

HAZEL AVENUE BRIDGE WIDENING

Sacramento, CA



Project Objectives

- Widen existing bridge & roadway
- Widen multi-use path on bridge
- Improve multi-use path connectivity



Project Challenges

- Site constraints
- Environmental constraints
- Seismic performance of bridge
- Service performance of bridge

Project Site



Site Constraints

Salmon fish hatchery



Nimbus Dam

Site Constraints



Site Constraints



Environmental Constraints

- In-water work window (June 1 to Sept 30)
- Noise restriction
- Pile driving restriction (30 piles max.)
- Water turbidity and water quality
- Maintain access for bikes & pedestrians
- Maintain 4 lanes of traffic

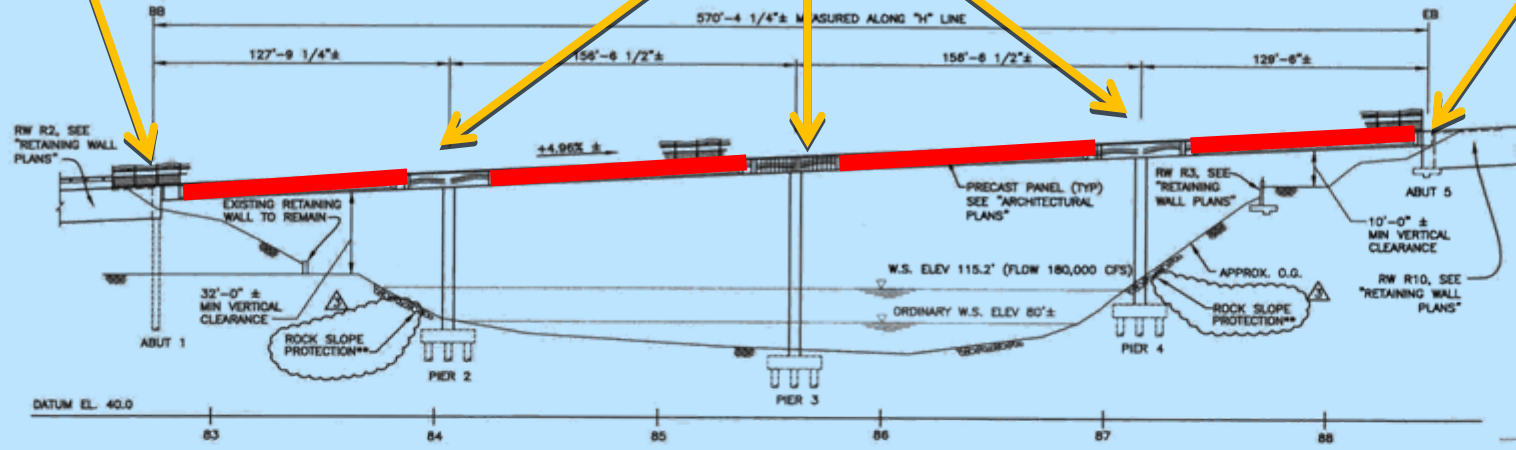
Seismic Performance

- Existing Bridge Displacement Capacity
- Existing Bridge Displacement Demand
- Combined Bridge Demand & Capacity

