



# **RIVERSIDE DRIVE VIADUCT REPLACEMENT OVER LOS ANGELES RIVER PROJECT**

**WESTERN BRIDGE ENGINEERS SEMINAR 2017**

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# Riverside Drive Viaduct Replacement Over Los Angeles River



## INTRODUCTION

- **Project Location:** The Riverside Drive Viaduct Replacement is located on Riverside Drive at Los Angeles River crossing in the City of Los Angeles.
- **Main Purpose:**
  - Replace existing two-lane viaduct with a two lane, standard curve viaduct with turning radius of 350 feet.
  - Add protected lane for pedestrians and bicyclists
  - Construct City of Los Angeles' first roundabout at the east approach



# Riverside Drive Viaduct Replacement Over Los Angeles River

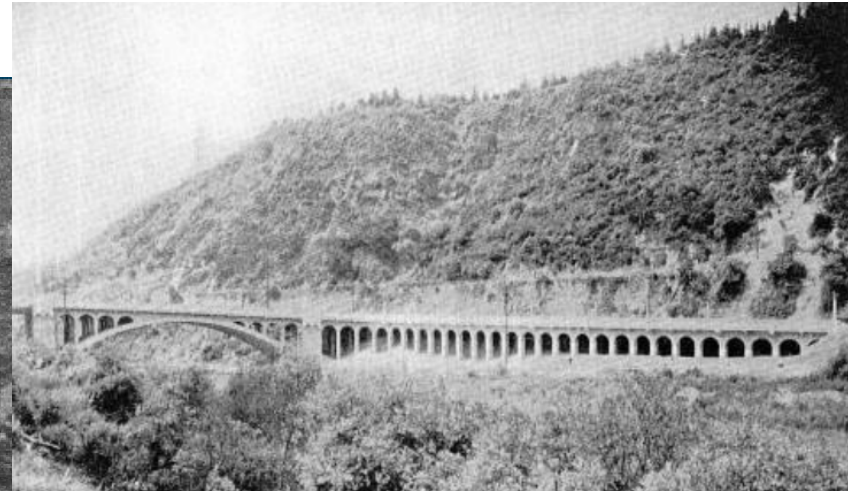




# Riverside Drive Viaduct Replacement Over Los Angeles River



Riverside Drive Bridge  
Concrete Arch Span (1927)





# Riverside Drive Viaduct Replacement Over Los Angeles River



- Elysian Park landslide destroyed most of concrete arch span in 1937
- Steel truss support with concrete deck built in 1939



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Existing Riverside Drive Bridge

