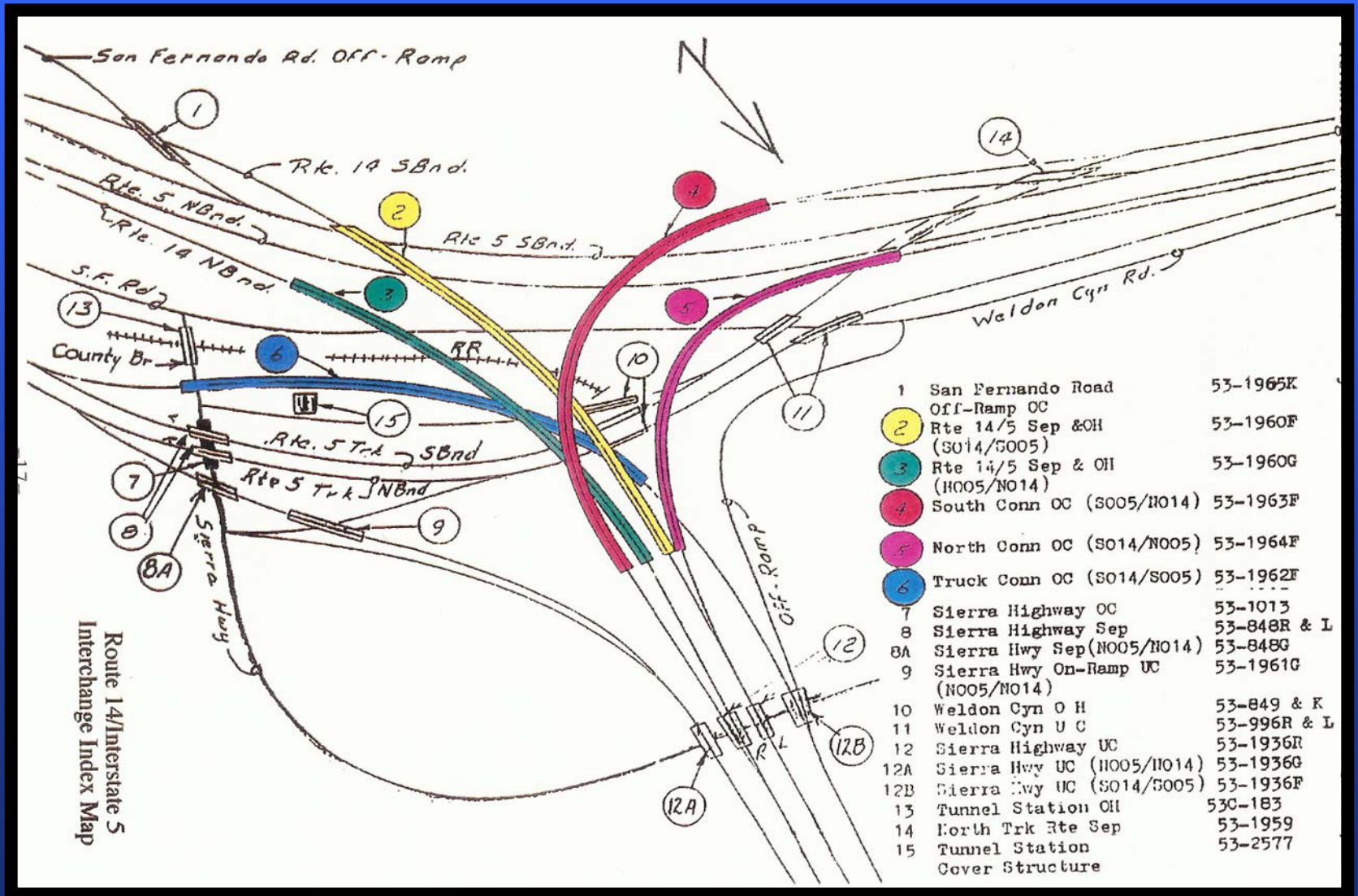


# **A case history and construction constraints**

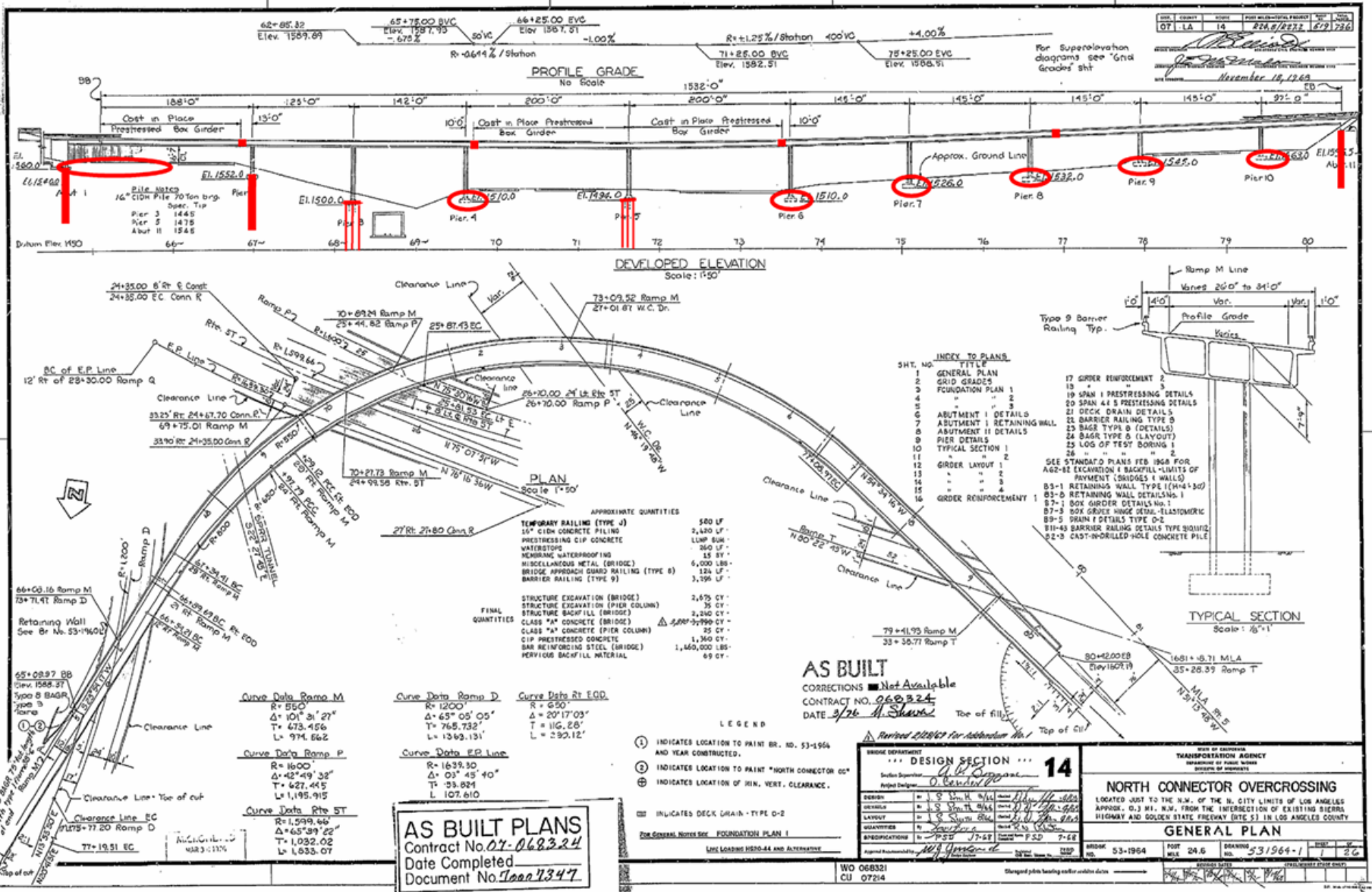
**Mark DeSalvatore**

# 5 / 14 Interchange



Route 14/Interstate 5  
 Interchange Index Map

- |     |                                   |             |
|-----|-----------------------------------|-------------|
| 1   | San Fernando Road Off-Ramp OC     | 53-1965K    |
| 2   | Rte 14/5 Sep & OH (SO14/SO05)     | 53-1960F    |
| 3   | Rte 14/5 Sep & OH (HO05/NO14)     | 53-1960G    |
| 4   | South Conn OC (SO05/NO14)         | 53-1963F    |
| 5   | North Conn OC (SO14/NO05)         | 53-1964F    |
| 6   | Truck Conn OC (SO14/SO05)         | 53-1962F    |
| 7   | Sierra Highway OC                 | 53-1013     |
| 8   | Sierra Highway Sep                | 53-848R & L |
| 8A  | Sierra Hwy Sep (NO05/NO14)        | 53-848G     |
| 9   | Sierra Hwy On-Ramp UC (NO05/NO14) | 53-1961G    |
| 10  | Weldon Cyn O H                    | 53-849 & K  |
| 11  | Weldon Cyn U C                    | 53-996R & L |
| 12  | Sierra Highway UC                 | 53-1936R    |
| 12A | Sierra Hwy UC (HO05/NO14)         | 53-1936G    |
| 12B | Sierra Hwy UC (SO14/SO05)         | 53-1936F    |
| 13  | Tunnel Station OH                 | 53C-183     |
| 14  | North Trk Rte Sep                 | 53-1959     |
| 15  | Tunnel Station Cover Structure    | 53-2577     |