Fixed

CIP Section

Expansion



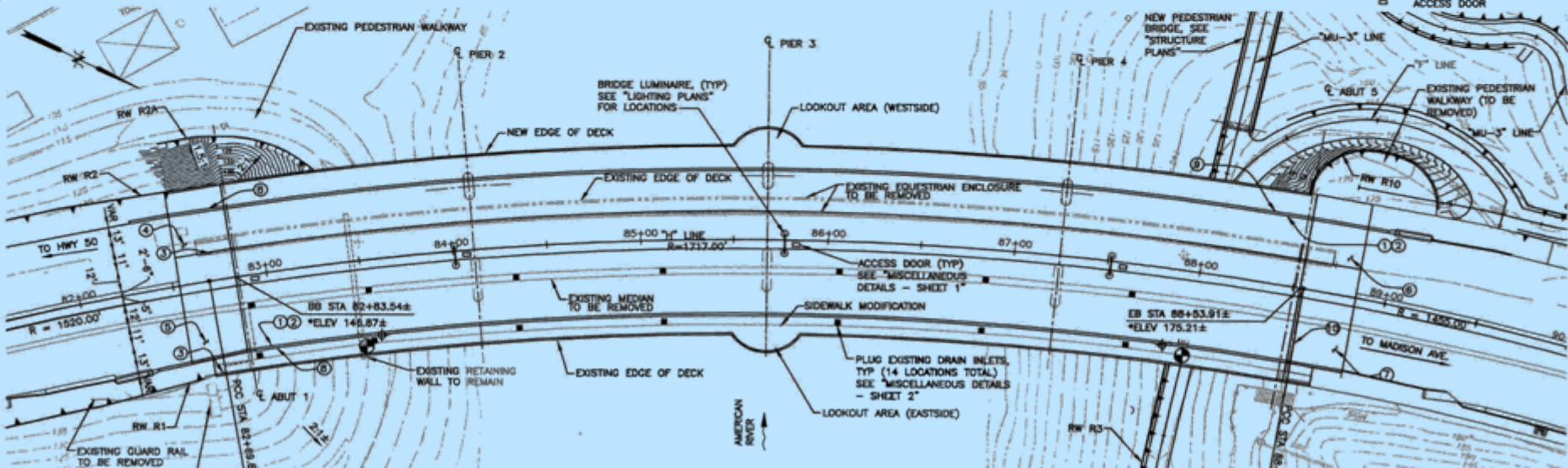
MIRRORED ELEVATION

SCALE 1" = 30'

- ① PAINT BRIDGE 24C-100
- ② PAINT "AMERICAN RIVER BRID AVENUE"
- ③ SALVAGE EXISTING PLAQUE
- ④ STRUCTURE APPROACH SLAB
- ⑤ STRUCTURE APPROACH SLAB
- ⑥ STRUCTURE APPROACH SLAB
- ⑦ STRUCTURE APPROACH SLAB
- ⑧ RE-ATTACH SALVAGED PLAQUE
- ⑨ NEW 2010 DEDICATION PLAQUE BY COUNTY
- ⑩ REPLACE EXISTING DECK EXP ASSEMBLY
- ⑪ FOR GENERAL NOTES, INDEX AND STANDARD PLAN LIST, SEE NOTES AND INDEX TO PLANS

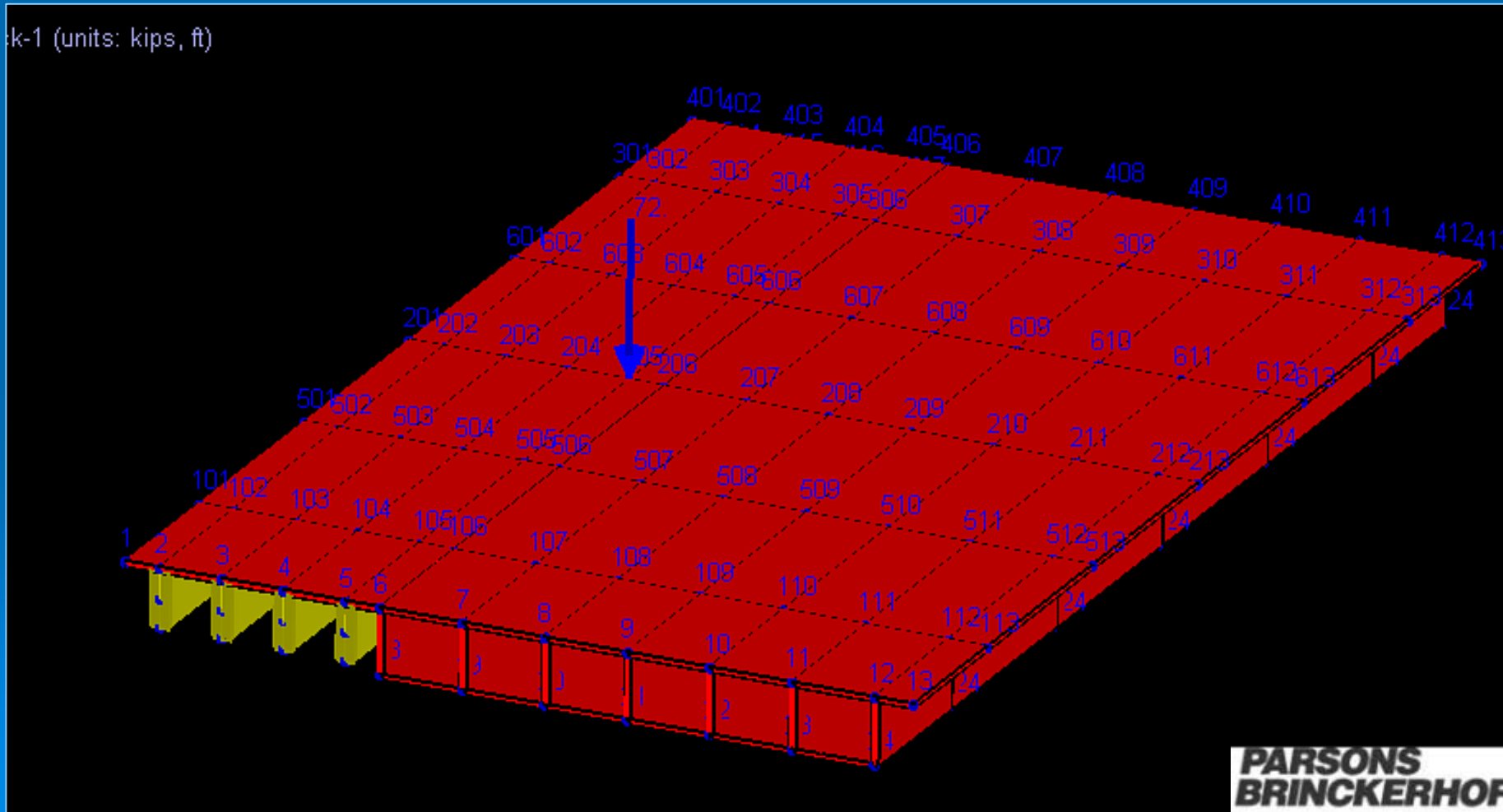
LEGEND:

- INDICATES EXISTING DRAIN INLET
- BRIDGE LUMINAIRE
- INDICATES EXISTING STRUCTURE
- INDICATES DIRECTION OF TRAFFIC
- ⊕ MINIMUM VERTICAL CLEARANCE
- ⊕ EXISTING MANHOLE
- ⊕ EXISTING MANHOLE TO BE WELDED AROUND
- ACCESS DOOR



Service Performance

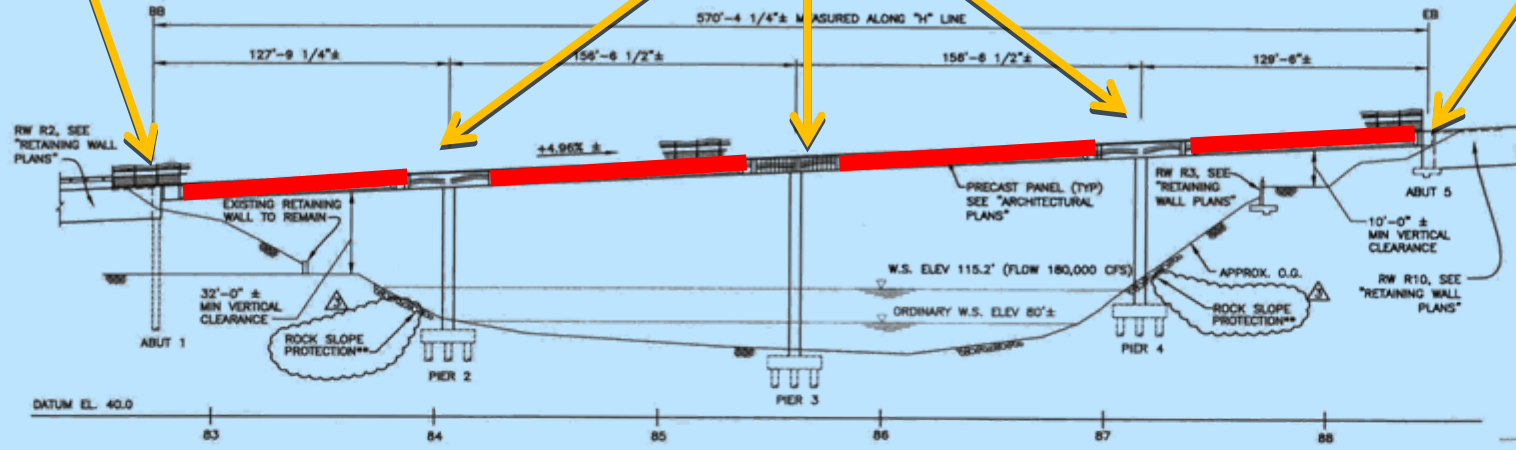
- Relative stiffness of existing & widen bridge