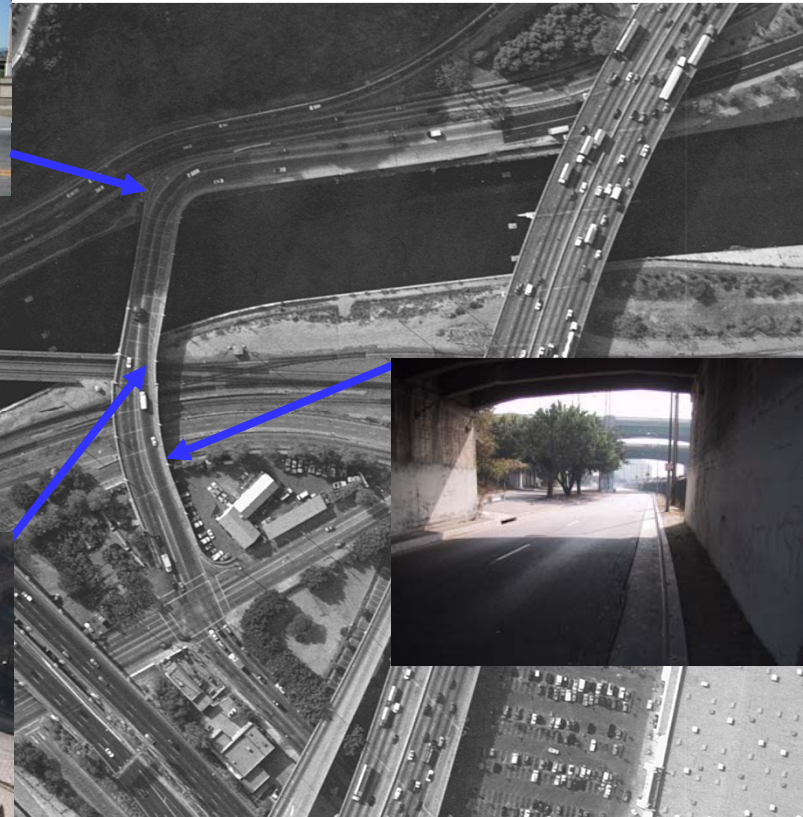




# Riverside Drive Viaduct Replacement Over Los Angeles River



## Existing Riverside Drive Bridge



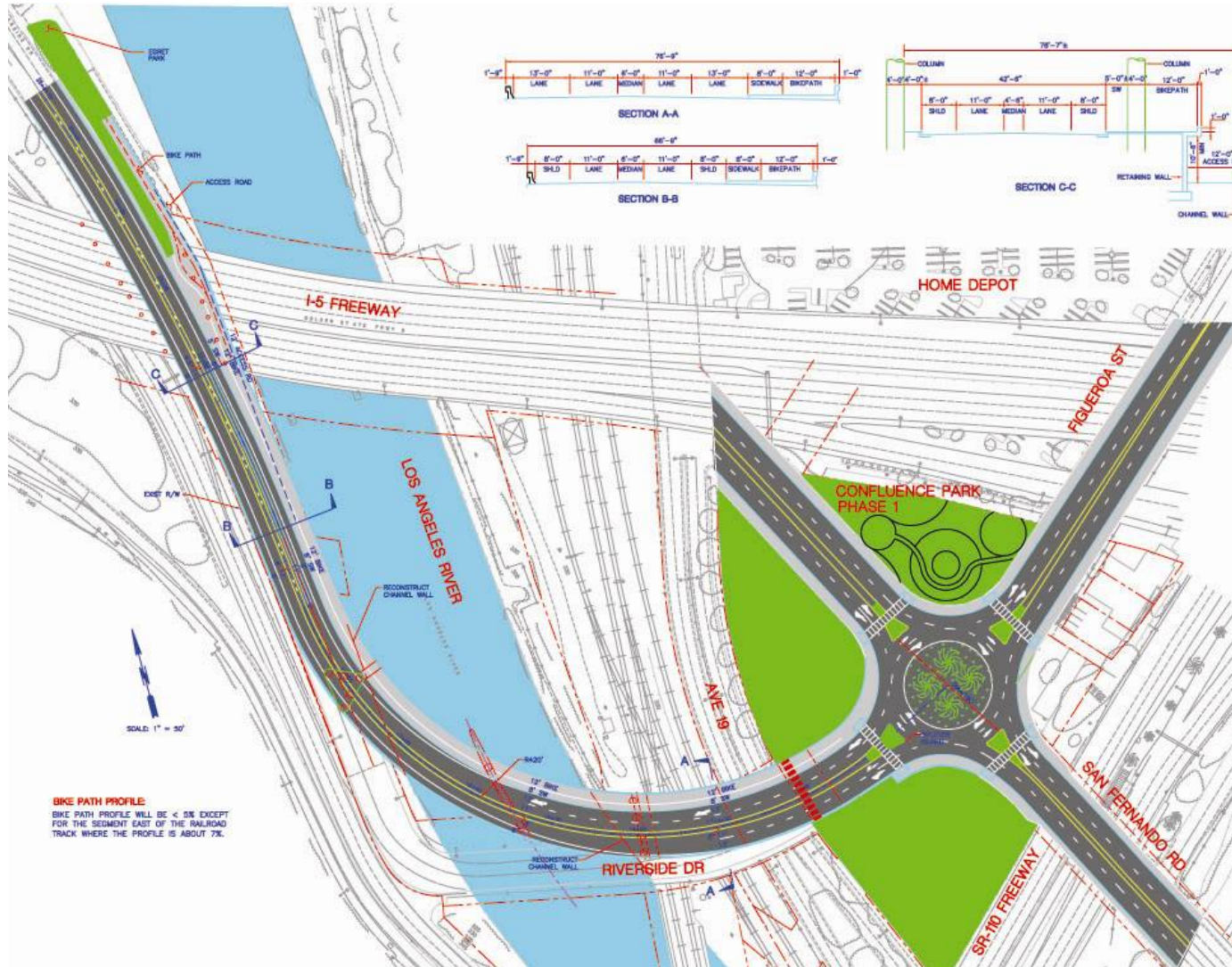
1. Sharp Corner Turn
2. Substandard Roadway Clearance
3. Substandard Bikeway (Gap in Los Angeles River Bikeway)