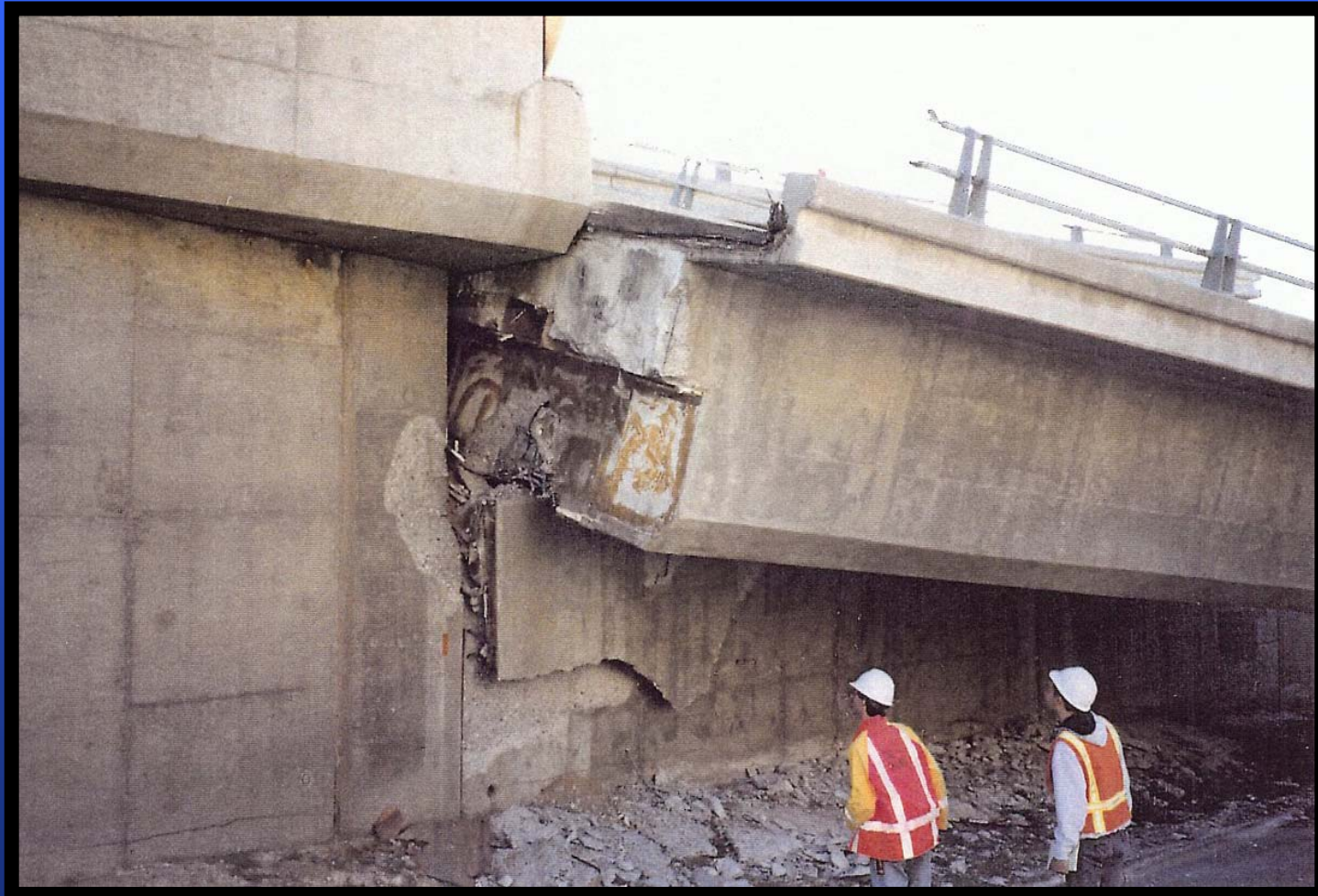




# 14/5 North Connector - Frames 1 & 2

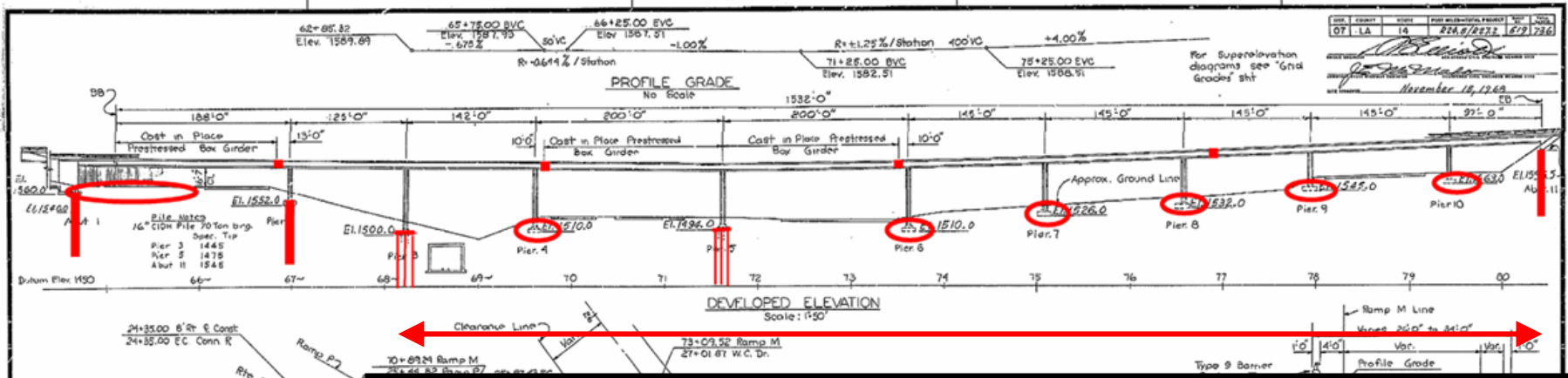


# 14/5 North Connector – Abutment 1

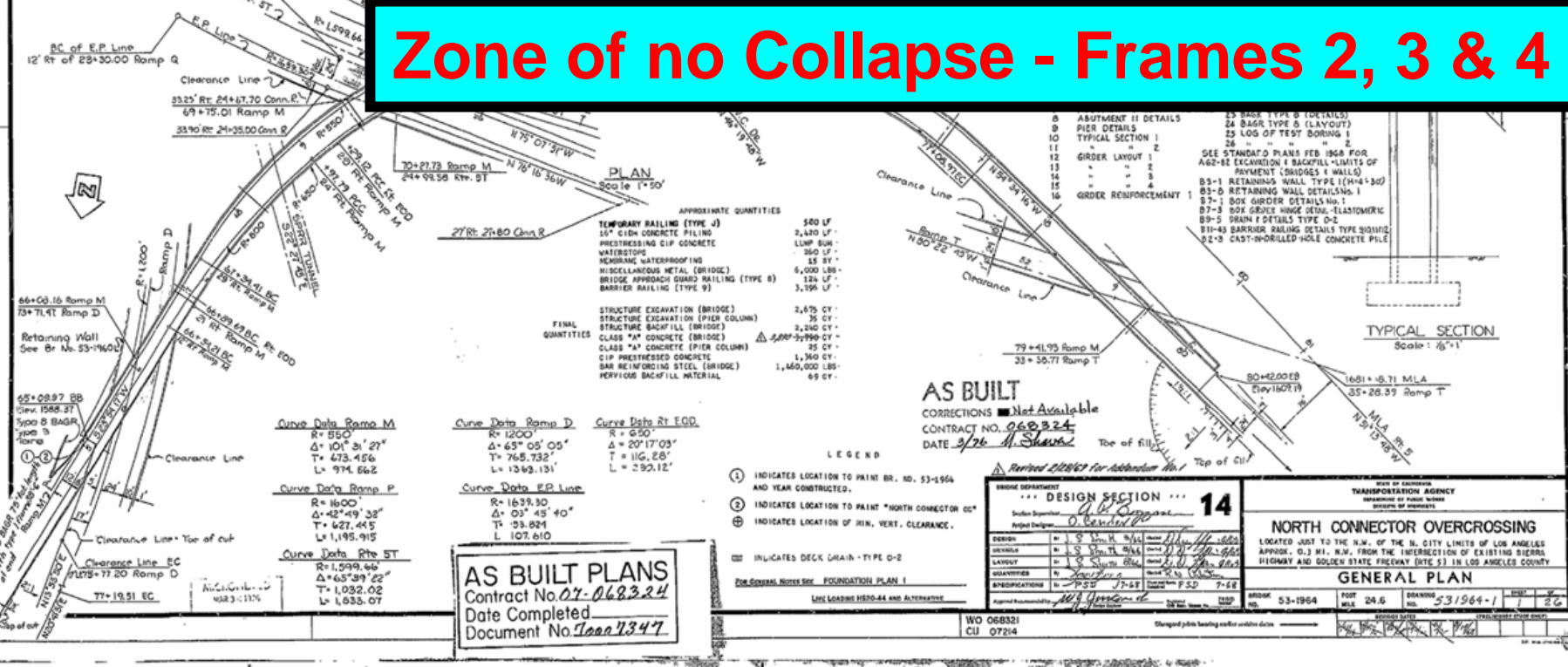


# 14/5 North Connector – Hinge 1 & Pier 2





**Zone of no Collapse - Frames 2, 3 & 4**



**AS BUILT PLANS**  
Contract No. 07-068324  
Date Completed  
Document No. 10007347

**AS BUILT**  
CORRECTIONS  Not Available  
CONTRACT NO. 068324  
DATE 3/7/84 M. Shaw

DESIGN SECTION 14  
NORTH CONNECTOR OVERCROSSING

DESIGNER: D. Bendure  
CHECKED: D. Bendure  
DATE: 11/18/83

TRANSPORTATION AGENCY  
NORTH CONNECTOR OVERCROSSING  