Fixed

CIP Section

Expansion



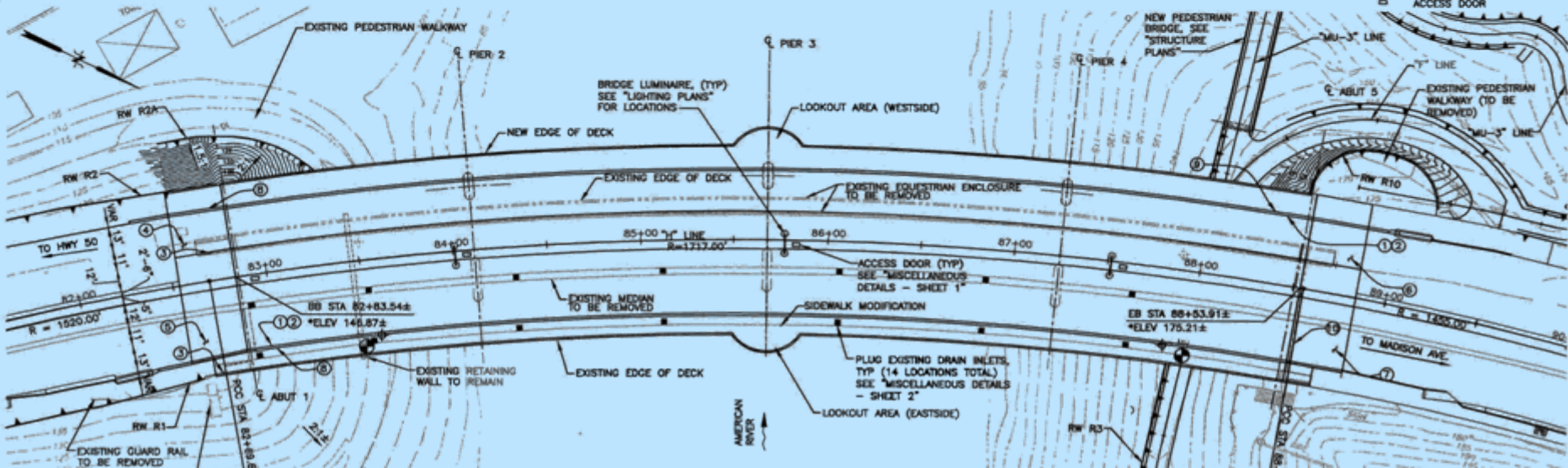
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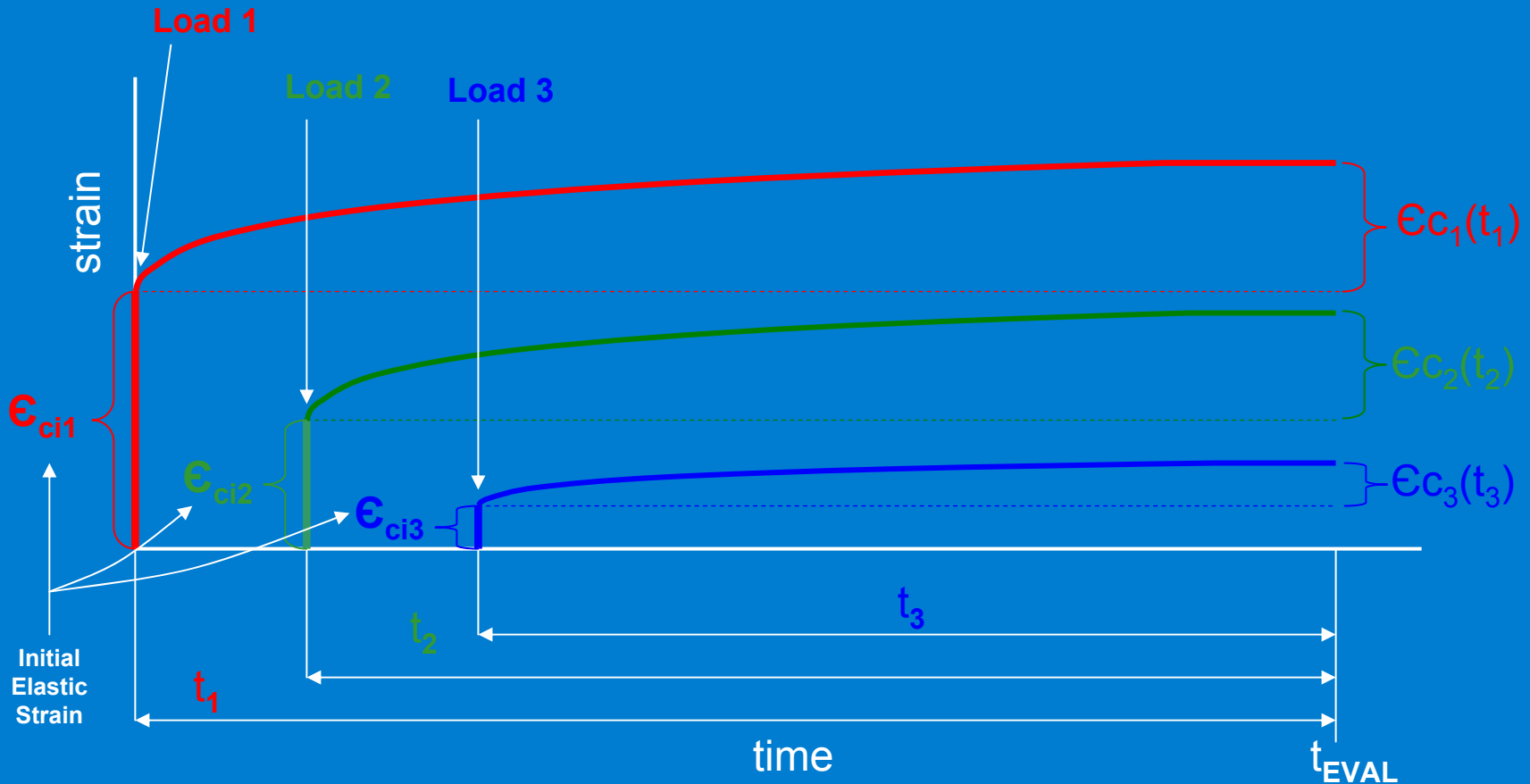
Load 1 = Pre-Tensioning