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Project Plan



1. Gentle Curve
2. Bike Path
3. Roundabout
4. Neighborhood Enhancement

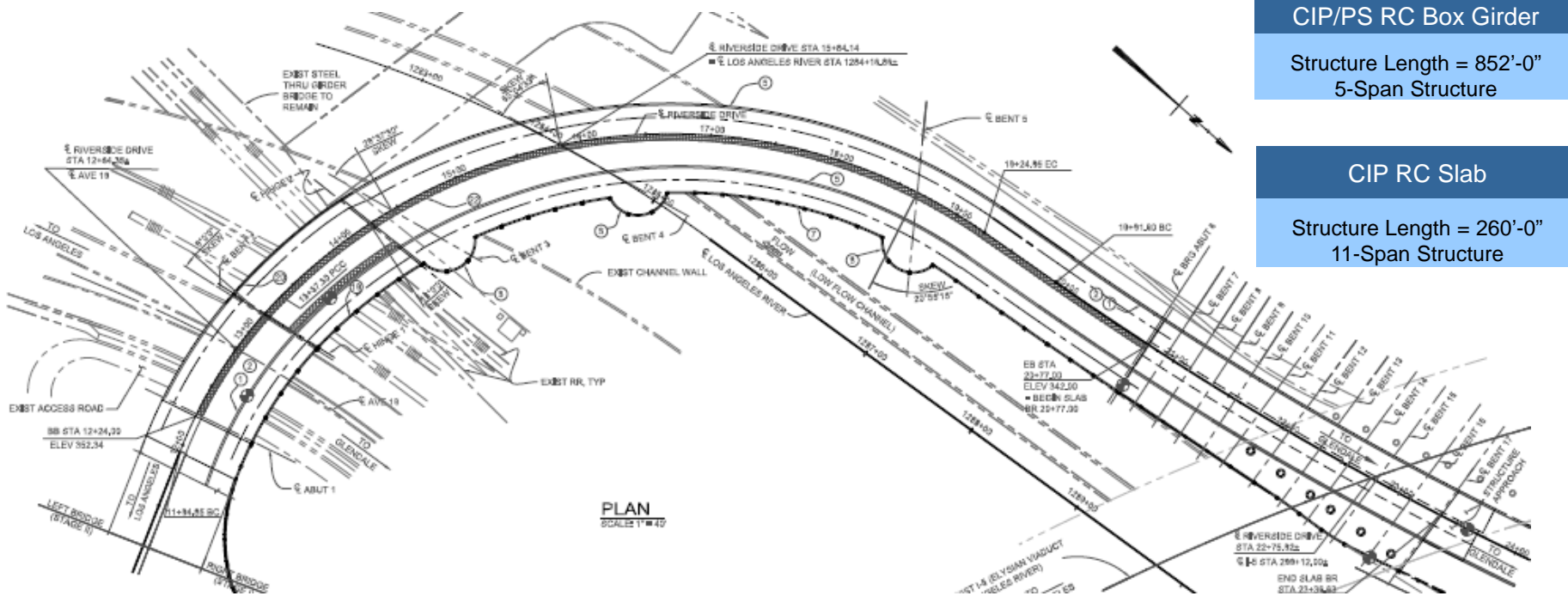
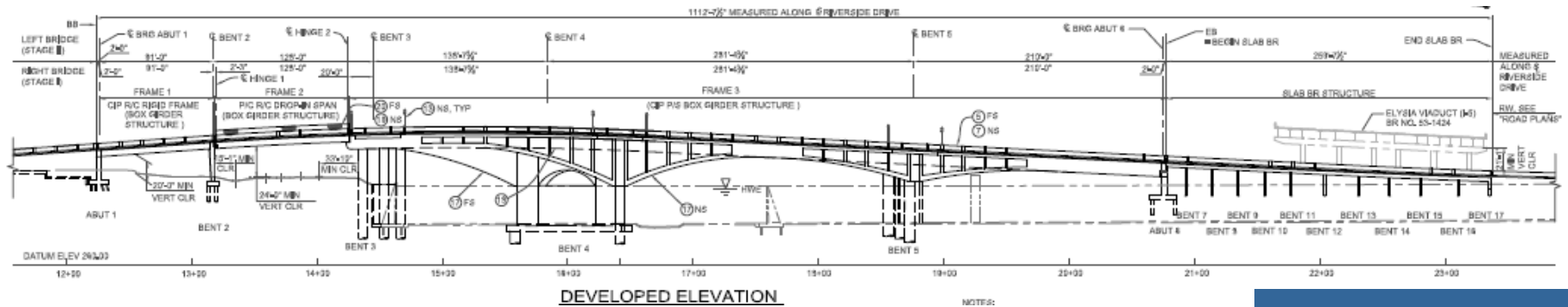




