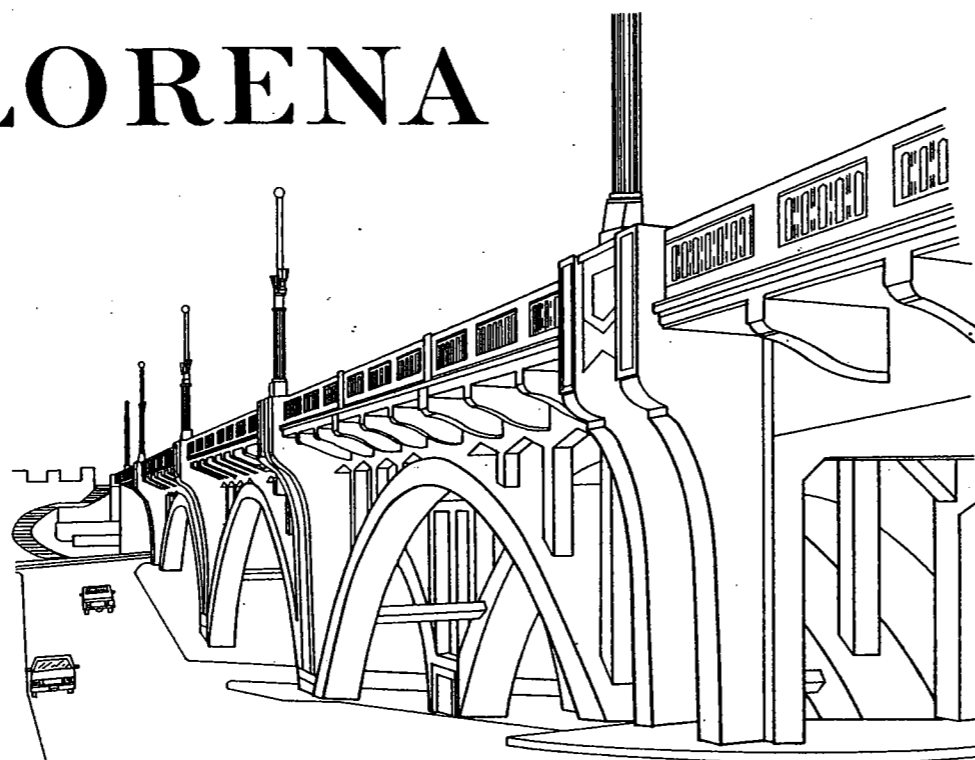


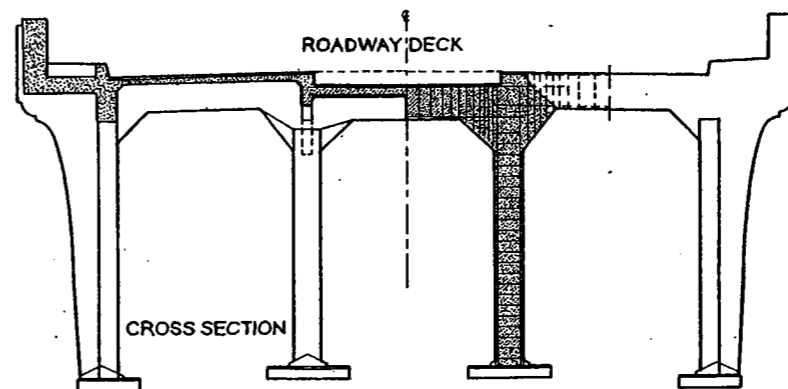
4TH STREET BRIDGE OVER LORENA

4th Street over Lorena

The Boyle Heights neighborhood east of the Los Angeles River was just beginning to develop when the Fourth Street Bridge over Lorena Street was authorized by the Viaduct Bond Act of 1924. Two considerations mandated its construction: safety - the elimination of a narrow unpaved road across a steep ravine - and traffic. Turning the bridge at a right angle onto Lorena Street gave motorists a quick connection to Whittier Boulevard, the only artery for traffic traveling east to the South San Gabriel Valley and San Bernardino County.