Load 2 = Stage 1 Post-Tensioning

Load 3 = Stage 2 Post-Tensioning

Service Performance

$$\text{Creep strain} = \epsilon_c (t_{\text{EVAL}}) = \epsilon_{c_1}(t_1) + \epsilon_{c_2}(t_2) + \epsilon_{c_3}(t_3)$$

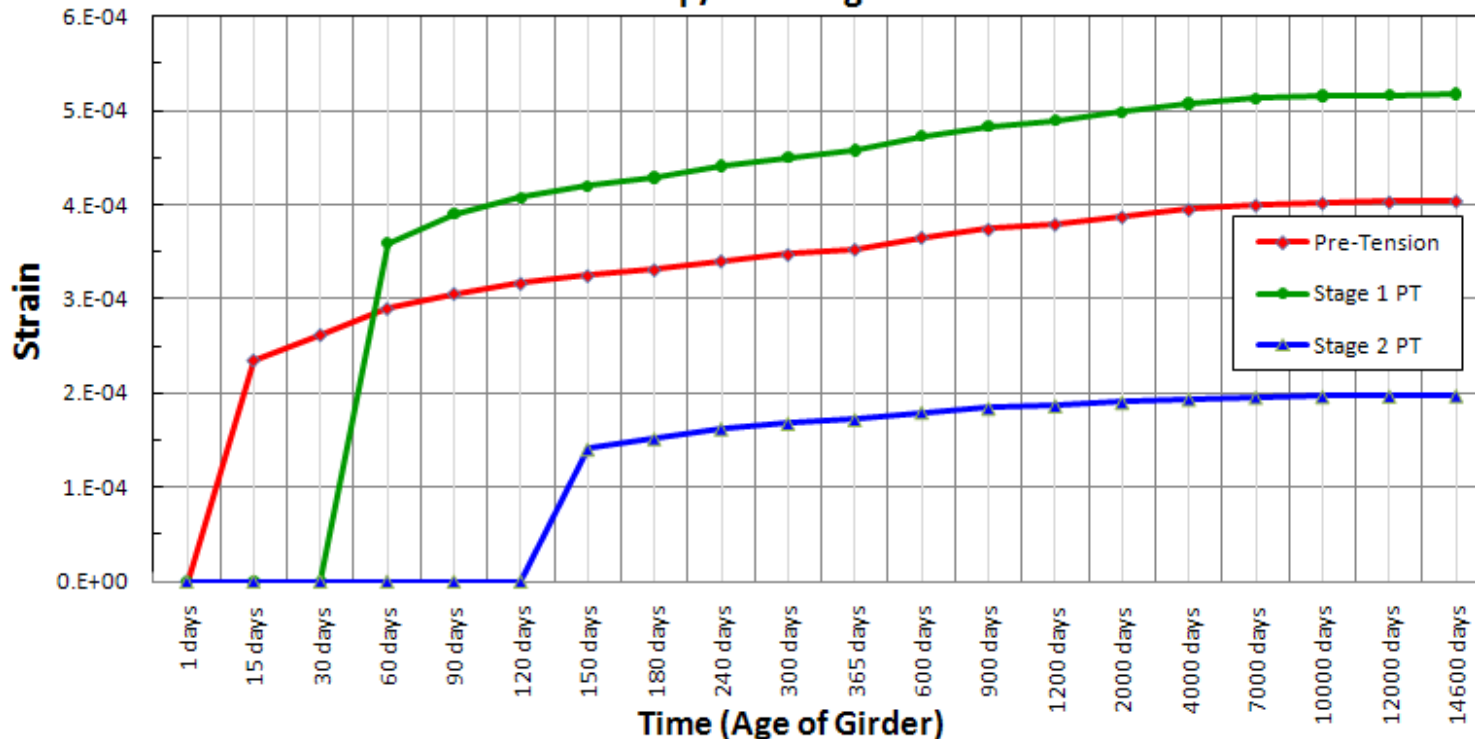


Service Performance

➤ Creep & Shrinkage

- During Construction
- During Service Life

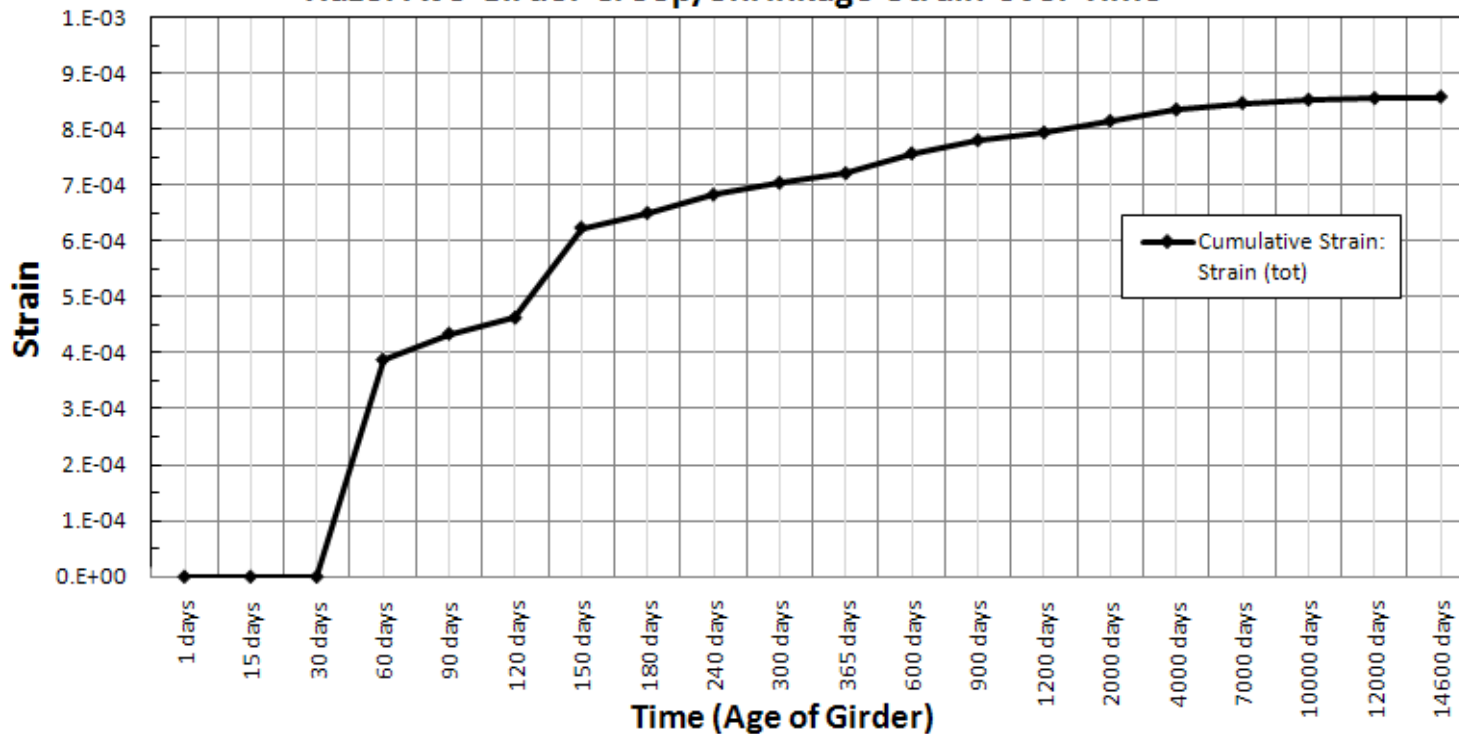
Hazel Ave Girder Creep/Shrinkage Strain over Time