# Riverside Drive Viaduct Replacement Over Los Angeles River



## Bridge General Plan



CIP/PS RC Box Girder  
Structure Length = 852'-0"  
5-Span Structure

CIP RC Slab  
Structure Length = 260'-0"  
11-Span Structure

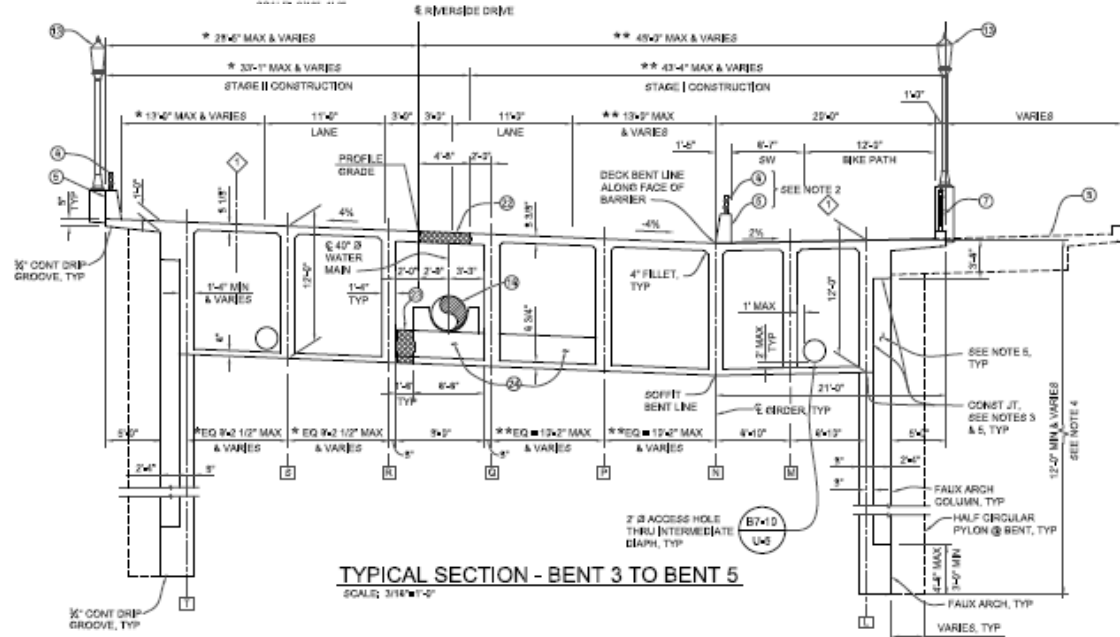
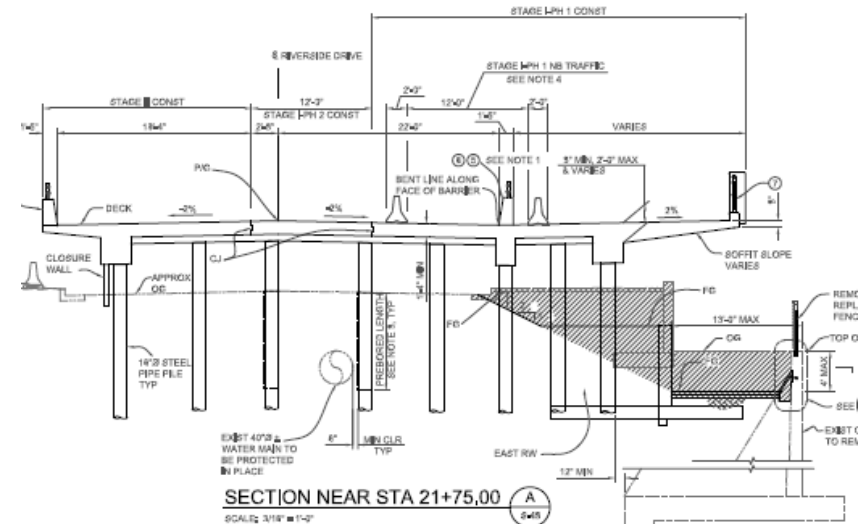
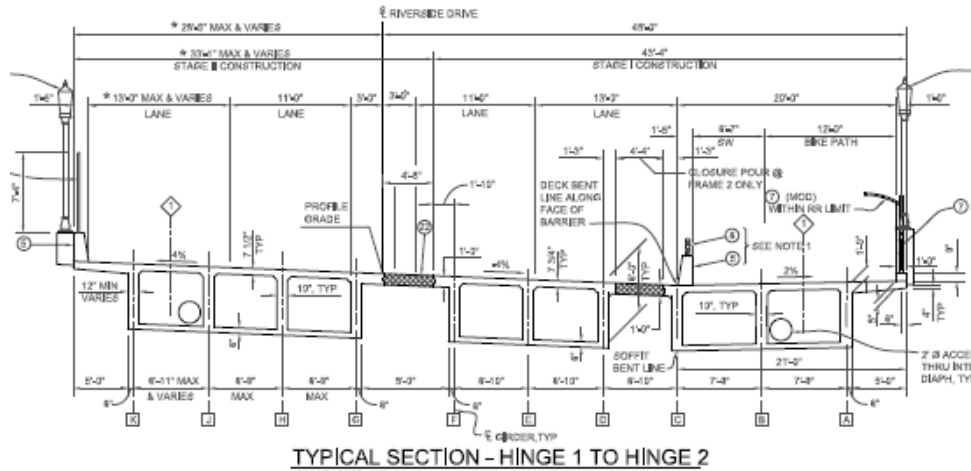
PLAN  
SCALE: 1" = 40'