LOCATED JUST TO THE N.W. OF THE N.E. CITY LIMITS OF LOS ANGELES  
APPROX. 0.3 MI. N.W. FROM THE INTERSECTION OF EXISTING SIERRA  
HIGHWAY AND GOLDEN STATE FREEWAY (I-5) IN LOS ANGELES COUNTY

GENERAL PLAN  
SHEET NO. 53-1964  
PORT MILE 24.6  
DRAWING NO. 531964-1  
DATE 11/83





# **Current Bridge Design Specification**

## **AASHTO LRFD Bridge Specifications**

**Footing size - Controlled by the 3 Limit States**

- **LRFD - Service Limit State:**
  - **Footing Size is determined by:**
    - **Equivalent uniform contact Pressure**
    - **Allowable Settlement of the Footing**
      - **Caltrans allows 1 or 2 inches**
      - **Can increase the Allowable Settlement**

- **LRFD - Strength Limit State:**
  - **Footing Size is determined by:**
    - **Equivalent uniform contact Pressure**
      - Structure loadings
      - Load Factors
        - » Can Reduce the Load Factors, ( $\gamma$ )
    - **The Ultimate Soil Bearing Capacity, ( $q_{ult}$ )**
      - As Footing size, ( $B$ ) goes down so does –  $q_{ult}$
      - Increase the Design Resistance Factors, ( $\Phi$ )
        - » Values currently used are 0.45 and .50

- **LRFD - Extreme Limit State:**
  - **Footing Size is determined by:**
    - **Load Factors, ( $\gamma$ ) are 1**
    - **Design Resistance Factors, ( $\Phi$ ) are also 1**