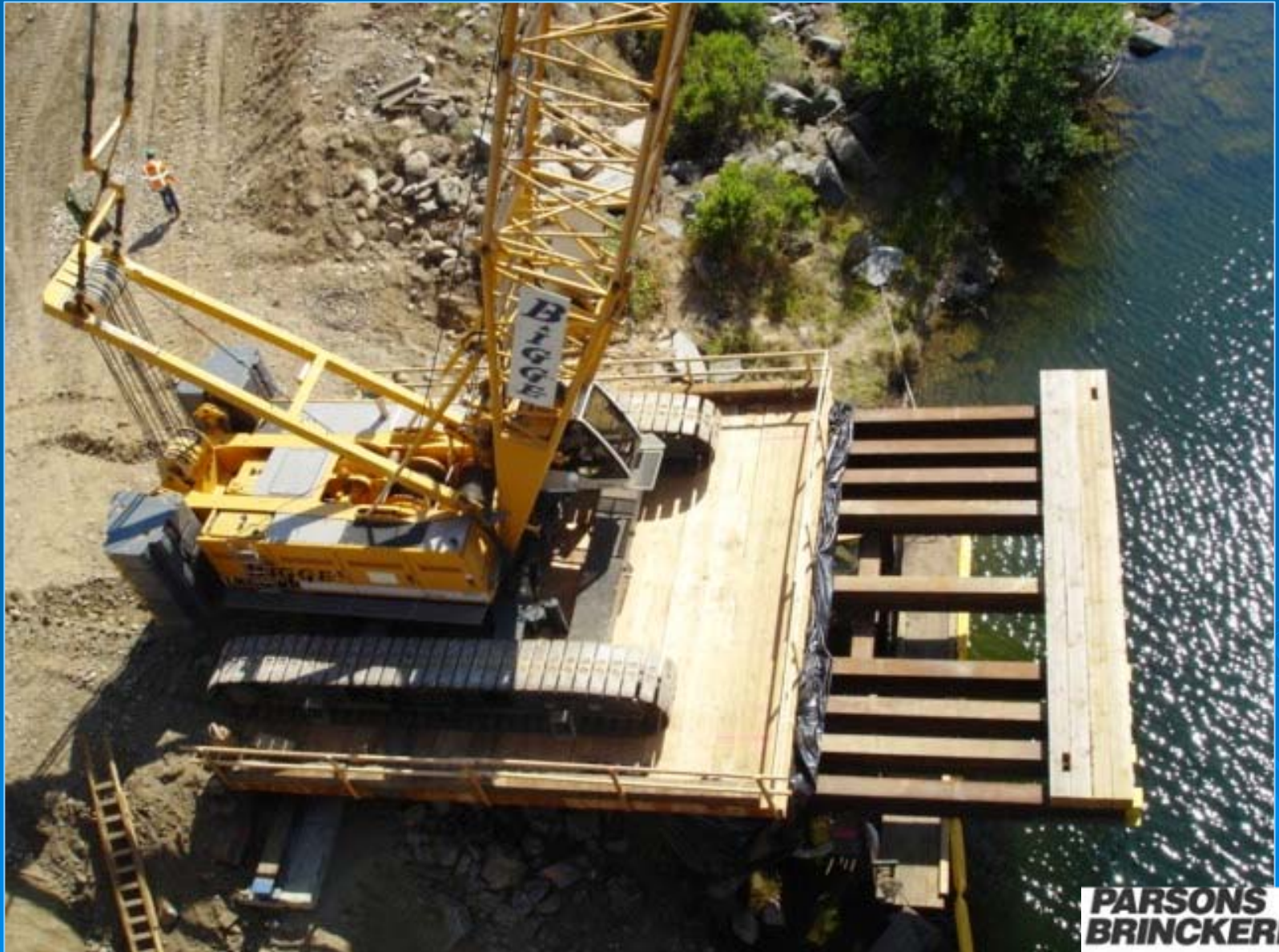
Service Performance

Creep & Shrinkage

Hazel Ave Girder Creep/Shrinkage Strain over Time



Trestle Construction



Trestle Construction