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Bridge Typical Sections



**Superstructure**

- CIP/PS Concrete Box Girder**  
Structure Depth = 6'-0" (Span 1 & 2)  
Structure Depth = 12'-0" (Span 3 thru 5)
- CIP Concrete Slab**  
Structure Depth = 1'-4" Min  
(Span 6 thru Span 16)



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Barrier Protected Pedestrian Bike Path





# Riverside Drive Viaduct Replacement Over Los Angeles River



## Protected Chain Link Fence

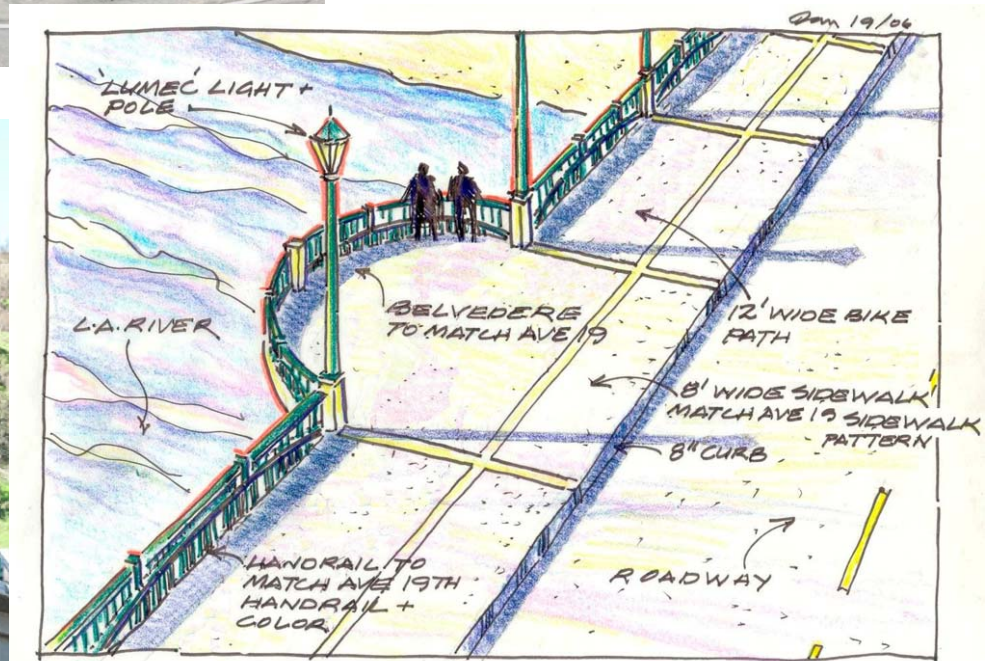




# Riverside Drive Viaduct Replacement Over Los Angeles River



## Bridge Deck Belvedere





# Riverside Drive Viaduct Replacement Over Los Angeles River



## Faux Arch Exterior Girder





# Riverside Drive Viaduct Replacement Over Los Angeles River



## Arch Shaped Pier Wall





# Riverside Drive Viaduct Replacement Over Los Angeles River



## 40" Water Line Replacement







# Riverside Drive Viaduct Replacement Over Los Angeles River



## Isolation Casing for I-5 Overpass

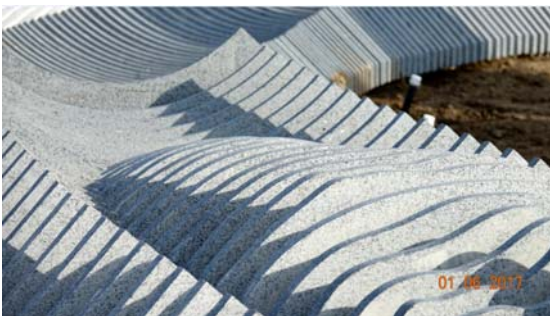




# Riverside Drive Viaduct Replacement Over Los Angeles River



## Roundabout with Giant Egg Sculptures





# Riverside Drive Viaduct Replacement Over Los Angeles River



## Roundabout with Giant Egg Sculptures



Los Angeles Mayor  
Mr. Eric Garcetti



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Extensive Coordination with Various Agencies

