



**Dispensing UHPC from Mixer to Buggies**

# Day 6: UHPC Joints



80° | 66°



# Day 6: UHPC Joints



80° | 66°



Curing Process

# Day 7: Bridge Completion



73° | 69°



**Approach Paving**



**Line painting and guiderail installation  
Opened to Traffic at 10:30pm**

# Epoxy Overlay



# Any Questions?