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Coffer Dam



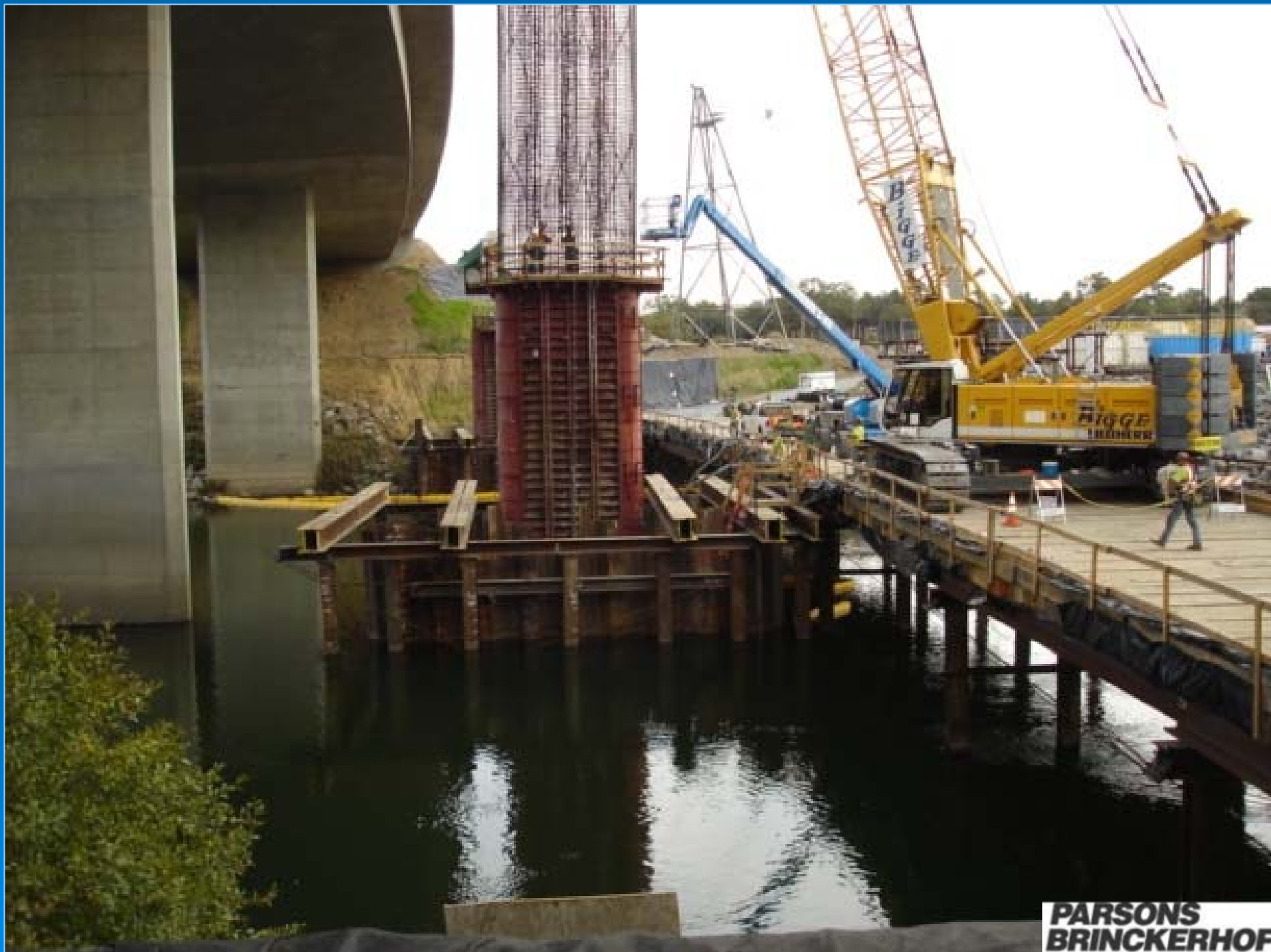


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Q&A

END