- California Department of Transportation (Caltrans)
- California Department of Fish and Wildlife
- California State Water Resources Control Board
- Army Corps of Engineers
- Los Angeles County
- Los Angeles Department of Water and Power
- Metrolink - Southern California Regional Rail Authority (SCRRA)



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Utilities

- 40” Water Line Replacement
- Protected 20” Active Oil Line and Fiber Optic Line Adjacent to Bent 3
- Underground All Power Line on Street through Bridge
- Installed Isolation Casing for I-5 Overpass
- Replaced AT&T Lines



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Bridge Geometric Challenges

- On Curve, Superelevated, Constructed in Stages
- Maintaining Vehicular and Pedestrian Traffic at All Times



Stage One Under Construction



Stage One Open To Traffic



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Construction Schedule Constraints

- Six months in dry season from April 15th to October 15th



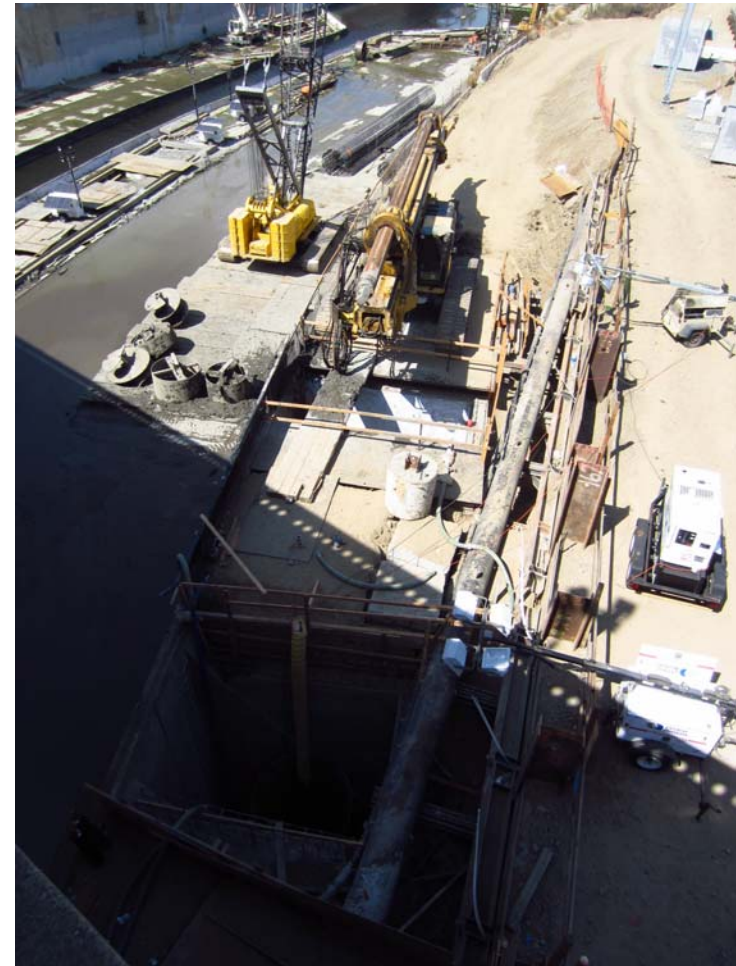


# Riverside Drive Viaduct Replacement Over Los Angeles River



## Bent 3 Construction

- Adjacent RR Track, Utilities & Channel Wall







# Riverside Drive Viaduct Replacement Over Los Angeles River



## Bent 4 Construction

- 10' CIDH Pile
- Six Months Dry Season Construction



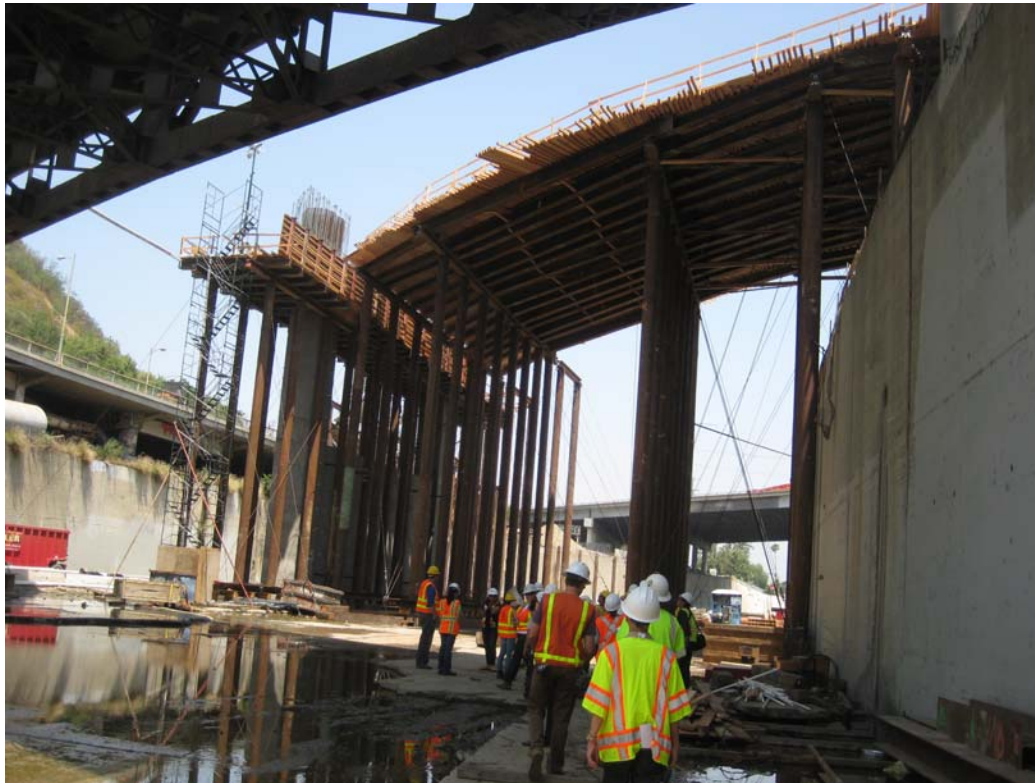


# Riverside Drive Viaduct Replacement Over Los Angeles River



## Bent 4 Construction

- 10' CIDH Pile
- Six Months Dry Season Construction