Perspective

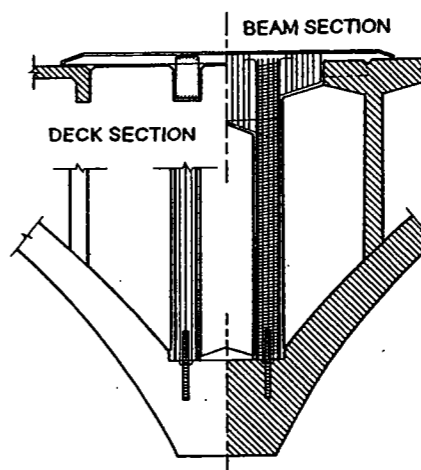


CROSS SECTION

Sesimic Retrofit

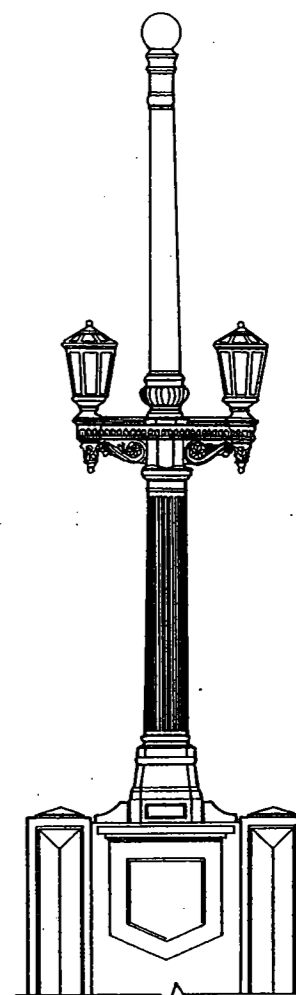
Scale: 1/8"=1'-0"

At the center of Piers 1 & 2, a 30 ft. long by 20 ft. wide section across the concrete roadway deck, along with supporting concrete beams, cross girders and interior pier columns, are replaced cast-in-place reinforced concrete columns. The Pier retrofit, with the elimination of 4-1/2" expansion joints, increased the bridge's longitudinal & transverse capacity.



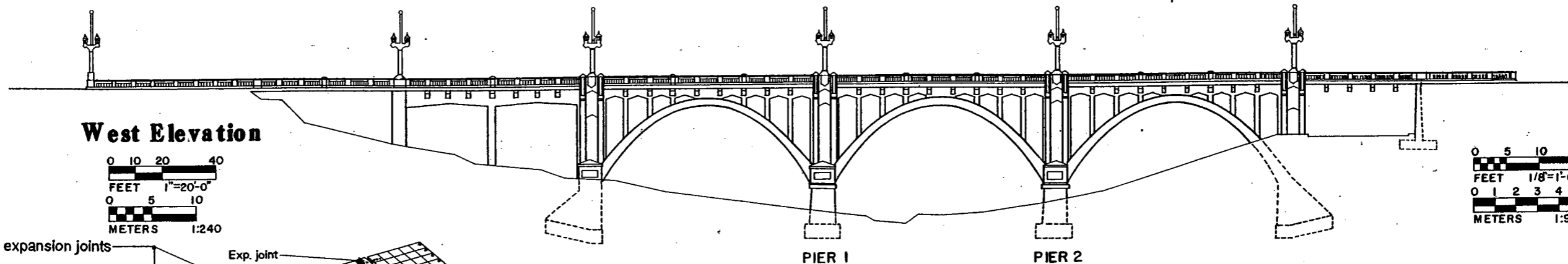
BEAM SECTION

DECK SECTION

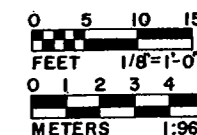
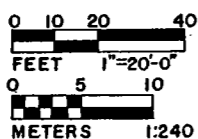


Pylon Light

Scale: 3/8"=1'-0"



West Elevation



Eliminated expansion joints

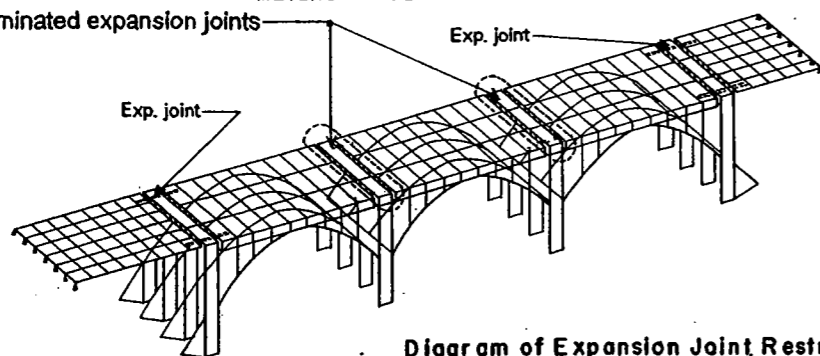


Diagram of Expansion Joint Restrainers.

Two major strategies were employed to strengthen the bridge to withstand a major seismic event: First, eight new interior pier columns were replaced. Second, 16 high-strength steel cable restrainers were provided - 4

at each arch pier - to keep the structure tied together, restraining longitudinal movement and preventing deflection from column seats. The sidewalk was also replaced due to major spalling damage.

Seismic Retrofit Legend	
	Column Replacement
	Restrainers
	Sidewalk Replacement



DELINEATED BY: DAVID GREENWOOD - 2000
LOS ANGELES RIVER BRIDGES
RECORDING PROJECT
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

4TH STREET BRIDGE 1928
LOS ANGELES COUNTY

HISTORIC AMERICAN
ENGINEERING RECORD
CA-279

SHEET
1 of 1

CALIFORNIA

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