# Riverside Drive Viaduct Replacement Over Los Angeles River



## Bent 5 Construction

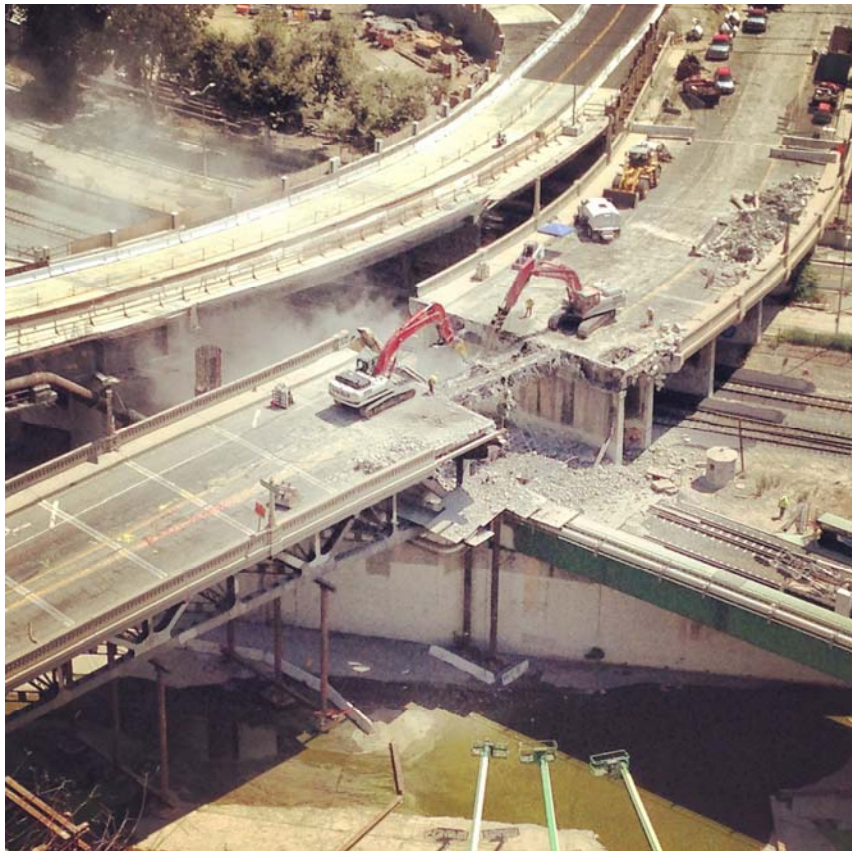




# Riverside Drive Viaduct Replacement Over Los Angeles River



## Existing Bridge Removal





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## Existing Bridge Removal

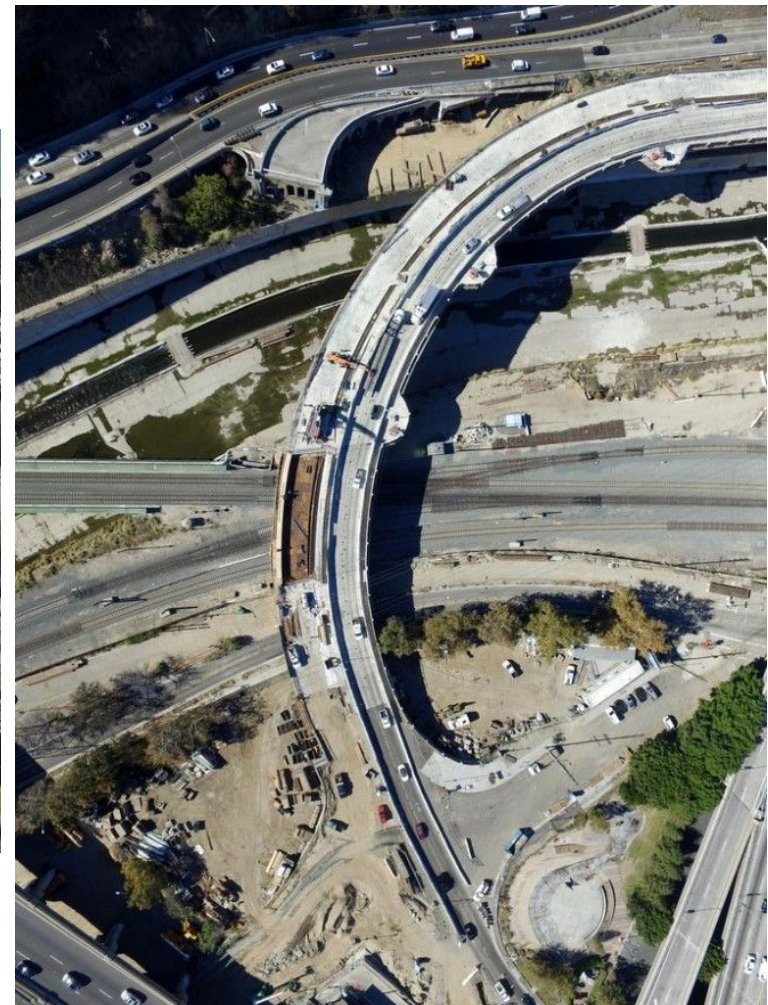




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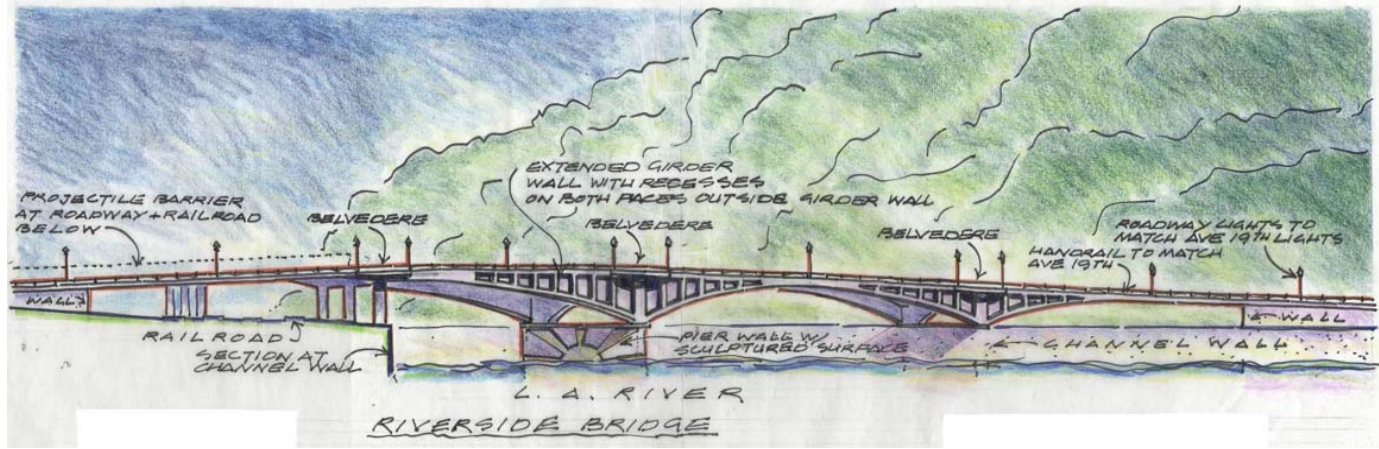


Stage 2 Construction Similar to Stage 1 Construction





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Bridge Opening January 2017



# Riverside Drive Viaduct Replacement Over Los Angeles River



## Thank you

*Q & A*

*Email: [jwang@hntb.com](mailto:jwang@hntb.com) for Additional Questions*